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Beyond taste and healthiness:

Establishing the importance and stability of diverse motives for eating and drinking

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Submitted in fulfilment of the requirements
for the degree of Doctor of Philosophy

December 2022

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Abstract

To tackle some of the most pressing challenges of our time, the obesity epidemic and climate change, novel interventions, regulations and public policies are needed to help people shift towards healthier and more sustainable diets. To achieve this goal, it is essential to first fully understand how eating and drinking, both highly complex, multifaceted behaviours, are influenced by internal and external factors. Previous research has typically used unsituated self-report measures at a single timepoint to identify and establish the importance of diverse consumption motives (e.g., habit, health, liking etc.) by averaging across participants, simply presuming relative stability across individuals, eating occasion and time. Consequently, there is a gap in the literature of the underlying intra- and individual differences in food and beverage consumption motivation patterns and their stability across different domains. This thesis' objective is to add to the understanding of consumption motivations, by establishing diverse motives for food and beverage consumption, assessing their stability across eating occasion, time beverages and foods, and exploring intra- and individual differences, using a situated measuring approach.

Chapter 2 establishes a seven-factor framework predicting the consumption frequency of alcoholic and non-alcoholic beverages. Findings show that predictive patterns remain remarkably stable across individual beverages. In contrast, large individual differences occur across participants' predictive patterns, although habit emerged consistently as important. Lastly, participants differ greatly in their perception of the different beverages.

Chapter 3 presents the results of three separate studies with the overarching aim to establish individual's predictive patterns for their consumption frequency and desire of situated foods and beverages and to assess the stability of those patterns across different eating occasions. Study 1 establishes an extensive sample of foods consumed in eight different eating situations in the UK. Study 2 identifies the relevant underlying motives predicting consumption frequency and desire. Lastly, Study 3's results demonstrate (again) large individual differences across individual's predictive patterns, again with the exception of automaticity

which was important for both consumption frequency and desire across participants. Remarkably, findings indicate that individual's predictive patterns remain stable across eating occasions. Little agreement was found between what participants believed to influence their consumption and SAM2s predictive profiles, potentially indicating that participants have little insight into what predicts their consumption.

The empirical work presented in Chapter 4 expands on the findings in Chapter 3 by assessing consumption motivations of diverse food groups across a two-week timespan. Findings show the occurrence of learning effects for some of the predictors, meaning the association between consumption and the predictors increases overtime. In contrast, consumption motivations remain stable over time. As in Chapter 3 and 4 large individual differences occur in predictive patterns as well as participants perception of the diverse food groups, although (again) automaticity emerges as most important across participants. Lastly, again little agreement was found between what participants believed to predict their consumption and SAM^2s findings.

Finally, in Chapter 5 the key theoretical and practical implications of this work are discussed, particularly in how the findings relate back to the grounded cognition theory and the wider literature. Lastly, the strength and limitations of the empirical work are presented, and potential future research avenues reviewed.

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Research Output

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Chapter 4 – Werner, J., Kloidt, J., & Barsalou, L. (2022, November 30). Assessing individual motivation for consuming diverse food groups over a two-week period. https://doi.org/10.31234/osf.io/4d9xq

Contributorship Statement

For each empirical chapter the contributions of each author in accordance with the Contributor Roles Taxonomy (CrediT) are listed below:

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LB: Conceptualisation, Methodology, Formal Analysis, Writing – Review & Editing, Supervision;

Abbreviations

DFMQ-R	Drinking Motive Questionnaire Revised
FCMs	Food Choice Motives
G-Theory	Generalizability Theory
MCCQ	Motives for Caffeine Consumption Questionnaire
PEMS	Palatable Eating Motive Scale
SAM^2	Situated Assessment Method
SUS-FCQ	Sustainable Food Choice Questionnaire
TEMS	The Eating Motive Survey

Chapter 1 General introduction

No matter where on the planet, no matter what time in history, from the day a human is born to the day of their death, one of the few universal constants of life that remain unchanged is the need to consume food and drink. Precise data still pending, it is estimated that the average human can only survive a few days without water and about a month without food. Indeed, even a continuous lack of just adequate nutrition (quantitative as well as qualitative deficiency) may lead to malnourishment or undernutrition. When experienced in childhood both, malnourishment or undernutrition, may cause severe and potentially long-lasting negative health problems in adulthood such as hypertension (Martins et al., 2011).

On the opposite extreme, consistent overconsumption of calories, through food or beverages, leads to an increase in body weight (Gibson, 2008) due to adipose cells acting as storage for the in excess consumed energy (Cohen & Spiegelman, 2016). This once evolutionary beneficial process of preparing for times without a sufficient food supply, may lead in modern food environments, defined by constant access of highly palatable and caloric foods, to a continuous increase of bodyweight overtime, leading, without efficient counteractive measures such an increase in physical activity, to obesity (Gibson, 2008; Traversy & Chaput, 2015). Obesity remains one of the major risk factors for various non-commutable diseases worldwide, e.g., cardiovascular diseases and certain kind of cancer (Calle & Kaaks, 2004; World Health Organization, 2003). In 2015, obesity accounted for 6% of cancers in the UK, making it the second biggest preventable-risk factor after smoking (Brown et al., 2018). In their 2019 Health report, the NHS estimates that 68% of men and 60% of women aged over 16 in the UK are classified as either overweight or obese (Health Survey for England 2019 [NS], 2020). These extremely high numbers emphasize that obesity is not only a personal problem affecting an individual's health and life quality but moreover, through its associated diseases, a public health issue, putting extra pressure on health services (Allender & Rayner, 2007).

To tackle obesity on the population level, the devolved UK governments have all implemented various public health policies, including campaigns to increase public health awareness by promoting the benefits of healthy foods and physical activity, combatting childhood obesity, e.g., banning advertisement of unhealthy foods during children's TV programs or setting quality standards for school meals), and financial incentive policies, e.g., the "sugar tax" on beverages (Musingarimi, 2009). However, these policies do not seem to result in the much needed, large scale changes, e.g., despite various health campaigns still not everyone's diet meets the recommended daily amounts of five handful of fruit and vegetables (Appleton et al., 2018; Stroebele-Benschop et al., 2018). Similarly, besides the large number of and variety of individual weight loss programs ranging from calorie restriction, to therapy, to group settings to, in extreme cases, surgery, most dieters struggle to maintain long-term weight loss (Wing & Phelan, 2005).

Beyond having an effect on an individual's body weight, the types of foods people consume (or not consume) on a daily basis may affect their physical health (Willett, 1994) and may additionally impact their mental health (El Ansari et al., 2014; Firth et al., 2020) as well as their cognition (Spencer et al., 2017). A diet low in omega-3 polyunsaturated fatty acids, contained for instance in fish, has been identified as associated with an increased risk of depression (Spencer et al., 2017). Similarly, but on a more positive note, growing evidence also suggests that a high quality diet, rich in fruit and vegetables, might act as a protection against age related cognitive decline (Smyth et al., 2015; Spencer et al., 2017).

Lastly, food not only impacts an individual's health outcomes and life quality, but furthermore directly affects planetary health (Birt et al., 2017). Meat and dairy production in particular are important contributors to global greenhouse emissions (O'Mara, 2011). However, consumer research shows that there are some individuals still incredulous of the connection between climate change and animal farming (Malek et al., 2019). This is problematic as, in order to shift towards a sustainable diet, people will have to decrease their meat consumption in favour of plant-based diets (Sabaté & Soret, 2014) e.g., by the adoption of alternative proteins such as pulses, algae and insects (Onwezen et al., 2021).

Consequently, a growing number of research attempts to identify motives related to sustainable behaviour, in the hope of developing new, and improving existing, behaviour change methods to help individuals to shift towards more sustainable diets, e.g., nudging (for a review see Abrahamse, 2020).

In summary to tackle both the obesity epidemic, poor nutrition outcomes and climate change on the individual and population level, novel interventions, regulations and public policies are required to facilitate and accelerate the required behaviour change towards healthier and more sustainable diets. To discover those new methods, it is first important to fully understand consumption behaviour together with all its influencing factors. This requires establishing the underlying motives of eating and drinking behaviour, how these might differ between individuals as well as other potentially important influences, e.g., individual differences (socio economic status, personality factors etc.) and situational context (food environment, eating occasion, etc.).

Intake of both food and beverages is regulated by physiological signals and orchestrated by several different hormones. The ability to recognize such physical signals appears to differ greatly between individuals and is associated with a general interoceptive awareness (Palascha et al., 2021), providing a first hint into how considerably people differ from one another in the domains of eating and drinking. Ghrelin, besides other important functions, acts as “hunger hormone”, providing feedback on the body’s current fuel level to the central nervous system to encourage, if needed, the consumption of food (Müller et al., 2015). The higher the Ghrelin level in the blood plasma, the greater the experienced physical hunger signals (Cummings et al., 2004). Leptin in turn, has the opposite effect, indicating to the nervous system to stop consumption when the ingested food reaches satiation level (Cousino Klein et al., 2004). Thirst in contrast is regulated by osmotic as well as hormonal influences (McKinley & Johnson, 2004). Even a small drop in hydration level (2% of the body weight) results in cognitive and physical performance drops (Grandjean & Grandjean, 2007).

Although the presented physical signals might motivate food and beverage seeking behaviour, they are in themselves mostly unspecific in what precisely to

consume. The same physical feelings of hunger might motivate one person to prepare a salad while another orders a burger and chips. Similarly, the experience of thirst may encourage one person to consume water while another might help themselves to a sugar sweetened beverage. Moreover, people also consume food and drink in the absence of any physical signals to satisfy for instance feelings of boredom or emotional distress (Arnold et al., 2015) or adapt their behaviour based on perceived social norms (Higgs, 2015). In addition to these internal factors, there is a growing understanding of the important role situational context plays in consumption behaviour (Cohen & Babey, 2012). In summary, food and beverage consumption are regulated by biological processes, however, additional internal and external factors appear to also influence eating and drinking.

1.1 Measuring consumption motives

To fully understand the motives underlying food and drink consumption, reliable measuring tools are required to capture the full complexity of these behaviours.

There is a range of diverse eating motives questionnaires, some capturing general eating motivations e.g., The Eating Motivation Survey (TEMS) developed by Renner et al. (2012), or the Food Choice Motives (FCMs) by Steptoe et al. (1995), whereas others have a more narrow focus, for instance on motives related to sustainability, e.g., the Sustainable Food Choice Questionnaire (SUS-FCQ) by Verain et al. (2021) or motives related to eating tasty foods, e.g., the Palatable Eating Motive Scale (PEMS) by Burgess et al. (2014). In addition, researchers frequently generate and add other motives to these established questionnaires or create their own item pool, tailored to their specific research question.

Subsequently eating motive studies vary greatly in what motives they investigate. The FCMs for instance identified nine relevant eating motives, namely health, mood, convenience, sensory appeal, natural content, price, weight control, familiarity and ethical concern (Steptoe et al., 1995). Whereas the TEMS established a 15 eating motives structure including hunger, health concerns, convenience, pleasure, traditions, natural concerns, sociability, price

considerations, the visual appeal of foods, weight control concerns, to regulate negative affect, and because of social norms and social image concerns (Renner et al., 2012). The SUS-FCQ, in contrast, evaluates consumption motives on two main dimensions: 'general sustainability', e.g., animal welfare, and 'local and seasonal' (Verain et al., 2021). Whereas the Palatable Eating Motive Scale encompasses motives related to social aspects, coping with negative affect, enhancement of positive affect, and conformity of eating tasty foods (Burgess et al., 2014).

Compared to eating motivations there are far fewer specialised questionnaires measuring beverage consumption motives, especially for sugar sweetened beverages, water or hot beverages. A well-established tool to assess alcohol consumption motivations is the Drinking Motive Questionnaire Revised (DMQ-R), developed by Cooper, which comprises of four core motives centred around positive and negative reinforcement, and internal and external factors, namely social motivations, enhancement of positive affect, conformity and coping with negative affect (Cooper, 1994). In contrast, the Motives for Caffeine Consumption Questionnaire (MCCQ) developed by Ágoston et al. (2018) assesses motivations related to caffeine (e.g., coffee, energy drinks etc.) consumption, namely habit, alertness, social, mood, taste and symptom management.

In addition to the variety of quantitative approaches, researchers have also applied various qualitative methods to examine the role of different motives on eating and drinking, e.g., individual interviews (Askari Majabadi et al., 2016; Bisogni et al., 2002) or focus groups (e.g., Block et al., 2013).

Studies into consumption motivations not only differ greatly on the specific motives they investigate, but furthermore in whether they use situated or unsituated approaches. To assess unsituated consumption motivations, participants typically respond to the questions independent of specific eating situations, e.g., an online survey assessing consumption motivations with the TEMS. To assess motives in a situated manner, researchers can either situate their questions in specific eating occasions, e.g., "when choosing your daily breakfast how important is weight control", ask participants to specifically assess motives related to their last consumption occasion (e.g., Phan &

Chambers, 2016a) or use methods such as the Ecological Momentary Assessment (EMA) to repeatedly investigate consumption motivations in real eating situations (for an example see Wahl et al., 2020), e.g., recording the specific motives of why an individual had vegetable soup for their dinner.

1.2 Challenges of assessing consumption and consumption motives

One challenge that arises when requiring individuals to judge their consumption motivations is the fundamental question whether they actually know and understand all relevant motives that underlie their food and beverage consumption. Based on consumer goal pursuit theories (Laran, 2016) consumption is expected to be driven by both conscious (e.g., long-term health goals) as well as unconscious (e.g., goals prompted by situational factors) goals. Therefore even if individuals would be able to correctly report on their conscious motivations, they typically lack the understanding how much their consumption is driven by for example contextual cues (Cohen & Babey, 2012). This means that explicit eating motive questionnaires (as presented in the previous section) omit an important source of influence on consumption behaviour which is likely to distort results. Consequently, novel measuring methods are needed to capture both conscious and unconscious motives of consumption.

A further challenge researchers face when assessing what predicts consumption behaviour is the question of how truthfully participants will report how much they consume specific foods and beverages. Research into alcohol consumption found that participants, especially specific groups such as middle aged women, are likely to underreport their alcohol consumption (Livingston & Callinan, 2015). Additionally, participants may alter their responses to alcohol consumption questionnaires to fit a socially desirable consumption (Davis et al., 2010). Similarly, individuals tend to underreported what they eat (Connor, 2020), particularly for unhealthy foods (Lafay et al., 2000).

1.3 Established associations of consumption motives with eating and drinking

A large number of diverse motives associated with consumption of food and beverages has previously been identified. Following, the association of consumption with some of these motives, e.g., habit, coping with negative affect, self-identity etc., will be discussed first for food and then for beverage consumption.

1.3.1 Predictors of food consumption

First, it is important to note that across studies large differences emerge as to the relative importance of different motives for food choice, e.g., Renner et al. (2012) found liking, habits, needs & hunger and health as most important whereas in Steptoe et al.'s (1995) study sensory appeal, health, convenience and price were reported as most influential. These differences might occur due to multiple reasons, e.g., the inclusion (or omitting) of different eating motives or even the use of different question types.

As discussed earlier, food is not only consumed in response to physical hunger signals or in connection to attaining long-term health goals but furthermore plays an important, though admittedly maladaptive, role in emotion regulation for some individuals (Evers et al., 2018) and can act as a replacement for a lack of other basic needs, e.g., lack of love, self-esteem etc. (Timmerman & Acton, 2001).

Habit emerges most consistently as important predictor for eating behaviour (Gardner et al., 2011; Ohtomo, 2013; Riet et al., 2011). Their relationship can best be explained in the framework of the dual processing theory (Hofmann et al., 2008). By repeating a behaviour consistently in a specific context, overtime so called ‘context-action’ associations are established (Gardner et al., 2021; Lally et al., 2010). The presence of relevant situational cues then automatically triggers the impulse to perform the behaviour (Gardner, 2015; Gardner et al., 2021). In other words, because eating and drinking behaviour is often repeated in the same context, e.g., eating salted nuts while playing computer games,

over time context-action associations are formed through repetition (repeatedly eating salted nuts while playing computer games). Consequently, when in the relevant context (playing computer games) the impulse to perform the associated action (eating salted nuts) is automatically triggered. The associated behaviour is then performed with little conscious thought (Ohtomo, 2013). It is important to stress that habits can have detrimental as well as beneficial consequences for an individual's health. On the one hand, habits may aid maintenance of a healthy diet (Lin et al., 2016), e.g., always eating porridge for breakfast, or, on the other hand, encourage unhealthy eating patterns (Verhoeven et al., 2012) , e.g., every time when drinking a cup of tea also consuming biscuits.

Once established, these context-action associations are difficult to break, requiring intentions (conscious control) to inhibit the impulse to perform the behaviour (Gardner et al., 2020; Wood & Neal, 2009). Ironically, using negative implementation strategies (e.g., "I will not eat salted nuts when playing computer games") appears to further strengthen the context-action association (Adriaanse et al., 2011). Instead, it might be more promising to replace old habits with new, more beneficial ones, e.g., replacing the aforementioned salted nuts with eating raw fruit while playing computer games (Gardner et al., 2021). Other motives such as long-term health goals and self-control (McCarthy et al., 2017) may also help to interrupt the context-action association at least temporarily. For instance exposure to diet primes successfully reduced unhealthy eating habits (Ohtomo, 2017). Overall, habit yields great importance for eating behaviour though the context-action association can be modulated by other, conscious processes, e.g., intention, long-term health goals.

A further greatly important predictor for eating is an individual's self-identity. Individuals' identities related to their eating behaviour involve highly individualised types of identities, differing within as well as between participants (Bisogni et al., 2002) and have been found, among other things, to predict fruit and vegetable consumption (Carfora et al., 2016; Rise et al., 2010). Not only does thinking of oneself in terms of being a 'healthy eater' predict healthy eating (Strachan & Brawley, 2009) but manipulating participants identity by inducing 'Self-as-a-Doer Identity' (e.g., referring to oneself as a 'healthy

eater') results in maintenance of healthy eating over a six-week period (Brouwer & Mosack, 2015), offering potential new avenues to help people shifting toward healthier diets. Moreover the perception of a food's taste has been shown to be associated with its association of a desired identity (Tal et al., 2022).

1.3.2 Predictors of beverage consumption

Research into the motivations behind the consumption of beverages often either exclusively focuses on alcoholic beverages, e.g., Anderson et al. (2013), non-alcoholic beverages in general, e.g., (Block et al., 2013), or one specific type of beverage such as water, e.g., Rodger et al. (2021).

In contrast to the broader approach when assessing what predicts eating, research into alcohol consumption typically concentrates on motives related to the functionality of consuming alcohol, e.g., enhancement of positive affect, coping with negative affect, conformity or social benefits or norms (Cooper, 1994; Grant et al., 2007; Halim et al., 2012). Problematic alcohol consumption, for instance, appears to be associated with greater importance of drinking motives related to changing one's internal states (enhancement of positive affect and coping with negative affect) (Moran & Saliba, 2012). In contrast other, more general consumption motives, such as affordability and taste, are less often assessed – even though the previous success of increasing alcohol prices to reduce consumption, though only applied across all alcoholic beverages (Jiang & Livingston, 2015), indicates that affordability is likely to influence alcohol consumption. Similarly, while rarely assessed, consumer research provides evidence that people themselves believe liking and taste to be the most important reason for their alcoholic beverage consumption (Charters & Pettigrew, 2008; Moran & Saliba, 2012)

The consumption of non-alcoholic beverages such as sugar sweetened beverages (beverages containing added sugar, e.g., soft-drinks, energy drinks etc. (Beaulieu et al., 2020)), water and hot beverages (e.g., tea and coffee) appears mainly driven by taste and price concerns (Block et al., 2013). Sugar sweetened beverage consumption has been furthermore associated with habit (Claassen et al., 2022), situational factors such as the presence of other people or eating out (McNaughton et al., 2020) and pleasure (Phan & Chambers, 2016b). Whereas

coffee was mainly associated with habit (Phan & Chambers, 2016b) and health concerns. The level of water consumption emerged as greatly influenced by expected reward and its association with one's self-identity (Rodger & Papies, 2022)

Overall, the results illustrate once more the enormous complexity of eating and drinking behaviour and how consumption is influenced by various diverse motives. Furthermore, consumption motives appear to differ between food and beverage types.

1.4 Effect of situation on consumption motives

In addition to the presented internal consumption motivations there is an increasing recognition in the literature of the role situational context, e.g., food and social environment, plays in eating and drinking behaviour. Adolescents consumption of unhealthy foods and drinks for instance is positively correlated to their mother's diet (Campbell et al., 2007), illustrating the great impact home environment, e.g., availability, and parental consumption, may have on their live-in dependents. Similarly, a food environment, e.g., access to supermarkets, shapes an individual's diet and health outcomes (Carroll et al., 2021). This might be at least part of an explanation for the inverse relationship between obesity and lower socio economic status in developed countries (McLaren, 2007), as food environments tend to differ greatly, between the most affluent and most deprived areas, e.g., on the number of available supermarkets (Molaodi et al., 2012).

Besides these global environmental factors, social norms and the presence of others during eating occasions have both been shown to additionally influence individual's eating behaviour (Higgs, 2015), e.g., people tend to adjust their consumption based on the present company (Herman et al., 2003). Comparably, social motivations are also associated with alcohol consumption, e.g., descriptive norms (Halim et al., 2012). For instance teenagers drinking habits are greatly influenced by the alcohol consumption of their peers (Ajilore et al., 2016).

Other external situational factors that may impact food and drink consumption include differences in eating situation (e.g., breakfast, lunch, dinner, snack), eating location (e.g., at home, at work, in a restaurant) and as illustrated in the previous section specific foods or beverages consumed (e.g., fruit, sweets, sugar sweetened beverages, alcohol). Cadario and Morewedge (2022) established that variety seeking, and hedonic goals were less important for breakfast compared to meals consumed later in the day. Comparably, responses to the FCMs have been found to differ depending on assessed eating occasion, location and social contexts (Verain et al., 2022). Similarly, although liking emerged as most important across eating occasions, differences were found across the other TEMS motives when assessing the reasons for foods consumed in specific eating situation (Phan & Chambers, 2016a).

These findings challenge the underlying assumption of unsituated measures that eating and drinking motives are universal and therefore detached from situational context. For instance, the fictious question “When choosing a food, how important is it’s healthiness for you” requires the participant to generalise their response across various different foods (e.g., pizza, salad, yoghurt), eating occasions (e.g., breakfast, snack, dinner), diverse contexts and environments (e.g., at home, at work, during the week, during the weekend, holidays etc.), and a completely unspecified timespan (yesterday, last week, months, years). However, based on the presented evidence it appears unlikely that individuals eating and drinking motives remain stable across diverse consumption situations, foods and beverages. In other words, eating a salad for dinner is likely predicted by a different pattern of motivations than having a cake as afternoon snack. Similarly drinking a beer in a pub is likely to differ on its consumption motives compared to drinking a coffee first thing in the morning. In summary, when assessing consumption motives, it appears important to assess their stability across different foods and beverages as well as diverse consumption contexts.

1.5 Grounded Cognition Theory

The grounded cognition theory (Barsalou, 2008; Papies et al., 2020) provides a theoretical framework to better understand the underlying reasons why situation is greatly important for consumption behaviours. It proposes that an individual's interactions with food or beverages, especially rewarding ones, are stored in memory as multi-modal 'situated conceptualisations' (e.g., Barsalou, 2008; Papies et al., 2017, 2020), encompassing various information related to internal states, sensory features, contextual features, motor actions etc. (Papies et al., 2020). For instance, the memory of having coffee and a piece of cake with good friends in a nice café might include the visual appearance, smell and taste of the consumed food and drink items, as well as features such as the experience of social connectedness, feeling relaxed, experiencing pleasure, the café etc. Later exposure to relevant cues, e.g., walking by the same café, might activate the situated conceptualisation and leads to partially re-enactment or simulations of the other stored features, e.g., simulating the taste and mouthfeel of the previously consumed cake, feeling of social connectedness which might lead to feelings of desire (Papies et al., 2017, 2020).

The theoretical framework is able to explain, among other phenomena, the aforementioned association between an individual's socio economic status and their likelihood to develop obesity (McLaren, 2007). The grounded cognition theory suggests, that as the number of fast-food restaurant is increased in deprived areas (Molaodi et al., 2012), the people living in this environment would be more regularly exposed to cues related to fast food consumption (e.g., the logo of the fast food restaurant). These cues trigger simulations of previous fast-food consumption experiences and initiate desire, which then has to either be inhibited or may result in fast food consumption. As a result, people living in deprived food environments are more likely to consume fast food, which may in consequence lead to the observed negative health outcomes (e.g., obesity). In contrast, more affluent areas with less fast-food restaurants contain fewer environmental cues related to fast food, and therefore make it easier for individuals not to consume them.

Evidence for these proposed situated conceptualisations and their activation through relevant cues have been found in behavioural as well as neuroimaging research. Using a feature listing task, Papies (2013) observed that tempting food words resulted in the a higher percentage of contextual features generated by participants compared to more neutral foods, indicating that it is possible to activate these different situated conceptualisations by merely presenting participants with an abstract cue (e.g., written words). Similarly, neuroimaging studies have shown that food cues lead to activations in brain areas connected to reward and pleasure (for a review see Chen et al., 2016).

Overall, the grounded cognition theory explains the previously presented findings that eating motivations differed depending on situational context. And further empathises the necessity to measure the relative importance of eating and drinking motives in their specific situational context (e.g., eating situation, social context, specific food and drink etc). The situation cue, e.g., food in a specific eating situation, activates the relevant conceptual representation, resulting in partial simulations. Differences between conceptual representation are then reflected in the participants judgments. While studies have assessed some situational differences between situations a more systematic and exhaustive approach is needed to fully understand eating and drinking motivations stability across eating occasions.

1.6 A novel measuring approach: SAM^2

Based on the grounded cognition theory, the Situated Assessment Method (SAM^2) has previously been used to investigate individual differences of various health behaviours, e.g., stress (Lebois et al., 2016) and habit (Dutriaux et al., 2021). It proposes that to measure and understand a behaviour and its individual differences, it is essential to assess it in the specific situations it occurs in. The superscripted two specifically refers to the two ways in which it situates measures: the situational experience and the Situated Action Cycle (Dutriaux et al., 2021). To investigate individual differences of behaviours such as eating or drinking, SAM^2 would accordingly identify the relevant situations the behaviour occurs in, e.g., specific foods eaten (or not eaten) in specific eating situations (e.g., “how frequently do you consume bananas for breakfast?”). SAM^2 second

dimension of situatedness refers to the Situated Action Cycle, a framework that allows researchers to identify all relevant situational factors that might affect the target behaviour, e.g., for eating behaviour these might include availability of a food, affordability, perceived healthiness etc.

The Situated Action Cycle proposes five phases to ensure all potentially relevant situational factors are captured, namely environment, self-relevance, affect, action and outcome. Though the phases are often represented as occurring in a serial fashion, in actuality they might run parallel, overlap or omit (Dutriaux et al., 2021). The first phase involves environmental cues such as events or entities that set the Situated Action Cycle in motion. For eating (and drinking) such environmental factors may include social aspects, e.g., whether other people are present, food availability, monetary considerations, etc. This is followed by the self-relevance phase in which the individual establishes the relevance of these environmental factors, for instance how they relate to their long-term goals (e.g., weight control), norms (e.g., how acceptable is it to consume this food), values and their self-identity. In the third phase, the assessed self-relevance might have induced affect in the individual, e.g., social connectedness or feelings of conflict. The induced affect might then lead to actions (or inaction) in the fourth phase (action phase), e.g., automatic consumption or inhibiting consumption. The Cycle ends with the outcome, for example the experience of the anticipated positive taste (reward) (Barsalou, 2020; Dutriaux et al., 2021).

By using this approach, the SAM^2 creates extensive and detailed data sets, capturing intra- as well as individual differences. Connecting this back to the theoretical foundations of SAM^2, the grounded cognition theory, SAM^2 situated questions serve as relevant situational cues and activate individual's situated conceptualisations, resulting in simulations which then inform participants judgment on the situational factors previously identified through the Situated Action Cycle. In other words, SAM^2 measures the situated conceptualisations and their differences within and between individuals across relevant situations.

1.7 The current thesis

As illustrated throughout this chapter, a great limitation across previous research is the use of unsituated measures, only allowing to assess generalised eating motivations instead of also exploring how stable motives are across consumption occasions. Furthermore, while still greatly informative, a further recurring limitation is a general focus on group level results, generalising motives across participants, instead of assessing individual differences (beyond broad group categories such as gender or BMI (Renner et al., 2012)).

In summary, although motives associated with food and drink consumption have been studied extensively, there is still a lack of understanding of the individual differences in consumption motivation patterns as well as their stability across the domains of eating situation and time.

Building on the theoretical framework provided by the grounded cognition theory (Barsalou, 2008, 2020; Papies et al., 2020), the aim of this thesis is to use a situated measurement approach (SAM^2) to establish diverse consumption motives, determine their importance for individuals' consumption, explore intra- and individual differences and assess their stability across specific foods, food groups, and beverages, eating situations and time. In addition, this thesis will provide further evidence of the role situational conceptualisations play in predicting individuals' food and drink consumption. In addition, it will moreover assess individuals' insights into their own consumption motivations.

Chapter 1 first provided a brief overview of typical methodologies used to measure consumption motives and challenges researchers face when assessing consumption, before the association of previously established predictors of consumption was presented. Next the importance of situation on consumption behaviour was discussed and finally the theoretical framework underlying this work was presented, with a focus on the role situational conceptualisations play for consumption behaviour. Lastly, the methodology used across all three empirical chapters, the SAM^2 was introduced and explained in the context of eating and drinking behaviour.

The second chapter focuses exclusively on the consumption of beverages. Previous research into drinking behaviour has often either exclusively concentrated on alcoholic (Källmén et al., 2019) or specific non-alcoholic drinks such as sugary beverages, or water (Block et al., 2010; Rodger et al., 2021). Furthermore, there often seems to be a focus on behaviour change, for example to reduce consumption of fizzy drinks (Langrial & Oinas-Kukkonen, 2012). In contrast, very little is known about the similarities and differences of what drives the consumption of different beverages.

The primary aim of the study presented in Chapter 2 was to develop an overarching framework that would be able to explain drinking frequency of alcoholic as well as non-alcoholic beverages and to capture individual differences between drinks as well as participants. Within the model it was expected that the predictive patterns would vary greatly between different drink types, as well as between individuals. Nine hundred participants rated 11 alcoholic and non-alcoholic beverages on 34 drinking motives as well as frequency. An exploratory factor analysis established a seven-factor model of situated drinking behaviour including the motives of social/positive consequences, positive taste, negative consequences, habit, health/functionality, bitterness and regulation. The seven-factor model was able to explain frequency well on the individual drink as well as the individual participant level. In contrast to prior assumptions all eleven drinks showed very similar predictive patterns, potentially indicating that drinking motives are generalised across beverages. Individual participants, in contrast, differed from each other in how they experienced drinks as well as what predicted their consumption frequency, though habit emerged consistently as important. The results provided further evidence of the benefits of applying SAM^2 to identify relevant situational features.

After first focusing exclusively on drinking behaviour in Chapter 2, the work presented in Chapter 3 expanded on this by including the closely related work of eating behaviour. A majority of previous eating motivation research used unsituated self-report questionnaires, which require participants to generalize their ratings over a variety of eating situations (breakfast, lunch, going out) and foods (e.g., cheese, sweets, lettuce), most likely using intuition, heuristics and

other factors such as self-identity or social norms, instead of an empirical approach based on their actual consumption behaviour. Additionally, this approach fails to capture potentially relevant intra- and individual information (e.g., differences between participants how tasty they perceive pizza to be or capturing within a participant that breakfast is greatly predicted by habit whereas lunch is more driven by convenience). To improve on this, SAM[2] was applied to the prediction of eating and drinking, by assessing specific food and drink consumption frequency in specific situations (e.g., sandwich for usual dinner), as well as applying the situated action cycle to identify situationally relevant variables (e.g., healthiness, tastiness, affordability etc.).

Chapter 3 presents the results of three separate, but inter-connected studies. First, Study 1 established an extensive sample of foods consumed in the UK, to inform which foods and drinks to include in Study 2 and 3. Next, Study 2 used a between-participant design to assess and condense a large number of potentially relevant eating and drinking motivations, aiming to identify the underlying constructs predicting consumption frequency and desire.

In the crucial third study, a within participant design was used to assess individual differences in consumption frequency and desire prediction patterns, as well as intra-individual differences across four eating situations. Additionally, participants insight into what predicts their consumption frequency and desire was assessed. Participants (n = 204) were asked to rate a large sample of individual foods (n = 177), each situated in one of four eating situations (usual breakfast, usual lunch, usual dinner, daytime snack) on two dependent variables (consumption frequency and desire) and ten predictors (healthiness, fillingness, sweetness, bitterness, affordability, automaticity, self-identity, social connectedness, emotional satisfaction, situational transport). As in Chapter 2, the motives were able to explain considerable variance when predicting consumption frequency as well as desire on the individual participant level. Again, individuals differed greatly in how much each predictor was associated with their consumption frequency and desire, although habit (again) emerged as consistently important. Within participants, the motives for consumption motivation and desire remained remarkably stable, potentially explained by generalised eating motivation patterns for “usual” eating occasions. Lastly

participants showed little insight into what predicts their consumption frequency and desire, questioning the validity of typically used consumption motives questionnaires. These results empathised again the importance to assess intra- and individual differences of consumption motivations and provided evidence for SAM^2's ability to assess situated conceptualisations.

A question that had not been previously addressed in Chapter 2 and 3 was the stability of consumption motives across time. Building on and extending on the results of Chapter 3, Chapter 4 assessed individual consumption motives at five timepoints during a two-week period. Of particular interest was to evaluate whether individual consumption motives would remain stable across timepoints. Of further interest was to assess whether previously found implicit learning effects in the domain of distress and eustress (Pedersen et al., 2022) could be replicated in the domain of food consumption, specifically whether the strength of association between dependent variable and predictors would increase over time. Sixteen food groups were chosen to capture participants diet instead of a large number of specific foods (as in Chapter 3). Participants were instructed to judge the food groups based on the specific foods they had consumed in the past two days (e.g., food group "fruit" would include apples, strawberries etc.). Using a within participant design participants were asked to judge their experience with 16 diverse food groups (e.g., sweets, fruits, processed meat) on two dependent variables (consumption frequency and average portion size) as well as six predictors (enjoyment of taste, fillingness, healthiness, automaticity, emotional satisfaction, and self-identity) in the past two days.

As in the previous two chapters, the six predictors were able to explain a great amount of variance on the individual participant level and captured large individual differences between participants, similarly habit emerged as most important across participants. Remarkably consumption motives for the 16 food groups emerged as stable across timepoints. Small but significant predicted learning effects occurred for the association of consumption with healthiness, self-identity and fillingness, indicating an increase in reliability of the measures. Again, the majority of participants showed little insight into what predicts their consumption.

In summary Chapter 2 assesses the stability of drinking motives across different beverages and individual participants. Chapter 3 extends on this by additionally examining the stability of individuals' predictive patterns for consumption frequency and desire across eating situations. Finally, Chapter 4 assesses the stability of eating motives across time. In the fifth and final Chapter the theoretical and practical implications of the results of the three empirical chapters will be presented and discussed in regard to the grounded cognition theory and the wider literature. Finally, directions for future research will be presented.

1.8 Note to readers

The following empirical chapters of this thesis (Chapter 2 – 4) were written as separate journal articles, currently available as pre-print and soon to be submitted to peer-reviewed journals. Because the chapters are thematically connected there may be some overlap particularly in their introduction and in the description of SAM^2. Furthermore, as chapter 4 builds on and extends on chapter 3, there is a brief summary of the three studies and their results presented in chapter 3 in the introduction of chapter 4.

Chapter 2 Habit, health and socialising: New insights into diverse motives for alcoholic and non-alcoholic beverage consumption

This chapter is an exact copy of the following preprint manuscript:
Werner, J., Papies, E. K., Best, M., Scheepers, C., & Barsalou, L. (2022, November 8). Habit, health and socialising: New insights into diverse motives for alcoholic and non-alcoholic beverage consumption.
https://doi.org/10.31234/osf.io/mqzhe

2. Abstract

Previous research into drinking behaviour has often focused exclusively on either alcoholic drinks, sugar-sweetened beverages, or water, usually with an emphasis on changing consumption. The primary aim of the present study was to develop and assess a situated framework of drinking behaviour that predicts the frequency of drinking alcoholic as well as non-alcoholic beverages. Within this situated framework, we originally expected that predictive patterns for drinking frequency would vary greatly for different drinks as well as for different individuals. To assess these predictive patterns, we used the Situated Assessment Method (SAM^2), which has previously been used successfully to study other health domains such as stress and habits. To cover a broad range of drinking situations, we sampled 4 alcoholic beverages (beer, wine, cocktails, spirits) and 7 non-alcoholic beverages (tea, coffee, fruit juice, diet soft drink, regular soft drink, bottled water, tap water). We then used the Situated Action Cycle to identify 34 potential predictors of drinking frequency (e.g., liking the taste, thirst, socialising). A total of 900 UK participants completed an online survey, rating each of the 11 drinks on consumption frequency and on each of the 34 predictors. To reduce complexity and remove redundancies, we performed an exploratory factor analysis, decreasing the number of predictors to seven factors that we interpreted as habit, regulation, negative consequences, health/functionality, bitterness, positive taste and socialising/positive consequences. Across analyses, our seven-factor model was able to explain considerable variance in self-reported drink consumption, both for individual drinks (median = 65%) and individual participants (median = 95%). Surprisingly, we only detected subtle differences between the eleven different drinks' predictive patterns. In contrast, individual participants exhibited greater variability in the factors that predicted their drinking behaviour.

2.1 Introduction

Overconsumption of alcoholic, as well as some non-alcoholic drinks (e.g., sugar-sweetened beverages) plays an important part in the development of obesity and diabetes (S. Gibson, 2008; Neelakantan et al., 2022), which have been linked to further negative health outcomes such as certain kinds of cancer (Calle & Kaaks, 2004). To help people make healthier choices, it is important to first understand the underlying motives that motivate drinking behaviour. Previous research, however, has focused exclusively on either alcohol or non-alcoholic drinks, and little is known about similarities and differences between different drinks in the motivation to consume them. Additionally, previous research has tended to focus on one or a few consumption motives, rather than assessing motives more comprehensively. Here we examine a broad spectrum of drinking motives for both alcoholic and non-alcoholic drinks.

Alcohol consumption research often concentrates on alcohol-specific drinking motives such as enhancement, meaning, positive affect, coping, reducing negative states, and social benefits (Cooper, 1994; Halim et al., 2012; Hammarberg et al., 2017), while leaving out other potential factors such as taste and health. Furthermore, motives for alcohol consumption have mainly been studied in teenagers, college students (Bravo et al., 2015; Halim et al., 2012), and problematic drinkers (Hammarberg et al., 2017), less in the general population.

In a similar way, studies of non-alcoholic drinks such as sugary beverages are often just a small part of research into eating habits more generally (Espinoza-Ortega et al., 2016), or associated with interventions to help people to reduce intake (Langrial & Oinas-Kukkonen, 2012). Few studies focus on the reasons why non-alcoholic drinks are consumed, and when they do, again only assess a specific population, such as examining why US college students consume non-alcoholic beverages (Block et al., 2013). Other studies have focused specifically on water (e.g., Rodger et al., 2021; Rodger & Papies, 2022), again while disregarding possible similarities with other drinks.

What appears to be missing in the literature is a comprehensive framework for studying drinking behaviour that assesses beverage consumption for a variety of alcoholic as well as non-alcoholic drinks together. Such a framework could provide insights into similarities as well as differences between consumption motives for different drinks at both the group and individual levels.

To establish a comprehensive framework, we started with motives that the previous literature has established for consuming alcoholic and non-alcoholic drinks. We also used the Situated Action Cycle (Barsalou, 2020), part of the Situated Assessment Method (SAM2), to establish further motives associated with drinking behaviour. SAM2 is a psychometric instrument based on the theory of grounded cognition (Barsalou, 2008) that aims to fully capture a behaviour in the context of situated action. It has previously been used to successfully study a variety of health behaviours such as stress (Lebois et al., 2016) and habits (Dutriaux et al., 2021). The SAM2 approach situates behaviour ratings within two dimensions of situatedness: (1) the Situated Action Cycle, which is a framework for comprehensively identifying potentially relevant situational factors that may affect a person's behaviour in a given situation; (2) situational experience of specific situations (for instance drinking in a pub).

The principal idea of the Situated Action Cycle is that to understand a target behaviour such as drink consumption, one has to understand how the situation influences the cognitive and affective processes that may contribute to the behaviour. Hence, the behaviour should be studied by assessing as many relevant situational factors as possible that may influence it, including factors from the environment, self-relevance, affect, action, and outcomes. From the perspective of the Situated Action Cycle, a behaviour such as drinking is triggered by cues in the environment or internal cues, guided by various forms of self-relevance, such as personal goals, values, norms, and identity, motivated through affective processes, and executed with bodily actions that result in a variety of outcomes. Figure 1 presents these five phases of the Situated Action Cycle. Based on the literature on drinking behaviour, we mapped a total of 34 factors onto these five phases, any of which could potentially motivate drink consumption (also shown in Figure 1). Table 1 presents the specific judgements

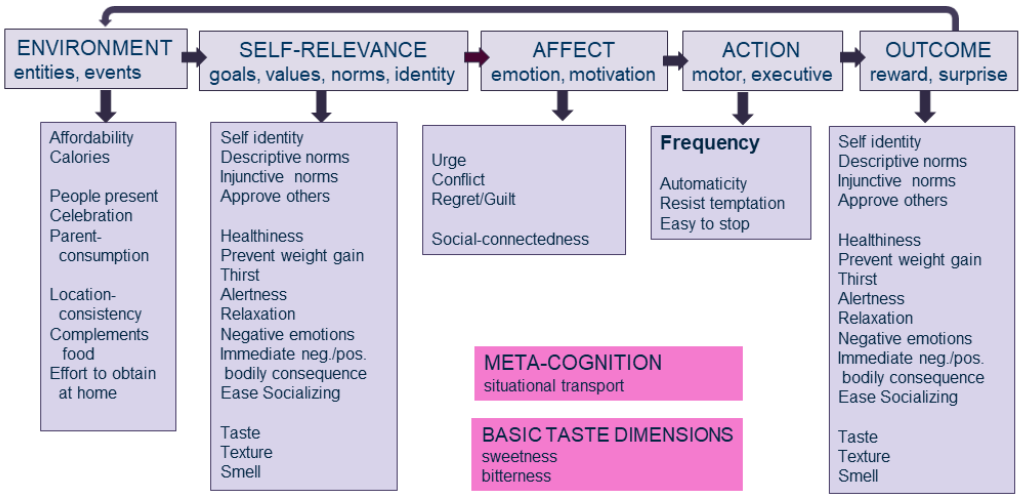

Figure 1 – The Situated Action Cycle

The five phases of the Situated Action Cycle adopted Barsalou (2008) and Dutriaux et al. (2021)

used to assess these 34 situational factors in the study to follow. Because we sampled situational factors from the Situated Action Cycle that potentially predict self-reported drinking behaviour, we will refer to the predictive framework we develop as the situated model of drink consumption. We next review these 34 factors briefly.

In the environment phase of the Situated Action Cycle, factors in the external world relevant to drink consumption are perceived by an agent and then initiate the extended process of situated action. For example, one important environmental factor is the affordability of a drink, which has been shown to positively influence the consumption for sugary (Block et al., 2010, 2013) as well as alcoholic drinks (Jiang & Livingston, 2015). Similarly, availability in the home increases consumption for sugar-sweetened beverages in at least young adults (Haughton et al., 2018), and traveling and eating out are prominent situations for drinking sugar-sweetened beverages among English adults (Claassen et al., 2022). Furthermore, teenage consumption has been reported to be affected by both parental and peer alcohol consumption (Ajilore et al., 2016; O'Donnell et al., 2019; van den Eijnden et al., 2011). Having a reason to celebrate (e.g., Halloween) also increases the alcohol consumption of college students (Glindemann et al., 2007). Another external influence is whether a beverage complements and enhances food currently being consumed (Charters &

Pettigrew, 2008). To assess such factors from the environment, the situated model of drink consumption included measures of affordability, calorie content, whether other people are present during consumption, whether the drink was used to celebrate, how often parents or guardians consumed the drink, whether the drink was consumed consistently in the same location, and how much it complements food (see Table 1 for further details).

In the self-relevance phase of the Situated Action Cycle, the agent assesses the self-relevance of factors perceived in the environment, including how they relate to the agent's long-term goals, norms, values, and identity. Consuming drinks consistent with one's self-identity can be a highly motivating factor in drink consumption. In a qualitative study Rodger et al. (2021) found that water drinking increased and was less dependent on specific situations when reported to be part of a participant's self-identity. Additionally, both descriptive norms (i.e., what others drink) as well as injunctive norms (i.e., what others expect a person to drink) influence drinking behaviour, with perceived approval increasing alcohol consumption (Lee et al., 2007). Based on those findings, we included self-identity, descriptive norms, and injunctive norms in the situated model of drink consumption, as well as how much other people approve of consuming each specific beverage.

A wide variety of other goals related to drink consumption may similarly be triggered during the self-relevance phase. Based on previous research we hypothesised that people may want to consume a drink to promote healthiness (e.g., (Rodger et al., 2021), to prevent weight gain, to reduce thirst, to increase alertness (e.g., Claassen et al., 2022), to increase relaxation, to reduce negative emotion (e.g., Salemink & Wiers, 2014), to avoid negative bodily consequences, to achieve positive bodily consequences, and to ease socialising (Scott-Sheldon et al., 2012). Finally, people may want to consume a drink because of its taste, texture, or smell (Claassen et al., 2021). To explore as many potential motives for consuming a drink as possible, we included all these motives as predictive factors in the situated model of drink consumption.

Once the self-relevance of factors in the current situation has been established, it induces affect in the third phase of the Situated Action Cycle, including both

motivation and emotion. Most basically, people may experience the urge to consume a beverage (McGreen et al., 2022; Palfai, 2006; Rohsenow & Monti, 1999). As the urge to drink emerges, it may be accompanied by conflict (Rohsenow & Monti, 1999), for example because one may be aware that a drink is unhealthy. Following consumption, feelings of guilt and regret may temporarily decrease later consumption (Luoma et al., 2017). Finally, shared drink consumption can induce feelings of social-connectedness with others (Brown & Murphy, 2020; Claassen et al., 2022). Because of their potential relevance for predicting drinking behaviour, all these affective factors were included in the situated model of drink consumption.

Motivation and emotion in the third phase of the Situated Action Cycle may in turn induce action in the fourth phase, such as consuming a beverage. A driving factor in this phase appears to be how habitually an action is executed. Albery et al. (2015) found that habitualness was positively associated with the amount of alcohol consumed, and Claassen and colleagues found that frequency of past consumption was a strong predictor of non-alcoholic beverage intake in the lab (Claassen et al., 2021). Additionally, preparatory states that enable actions contribute to their enactment, such as the required effort to obtain a beverage (e.g., Rodger & Papies, 2022). Conversely, a variety of factors inhibit and regulate consumption, including how easy it is to stop consumption, along with the ability to resist temptation. Houben et al. (2011) found that by using a customised go/no go task to strengthen inhibition, heavy alcohol consumption decreased the following week. Building on those results, automaticity, effort to obtain at home, ease of resisting temptation, and ease of stopping consumption were added to our situated model of drinking.

In the final phase of the Situated Action Cycle, the action performed (or inhibited) produces outcomes, which in turn change the environment or the agent, such that the Cycle starts over and iterates (the return arrow at the top of Figure 1). Important possible outcomes include rewards, such as the experience of a positive taste. Not surprisingly, taste emerged as an uniquely important factor for college students when choosing beverages, along with calorie content to a lesser extent (Block et al., 2013). Other outcomes of consuming a beverage include functional consequences that change a person's

current state, for example, consuming water to quench thirst (Leib et al., 2016), consuming coffee to increase alertness (Ágoston et al., 2018), consuming alcohol both to relax (Peltier et al., 2019) and to regulate negative emotion (Paulus et al., 2021). Similarly, consumption might be inhibited in favour of pursing long-term goals such as weight maintenance. Because all these potential outcomes can be anticipated during the self-relevance phase before they actually occur in the outcome phase, Figure 1 includes them in both the self-relevance and outcome phases. Again, the situated model of drink consumption assessed all these motives related to outcomes as potential predictors of consumption frequency.

To simplify the study reported here, we applied the Situated Action Cycle to a variety of drinks but did not add the additional dimension of specific drinking situations. In other words, we did not tease apart the prediction of drinking in different situations, such as in the pub, at home, or at work. Instead, we asked participants to assess each of the 34 factors for each of 11 drinks, but without specifying or varying drinking situations. Building on the findings reported here, future work could add drinking situations as a dimension of situatedness, as has been done in other work using the Situated Assessment Method.

2.1.1.1 Overview and predictions

In the current study, we asked participants to evaluate their consumption of 11 drinks: 4 alcoholic (wine, beer, cocktails, spirits) and 7 non-alcoholic (regular soft drink, diet soft drink, fruit juice, tea, coffee, bottled water, tap water). Across 35 randomized blocks, participants evaluated each of the 11 drinks for consumption frequency (the dependent variable) and for each of the 34 motivational predictors sampled from the Situated Action Cycle (Figure 1, Table 1).

The primary aim of our study was to develop and assess a situated model of drink consumption that explained the consumption frequency of alcoholic as well as non-alcoholic beverages. Using a comprehensive predictive framework, we aimed to capture differences between drinks in the factors that predict their consumption. We also wanted to assess how much different individuals vary in the factors that predict their consumption frequency across drinks.

Because this was primarily an exploratory study, we did not formulate confirmatory hypotheses. Based on common assumptions in the literature, we generally expected, though, that predictive factors would vary greatly between different drink types, especially between alcoholic and non-alcoholic beverages. Whereas some drinks might be consumed mostly for pleasure (alcoholic drinks, sugar-sweetened beverages, and hot beverages), others would be consumed mostly for healthiness (water), and so forth. Similarly, we expected large individual differences in the factors that predict drinking behaviour.

2.2 Methods

2.2.1 Participants

A total of 1,068 UK residents were initially recruited online via the Prolific platform (www.prolific.co). To be considered eligible, participants had to consume alcohol at least occasionally, be between 18 and 70 years of age, not have any past or present alcohol-related disorders, nor any allergies to food or drink products, nor any learning disabilities, nor synaesthesia, psychological, psychiatric, or neurological conditions, nor any reason (medical, including pregnancy, religious or otherwise) why they cannot consume alcohol. Participants were paid at a rate of 6£ per hour. Due to dropouts, resulting from incomplete data (129 participants) or low-quality data detected during initial screening prior to our analyses (39 participants), we included 900 participants in the analyses (551 female, age *M* = 38.28 years, *SD* = 12.61; BMI *M* = 27.09, *SD* = 6.9; highest level of education: no formal education =1.22%, Secondary school =13.78%, College =27.78%, Undergraduate degree =38.44%, Graduate degree= 15.78%, Doctoral Degree =3%; residence: England =69,33%, Scotland =7.22%, Wales = 3.78%, Northern Ireland 1.89%, Other =17.78%). Data quality was assessed using a combination of survey duration, diagnostic correlations, overall interrater agreement, and number of flatline analysis (see Appendix A (SM-1) for details).

2.2.2 Design and materials

Eleven drinks were chosen to represent a broad range of drinks typical in the UK, both alcoholic (wine, beer, cocktails, spirits) and non-alcoholic (sugary soft drink,

diet soft drink, fruit juice, tea, coffee, bottled water, tap water). As the dependent variable, the self-reported consumption frequency of each drink was assessed. Each drink was also assessed on the 34 SAM[2] predictors in Table 1 as described above.

The second column of Table 1 presents the specific questions used to collect judgments for the dependent variable and the 34 predictors. All judgments were made on a continuous 0 to 100 slider scale. Participants were only presented with the length of the slider scale but not made aware of the exact numeric range nor shown the numeric value of their choice. Instead, they were provided with three, question relevant labels (e.g., not at all (far left), somewhat (middle), very much (far right)) and asked to move the slider to wherever felt most accurate to them on the scale. Using this approach, instead of for instance likert scales, provided the benefit of allowing participants a greater response range, having interval data (instead of ordinal), which is more likely to be normally distributed as well as potentially increasing the observed variance (Chyung et al., 2018). The dependent variable consumption frequency was measured in the same way as the other measures (continous scale ranging from never, sometimes, very often) to ensure the previously mentioned benefits for later data analysis. As this measure differed considerably from more commonly used instruments, which usually assess specific consumption frequencies (e.g. once a month, twice a months etc.) and to assess the ecological validity of our measure, we furthermore collected participant's last month consumption on an 8 point Likert-scale (labels: never in the past month, once in the past month, 2-3 times in the past month, once per week, 2 to 3 times per week, once per day, more than once per day). To assess how comparable the two measures were, we correlated the two measures with each other. The result of this analysis was that the two measures were highly correlated (.82). Due to the benefits of having a continuous measure and the high association with a more standard measurement, we decided to use the continuous consumption measure in the further analysis.
Participants also filled out a variety of other individual difference measures and assessment instruments (presented in Appendix A (SM-2)). Results associated with these measures will be reported in a separate article and will not be considered further here.

Table 1 – Factor names, variable names, rating questions, ICC2 values, and ICC2k values

Factor names, variable names, rating questions, ICC2 values, and ICC2k values. Participants rated each of the eleven drinks on each of the 34 predictors and the dependent variable (Frequency) using a continuous 0 to 100 rating scale. A seven-factor solution emerged after running oblique factor analysis. The 34 predictive measures are organised below according to their highest factor loading (shown in Table 2).

Factor name	Variable name	Rating question	ICC2	ICC2k
DV	Frequency	How often do you consume this drink?	.14	.99
Socialising / Positive Consequences	SocialConnectedness	When you consume this drink, to what extent do you experience 'social connectedness' (a feeling of togetherness) with others?	.34	1.00
	EaseSocialising	To what extent do you consume this drink because it makes it easier to socialise with others?	.26	1.00
	PeoplePresent	When you consume this drink, how often are there other people present?	.23	1.00
	DescriptiveNorms	To what extent do you consume this drink because others are also consuming it?	.16	.99
	NegativeEmotions	To what extent do you consume this drink when you experience negative emotions?	.08	.99
	Celebration	To what extent do you consume this drink to celebrate happy events or occasions?	.34	1.00
	Relaxation	To what extent do you consume this drink to help you relax?	.15	.99
	LikeSmell	How much do you like the smell of this drink?	.17	.99
	SituationalTransport	When you imagine consuming this drink, how easy is it to feel transported to the situation in which you're consuming it?	.04	.97
	ComplementsFood	To what extent do you consume this drink because it fits or complements the food you are consuming?	.09	.99
	ImmedPosBodilyConseq	After consuming this drink, how often do you experience immediate or short-term positive bodily consequences?	.06	.98
Negative Consequences	ImmedNegBodilyConseq	After consuming this drink, how often do you experience immediate or short-term negative bodily consequences?	.21	1.00
	Conflict	How conflicted do you feel about wanting vs. not-wanting to consume this drink?	.06	.98
	RegretGuilt	After consuming this drink, how often do you feel regret or guilt about consuming it?	.19	1.00
	ApprovalOfOthers	To what extent do you approve of other adults consuming this drink?	.13	.99
Positive Taste	LikeTaste	How much do you like the taste of this drink?	.06	.98
	LikingTexture	How much do you like the texture or 'mouthfeel' of this drink?	.05	.98
Healthy/ Functionality	Healthiness	How healthy do you consider this drink to be?	.62	1.00
	Calories	How calorific do you think this drink is?	.69	1.00
	PreventWeightGain	To what extent do you consume this drink to prevent weight gain?	.24	1.00
	Alertness	To what extent do you consume this drink to make you feel more alert?	.27	1.00
Habit	Automaticity	How automatic is your decision to consume this drink?	.16	99
	Affordability	How affordable is this drink?	.42	1.00
	EffortObtainHome	How effortful is it for you to physically obtain this drink when you are at home?	.20	1.00
	ParentsConsume	How often did you see your parent(s) or legal guardian(s) consume this drink when you were a child?	.30	1.00
	LocationConsistency	How consistently do you consume this drink in the same location?	.08	.97
Regulation	ResistTemptation	How easy is it to resist the temptation to consume this drink?	.04	.98
	EasyToStop	Once you start consuming this drink, how easy is it to stop?	.04	.97
	SelfIdentity	To what extent is consuming this drink part of your self-identity?	.05	.98
Bitterness	Bitterness	How bitter do you find this drink?	.31	1.00
Excluded from factor analysis due to cross-loadings	Sweetness	How sweet do you find this drink?	61	1.00
	UrgeFrequency	How often do you experience the urge to consume this drink?	.07	.99
	Thirst	To what extent do you consume this drink because you are thirsty?	.43	1.00
	InjunctiveNorms	To what extent do you think people approve of consuming this drink?	.27	1.00

2.2.3 Procedure

All data was collected online using the Qualtrics survey platform (Qualtrics, Provo, UT). Once informed consent was obtained, participants were first asked about their current state (happy, calm, hunger, thirst, excitement), how strong their current urge was to consume each drink, whether they had any prior experience of consuming the eleven drinks (yes/no), and when the last time was that they consumed alcohol. These measures are addressed in a separate article and will not be addressed further here.

Next the 35 measures were collected in 35 blocks, one each for consumption frequency and its 34 predictors. For each participant, the order of these 35 blocks, as well as the order of the 11 drinks within each block, were randomized. Finally, participants filled out a variety of additional individual difference instruments and demographic information (again in Appendix A (SM-2)). Participants were debriefed, thanked for their participation, and paid through Prolific. On average, participation took around 45 minutes.

2.3 Results

2.3.1 Inter-rater agreement for the 35 measures

We used the intra-class correlation to assess how much the 900 participants agreed in their judgments for each of the 35 measures across the 11 drinks. Specifically, we used ICC2 from Shrout and Fleiss (1979) to establish the inter-rater agreement for each judgment. Intuitively, ICC2 estimates the average correlation between all possible pairs of participants in the 900 participant sample, thereby estimating the average agreement in their judgments of the 11 drinks. ICC2 values less than .5 are considered poor, between .5 and .75 moderate, between .75 and .9 good and above .9 excellent (Koo & Li, 2016). Because ICC2 considers random variation across participants, the values shown in Table 1 are likely to generalize across other samples from the same population.

As the values for ICC2 in Table 1 illustrate, interrater agreement for the 35 judgments varied considerably, ranging from .04 to .69. Perhaps most importantly, interrater agreement for consumption frequency was only .14,

demonstrating low agreement in how frequently the 900 participants consumed the 11 drinks. In other words, considerable individual differences exist in self-reported drink consumption frequency.

Figure 2 visualises this variability in drink consumption. In this heatmap, each row displays one participant's raw frequency rating for each of the 11 drinks. As can be seen, large individual differences exist between participants in their drink consumption, as quantified by the .14 agreement just presented.

The most frequently consumed beverages were coffee, tea, tap water and bottled water, followed by fruit juice and wine. When comparing coffee and tea consumption, there appear to be four distinguishable groups. Specifically, the majority of participants consumed both coffee and tea very regularly; a smaller group only consumed coffee but rarely tea; a third only consumed tea but no coffee; and a small minority consumed neither regularly. Tap water was reported by a majority to be consumed very frequently, while a small minority never consumed it. For the alcoholic beverages, wine was consumed most regularly, followed by beer. While wine was reported to be consumed moderately to very frequently across most participants, beer was reported to be never consumed by a considerable group of participants, while the rest consumed it moderately to very frequently. Cocktails and spirits emerged overall as the least frequently consumed beverages across participants. Fruit juice was reported to be consumed more frequently than diet soft drinks and regular soft drinks overall, with about half of the participants reporting drinking it very frequently. For diet soft drinks, there appears to be an almost even split between people who never consumed them and people who consumed them very frequently. In contrast, regular soft drink consumption was relatively typical for most participants with few drinking very often or rarely/never. For a detailed description of the remaining ICC2 results please see Appendix A (SM-3).

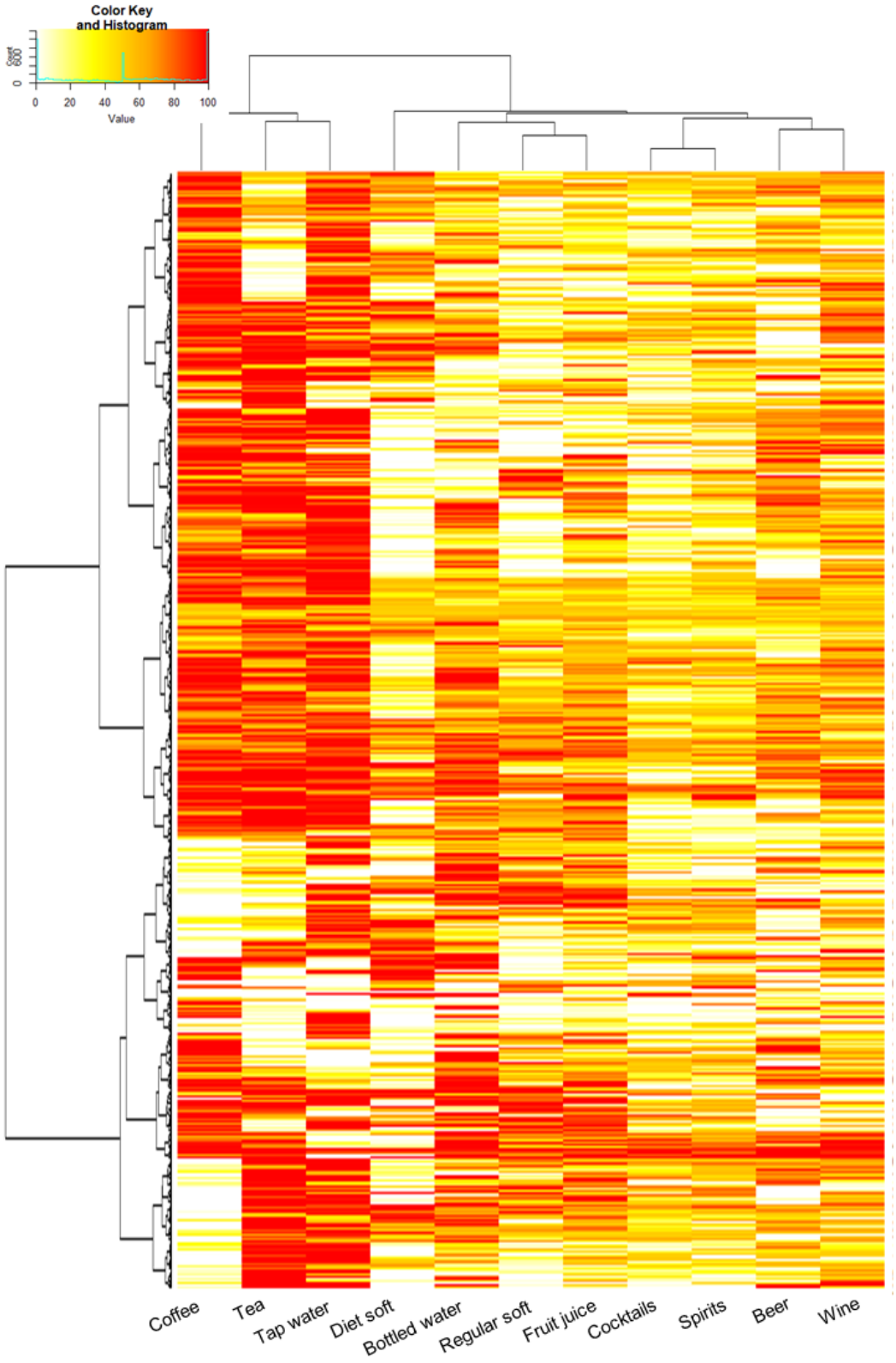

Figure 2 – Heatmap of raw frequency judgments for each drink

Heatmap displaying the raw frequency judgment for each of the eleven drinks for each of the 900 participants. As the cells in a row become increasingly white, they represent ratings approaching zero; as they become increasingly red, they represent ratings approaching 100.

2.3.2 Judgment means and variability

Figure 3 presents the mean value for each of the 35 judgments for each drink across the 900 participants, along with bars for the standard deviation of each judgment. The values for ICC2k in Table 1 present the reliability of these means, which can be interpreted as how well they would correlate with means from another sample of 900 participants from the same population (Shrout & Fleiss, 1979). Because ICC2k considers random variation across participants, the values shown in Table 1 are likely to generalize across other samples from the same population. As can be seen, these values are extremely reliable (reflecting n = 900), with values ranging from .97 to 1.00.

These means exhibit a number of notable patterns. Firstly, large standard deviations emerged across the majority of the 35 judgments (median SD = 28.80), indicating considerable individual differences in how participants experienced and evaluated the eleven drinks. SM-4 in Appendix A provides a detailed description of these results, while SM-5 in Appendix A provides a detailed description of how the 34 predictors correlated with consumption frequency. Overall, Figure 3 shows the richness of 35 measures assessed in the situated model of drink consumption sampled from the Situated Action Cycle (Figure 1). These results further illustrate the considerable variability of judgments across both drinks (variability in means) and participants (standard deviations). Together, these results provide a detailed picture of how beverages are consumed and experienced in a large UK sample.

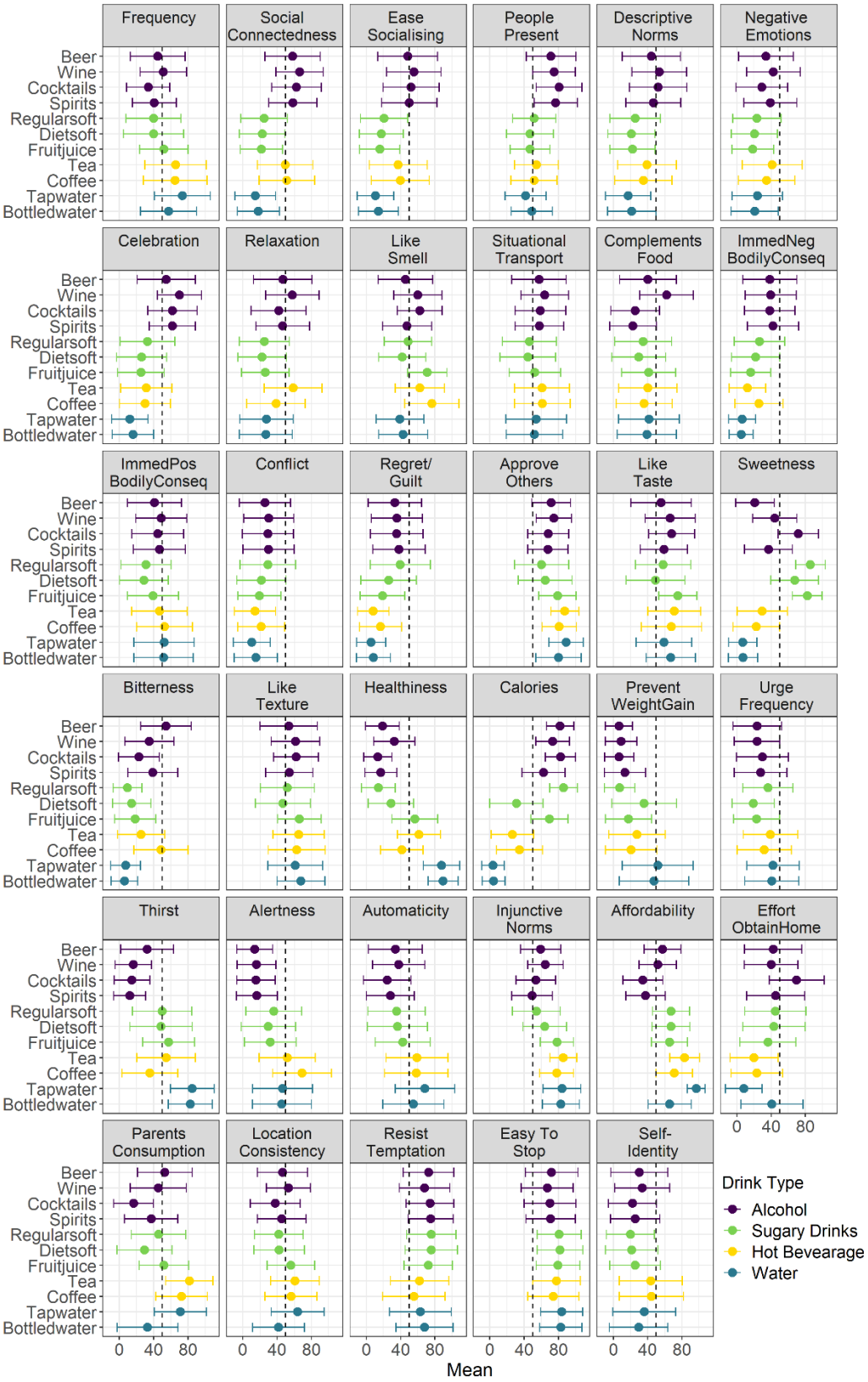

Figure 3 - Each of the eleven drink's mean for each of the 35 ratings

Forest plots that visualise the mean raw judgment for each of the 35 judgments across the 900 participants. Error bars are one standard deviation in each direction around the mean, providing a measure of the variability across participants. Colours correspond to each drink's typical association with a beverage category (alcohol, hot beverages, sugary drinks, water).

2.3.3 Factor analysis

We performed an exploratory factor analysis with the oblique oblimin rotation on the 34 predictors for two reasons. First, we wanted to further explore the underlying structure of the predictors, assessing whether they load on an underlying set of latent dimensions (factors). Second, we wanted to regress consumption frequency onto the 34 predictors at both the group and individual levels. With 34 predictors, collinearity would no doubt have been a problem in these regressions. By reducing the 34 predictors to a smaller set of factors, we avoided this problem.

Informed by parallel analysis, we selected a seven-factor model with an oblique (oblimin) rotation. Oblique factors were chosen as it was expected that the factors would correlate. Four variables either did not load significantly on any of the seven factors (urge frequency) or showed considerable cross-loadings (sweetness, injunctive norms and thirst). As the affected factors had even without the four variables at least three high loading variables, we decided, based on the recommendation of Costello and Osborne (2019), to drop the four items from the analysis to strengthen the seven factors. As the cross-loadings could have affected the number of factors extracted by parallel analysis (Li et al., 2020), we repeated the analysis with the remaining 30 factors. Parallel analysis still suggested a seven-factor solution as best fit for our data. Table 2 displays the resulting factors and factor loadings across predictors. The column headings in Table 2 present our interpretations of the seven factors. The bottom row in Table 2 presents the variance that each factor explained across the 30 measures, with the total variance explained by all 7 factors being 49%.

A potential problem of the seven-factor solution could have been the single item factor bitterness. Though as parallel analysis suggested this solution, bitterness did not load strongly on any other factor, and it is conceptually interesting we decided to keep the seven factor solution in line with Beavers et al.'s (2019) recommendation.

Table 2 – Exploratory factor analysis

Results from an exploratory factor analysis with seven factors and an oblique rotation (oblimin). Table 1 and the text provide details about the measures in the left column, which have been grouped according to their highest loading on the seven factors.

_

	Socialising / Positive Conseq.	Positive Taste	Health / Functionality	Habit	Negative Conseqences	Regulation	Bitterness	h2	u2
EaseSocialising	.77	-.08	.03	-.02	.04	-.09	.07	.65	.35
SocialConnectedness	.76	.06	-.07	-.01	-.05	-.04	.12	.71	.29
DescriptiveNorms	.71	-.05	.10	-.02	.11	.04	-.01	.50	.50
Celebration	.68	.09	-.18	.01	.05	-.10	-.08	.65	.35
PeoplePresent	.60	.15	-.03	-.13	-.02	.23	-.05	.39	.61
Relaxation	.49	.13	.01	.15	.02	-.22	.04	.56	.44
SituationalTransport	.34	.29	.03	.15	-.02	.01	-.01	.35	.65
NegativeEmotions	.32	.06	.07	.14	.15	-.29	.10	.46	.54
ComplementsFood	.30	.20	.11	.28	.11	-.03	-.09	.38	.62
LikeTaste	.04	.81	0	0	-.03	-.09	-.10	.79	.21
LikeSmell	-.02	.75	-.09	.01	.02	.01	.16	.53	.47
LikeTexture	.06	.74	.08	.03	-.02	-.05	-.10	.70	.30
ImmedPosBodilyConseq	.19	.31	.29	-.06	.02	-.11	.14	.37	.63
Healthiness	-.07	.15	.67	.07	-.14	.06	0	.66	.34
PreventWeightGain	.06	-.05	.66	.06	.12	-.03	-.07	.45	.55
Alertness	-.11	.25	.37	.17	.14	-.15	.16	.45	.55
Calories	.10	.16	-.64	0	.24	.07	.01	.61	.39
Affordability	-.12	-.02	.11	.63	-.05	.11	-.08	.49	.51
ParentsConsume	.01	.01	0	.50	0	-.02	.22	.33	.67
Automaticity	.06	.22	.24	.35	.01	-.26	-.03	.62	.38
LocationConsistency	.09	.22	.04	.33	.01	.03	.04	.24	.76
EffortObtainHome	0	.05	.07	-.48	.26	.13	.01	.34	.66
RegretGuilt	-.01	-.03	-.07	-.01	.77	.01	0	.63	.37
Conflict	.07	.04	.05	-.03	.52	-.12	-.01	.35	.65
ImmedNegBodilyConseq	.16	-.03	-.07	-.09	.47	.02	.20	.47	.53
ApproveOthers	.17	.18	.11	.23	-.35	.01	.06	.36	.64
ResistTemptation	.03	-.09	-.03	-.03	.03	.73	0	.61	.39
EasyToStop	-.12	-.02	.06	.13	-.08	.62	.01	.45	.55
SelfIdentity	.19	.16	.16	.23	.07	-.33	.05	.54	.46
Bitterness	.17	-.20	-.06	0	.06	.04	.47	.36	.64
Proportion Variance	**.13**	**.10**	**.07**	**.06**	**.06**	**.06**	**.02**		

As Table 2 illustrates, the first most important factor captured socialising and positive consequences, with high loadings for how much consumption triggers feelings of social connectedness and eases socialising, as well as for how much it is drunk to celebrate, relax and cope with negative emotions. The second most important factor captured positive taste, with high loadings for how much the taste, smell and texture are liked. The third most important factor combined health and functionality, with high loadings for how much consumption reflects weight gain prevention, perceived healthiness, and perceived calorie content. The fourth most important factor captured habitual behaviour, with high loadings for affordability, how often one observed their guardians consuming the drink during childhood, how automatic consumption is and how consistently a drink is consumed in the same location. The fifth most important factor captured negative consequences, with high loadings for regret, guilt, and the experience of short term negative physical consequences. The sixth most important factor captured regulation, along with how easy it is to stop consumption and resist the temptation. Interestingly self-identity loaded highest on this factor and negatively. This pattern of loadings indicates that as someone's identity was increasingly associated with a drink, they found it increasingly difficult to resist and stop consumption. Finally, as seventh factor bitterness emerged, having only the single item load significantly on it, namely how bitter participants find the drink.

To test whether the factor solution could have reflected sampling bias, a bootstrapping analysis was performed. By manipulating the sample on which the factor analysis was performed, we were able to assess stability of the factor loadings. On each of 10,000 bootstrapped repetitions, we randomly sampled participants with replacement from the 900 original participants. For each sample, we recomputed the same seven-factor analysis and stored its factor loadings. The results show that the factor loadings were extremely stable across bootstrapped samples, exhibiting exceedingly small variability (see Appendix A (SM-5) for the results of this analysis).

2.3.4 Predictive relations between the seven factors and drink consumption

To explore relations between the seven factors and consumption frequency, we computed correlations between factor scores and frequency. How well does each of the 7 factors predict the frequency of consuming each of the 11 drinks? To perform this analysis, we simply correlated the factor scores for one factor at a time with consumption frequency for one drink at a time across all 900 participants simultaneously. Figure 4 presents these results, with each panel showing the correlations for one factor at a time across the 11 drinks.

As can be seen, habit tended to show the most consistently high correlation across the 11 drinks, except for cocktails and spirits. Socialising / positive consequences was also strongly correlated with consumption frequency for all drinks except tap water and bottled water, particularly for beer. The correlations for regulation with frequency were all moderately to strong negative and tended to be strongest for tea and coffee, wine and beer, and diet soft drinks, while being considerably lower though still moderate, for fruit juice. Health/functionality tended to correlate with consumption frequency strongly for the non-alcoholic drinks, especially for diet soft drinks and tap water. Negative consequences and bitterness were only weakly associated with consumption frequency across all eleven drinks. For negative consequences most non-alcoholic drinks consumption frequencies were negatively correlated with consumption frequency whereas the alcoholic drinks and tea were positively associated. For bitterness only cocktails, spirits, regular soft drink, fruit juice and bottled water showed weak positive associations whereas the other drinks showed weak negative correlations. The highest variability in correlation strength occurred for the positive taste factor, being very strong for coffee, tea, diet-soft drink, wine and beer, but only moderate for cocktails.

Figure 5 presents the same correlations for the 11 drinks shown in Figure 4, but reorganised, with all 7 correlations for each drink shown together. Organising the correlations in this manner makes it possible to see the correlation profile for each drink individually. What is most striking about this organisation of the results is how qualitatively similar the correlation profile is across drinks.

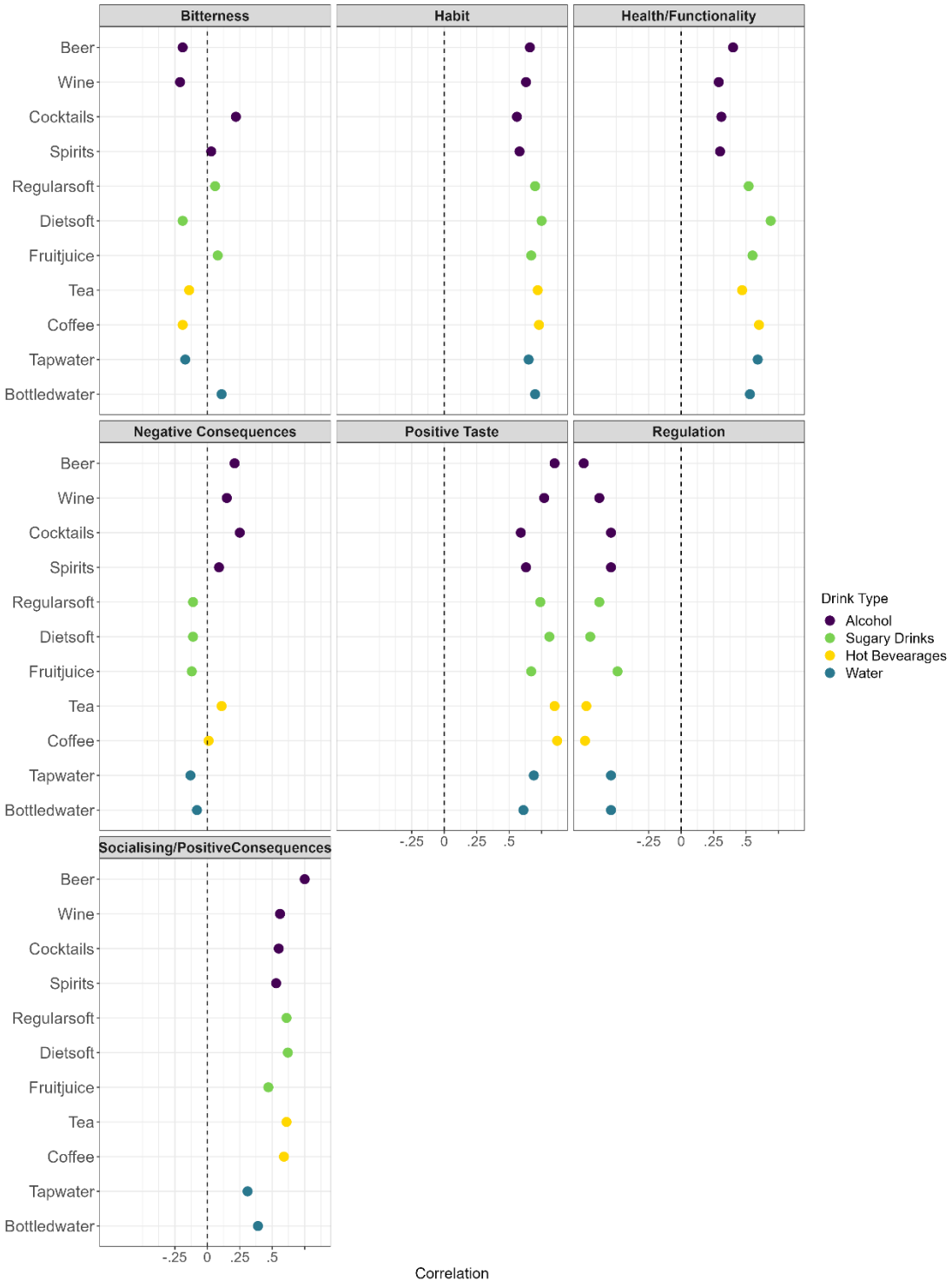

Figure 4 - Correlation between seven predictive factors and consumption frequency ordered by factor

Forest plots visualise the results for correlations of factor scores from the seven predictive factors with the dependent variable, consumption frequency. Each of the seven plots shows one factor's results for each of the eleven drinks. Colours correspond to each drink's typical association beverage category (alcohol, hot beverages, sugary drinks, water

Although minor numerical differences appear, the same general pattern can be observed. Across all drinks, regulation (except for bottled water and tap water), socialising/positive consequences, habit and positive consequences emerged as the most strongly correlated factors.

To further establish the similarity between the prediction profiles for individual drinks in Figure 5, the ICC2 was used again (as for the 34 predictors earlier). How similar are these prediction profiles to each other across the eleven drinks? The value of the ICC2 for this analysis was .94. Again, the pattern of prediction was surprisingly high across drinks. On average, the average correlation of the predictive profiles between individual pairs of drinks was .94, indicating a highly stable pattern of prediction.

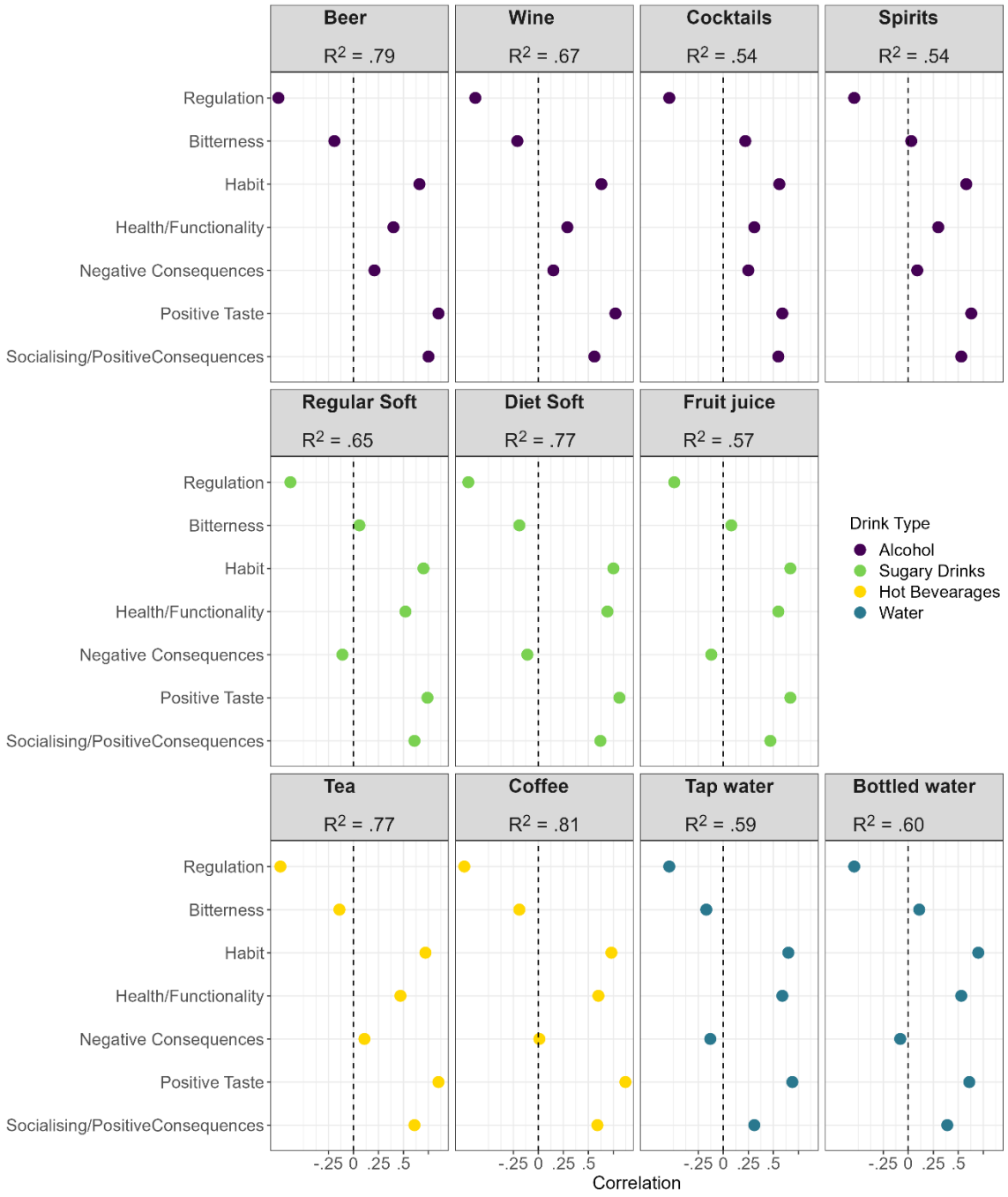

Figure 5 - Correlation between seven predictive factors and consumption frequency ordered by drink

Results from Figure 4 reorganized so that the correlations for the seven predictive factors are grouped together for each individual drink. Of interest is establishing the most predictive factors for each drink. The R2 value below each panels name shows how much variance in consumption frequency the seven factor scores explain for the drink across the 900 participants (from a simple linear regression with no random effects or interactions)

2.3.5 Explained variance in consumption frequency

Of interest in these next analyses was how much variance the predictive patterns in Figures 5 and 6 explain in consumption frequency. To establish the explained variance, a simple linear regression was performed for each drink at the group level. In each regression, consumption frequency was regressed onto the 7 factor scores for the 900 participants for 1 of the 11 drinks. No random intercepts or interactions were included. All regression analyses were performed on standardized scores for the dependent variable and for the seven predictors.

Of primary interest in these regression analyses was how much variance the seven predictive factors explain in drink consumption. As the R^2 value above each panel in Figure 5 indicates, the variance that the seven factors explained in drink consumption varied from 54% to 81% across drinks, with a median value of 65%. As can further be seen, the model's predictive ability was especially high for tea, coffee, and beer, but reduced for spirits and cocktails, perhaps indicating larger individual differences for some drinks than for others. Nevertheless, the seven predictive factors are highly successful in explaining drink consumption across participants.

2.3.6 Predictive patterns for individual participants and explained variance

Finally, we assessed factors that predict consumption frequency at the individual level. Of interest was whether the predictive patterns at the group level held at the individual level, and also how much the predictive profiles varied across individuals. We were also interested in how much variance the seven-factor model predicts in individual regressions.

To investigate predictive patterns at the individual level, we computed the Spearman rank correlation between an individual's consumption frequency across the 11 drinks with their 7 factor scores from the group factor solution. The heat map in Figure 6 shows the pattern of prediction for each of the 900 participants. Specifically, each row shows the pattern of prediction for a single participant, with each cell in the row visualising the correlation between the

participant's scores for a factor from the seven-factor solution and consumption frequency across the 11 drinks.

Each column in Figure 6 visualises how much variability exists across participants for how much a factor was associated with consumption frequency. Figure 7A presents the mean value of the correlations in each column, along with the error bars that represent one standard deviation in each direction.

As Figure 6 and Figure 7 illustrate, substantial individual differences existed in how well each of the 7 factors predicted consumption frequency across the 11 drinks. Habit and positive taste emerged as the only factors that were consistently positive and of high magnitude across participants. In contrast, negative consequences varied considerably, highly negative for around half of the participants but neutral or positive for the other half. Unsurprisingly, most participants exhibited a negative correlation between consumption and regulation, though even here a minority of participants emerged who exhibited a positive association, indicating that the more they find it easy to regulate, the more they consume it. The factors of socialising/positive, bitterness and health functionality, again exhibit considerable individual differences.

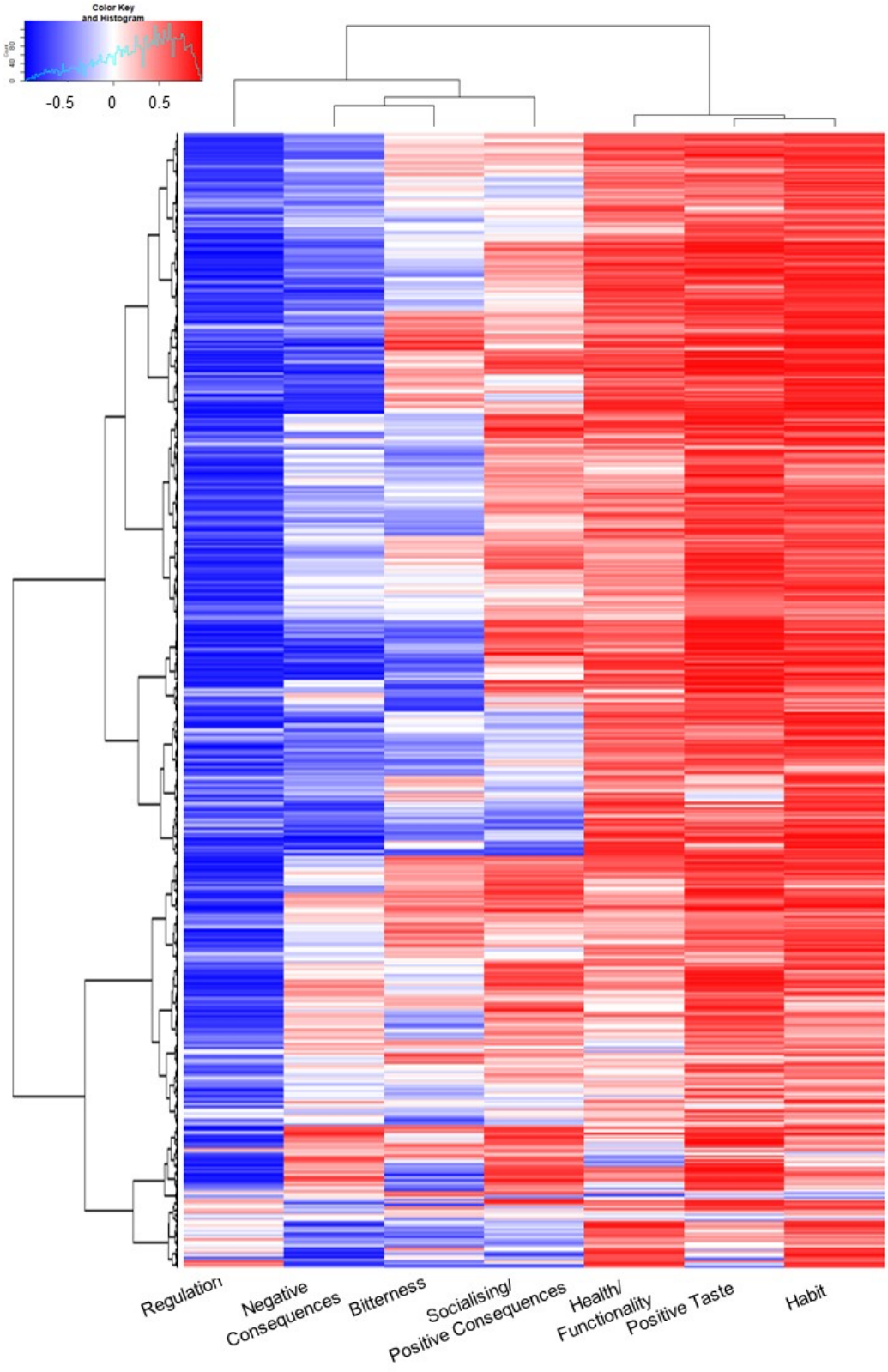

Figure 6 – Individual correlations of the seven-factors with consumption frequency

Heatmap displays the correlations of the seven factors with consumption frequency for each the 900 participants. As the cells in a row become increasingly red, they represent increasingly positive correlations; as they become increasingly blue, they represent increasingly negative correlations; as they become increasingly white, they increasingly approach 0.

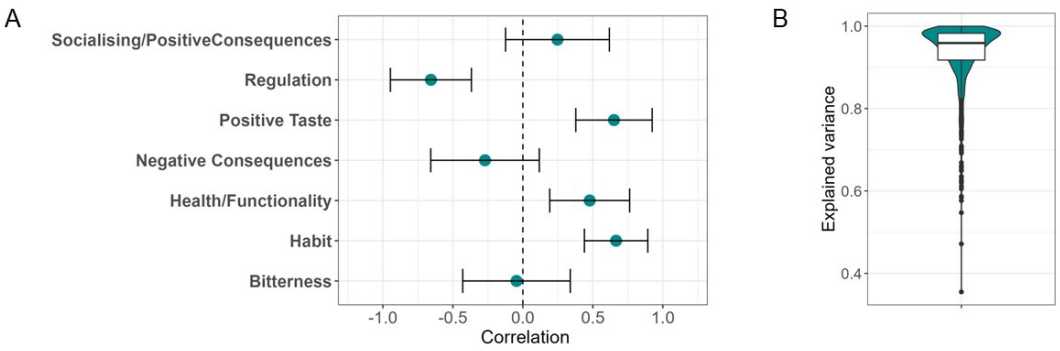

Figure 7 – Mean and SD from the individual correlations for each factor (A) and distribution of the explained variance from the individual simple regression analysis (B)

On the left, the forest plot presents the mean and standard deviation of the individual correlations for each factor across all 900 participants in the Figure 7 heatmap present earlier. On the right, the box plot represents the median and IQR of the explained variance (R2) from 900 individual regressions that used only the seven factors to explain frequency, together with a violin plot for the overall distribution.

2.3.7 Similarity of prediction profiles

To assess the similarity of the prediction profiles across individuals, we again used the ICC2 (with the 7 correlations for a participant constituting their prediction profile). Of interest was how much participants agreed in their prediction profiles. For this analysis, the value of the ICC2 was .70, indicating that, on average, one participant's prediction profile correlated .70 with another participant's profile. Although this illustrates considerable agreement, it is much less than the agreement we observed between predictive profiles for different drinks earlier.

To assess this agreement further, hierarchical clustering was used to explore whether distinct groups having similar predictive patterns could be identified (see the hierarchical clustering solution on the left of Figure 6). Overall, the proposed clusters do not appear to be very distinct from each other. Nevertheless, interesting clusters emerge. One contains roughly the bottom tenth of participants, who appeared mostly to exhibit strong negative correlations for negative consequences, strong positive for health/functionality and habit and weak positive or negative correlation with regulation (whereas most other participants generally showed negative correlations for regulation).

Another cluster up from the bottom, which seems similar in size, exhibited highly positive correlations for negative consequences and strong positive ones for socialising/positive consequences. The top third of the participants generally showed highly negative correlations for negative consequences, along with low to moderate correlations for both regulation and habits. At the column level, habit, positive taste and health/functionality clustered together, as did socialising/positive consequences, negative consequences and bitterness.

2.3.8 Explained variance in predictive profiles

Finally, to assess how well the seven factors explained consumption frequency for specific individuals, we computed a simple linear regression for each individual, using their factor scores from the group-level seven factor solution to predict their consumption frequencies. As Figure 7B illustrates, the median explained variance across the 900 participants was 95% (R^2 = .95), indicating that the individual factor scores tended to explain nearly all the variance in an individual's frequency of consumption.

2.4 Discussion

We developed and assessed a situated model of drink consumption to explain the drinking frequency of alcoholic as well as non-alcoholic beverages (Figure 1). A large UK sample rated 11 alcoholic and non-alcoholic drinks on 34 predictors, identified through the Situated Action Cycle (Barsalou, 2020) and previous research on drink consumption. Using factor analysis to simplify and reduce the 34 predictors, a seven-factor model emerged, with factors for social/positive consequences, negative consequences, positive taste, health/ functionality, habit, bitterness and regulation.

2.4.1 Patterns of prediction for individual participants

The seven-factor model explained considerable variance in consumption frequency for each individual drink at the group level (54% to 81%). The model performed even better when explaining individual participant's drinking behaviour, explaining a median of 95% of the variance in individual regressions.

Although predictive patterns differed between participants (Figure 6), stable tendencies could nevertheless be observed (Figure 7A).

The differences in individual prediction profiles could be especially useful when creating interventions. Instead of using one-size-fits-all public health interventions, such as posters noting the dangers of alcohol, it might be more beneficial and successful to instead focus on individualised approaches to tackling the motives most relevant for each individual. For example, if a participant's consumption is greatly predicted by taste, a possible easy-to-follow recommendation to decrease alcohol consumption might be to replace alcoholic beer with an alcohol-free beer. Future research is needed to compare different strategies that take the kind of prediction profiles found here into account.

2.4.2 Patterns of prediction for individual drinks

Perhaps most surprisingly, the pattern of prediction was remarkably similar across the 11 drinks (Figures 4 and 5). When predictive profiles were assessed for the 34 predictors, the predictive profiles for the 11 drinks exhibited .85 agreement (as measured by the ICC2). In other words, if a predictor was important for one drink, it tended to be similarly important for all drinks. Across all 34 predictors, the pattern of prediction was highly similar for all drinks. High agreement was also found when the motives were reduced to 7 factors, with agreement in prediction profiles being .94 for the 11 drinks.

The high agreement across drinks took the following specific form. Habit, regulation, positive taste, and, to a slightly lesser extent, Socialising/positive consequences showed similar patterns and correlation strength across all 11 drinks. Perhaps this consistency reflects the usefulness of the Situated Action Cycle as a tool for understanding drinking behaviour. Because drinking tends to become repetitive, processes related to conditioning, habits, and reward operate as central mechanisms. Once a habit has developed, relevant extrinsic or intrinsic cues generate strong incentives (cravings) to perform and obtain expected rewards, such as positive (social) consequences and positive taste. These cravings and their expected rewards could become associated with consuming specific drinks and make it difficult for people to regulate their consumption.

Nevertheless, some interesting differences appeared in the patterns of prediction as well, especially when comparing alcoholic and non-alcoholic beverages. In the 34 predictors, all alcoholic drinks were highly associated with socially relevant predictors, along with liking taste and habit. Similarly, in the seven-factor model, the socialising/positive consequences factor emerged as strong predictor for all alcoholic beverages, whereas the negative consequence factor and the health/functionality factor were less important for the alcoholic drinks than for the non-alcoholic drinks. These differences might indicate that, for alcoholic beverages, people are relatively undeterred by possible negative consequences or health/functionality concerns, while socialising/positive consequences and positive taste outweigh them.

Not surprisingly social/positive consequences factor correlated highly with the consumption frequency of all alcoholic beverages, especially beer. This factor combines social predictors as well as subjective enhancement—two of the three conventional motives for consuming alcohol (Halim et al., 2012). What was surprising was that liking of taste and regulation for wine and beer, and habit for cocktails and spirits emerged as almost equally important.

These findings suggest that interventions and public health advertisements should focus less on educating people about health risks or other negative consequences associated with alcohol consumption. Instead, it might be more beneficial to tackle social aspects and drinking culture. In light of the importance of the taste factor, especially for beer and wine, a further solution to aid individuals who want to reduce their alcohol consumption might be to promote and ensure wide availability of alcohol-free alternatives such as non-alcoholic beer.

Sugary drink consumption appeared to be mainly associated with positive taste, habit (especially soft drinks and fruit juice), together with health/functionality (mainly diet soft drinks) and socialising/positive consequences. These findings partly fit with Block et al.(2010), who also found that selecting these beverages was driven primarily by taste though add further motivations. Perhaps the difference reflects a discrepancy between what people consciously believe drives their behaviour (and therefore report subjectively) versus less conscious

factors that actually control it (perhaps reflected in the more implicit approach to assessment performed here). Similar mismatches have been found in habit motives (Dutriaux et al., 2021). Based on our results, research on non-alcoholic drink consumption would benefit from including both social factors as well as habit, thereby capturing the drinking experience more comprehensively.

Tea and coffee consumption were highly correlated with the regulation factor, followed by taste and habit, and to a lesser extent socialising/positive consequences and health/functionality. Similar findings were reported by Ágoston et al. (2018). The importance of regulation could potentially be driven by caffeine dependency (Striley et al., 2011), making it difficult for people to regulate their consumption.

Interestingly, very subtle differences emerged between the motives for tap water and bottled water. In contrast to tap-water, bottled water was slightly less associated with positive taste and more strongly with socialising/ positive consequences. Again, this hints at the importance of studying specific water drinks instead of water consumption in general.

2.4.3 Strengths and limitations

A strength of the present study was the large size and heterogeneity of our sample, varying considerably in age, education level, and region of UK residency. Furthermore, we were able to include a broad range of beverages together with a broad range of potential motives.

A first limitation of the studies generalisability was our consumption measure. Studies typically assess consumption frequency of alcoholic or non-alcoholic beverages by asking participants to rate their consumption on a Likert-scale, defining specific amounts of consumption within a defined timeframe (e.g., once a month, twice a day, six times per week etc) (for examples see Barbosa et al. (2021; Cravero et al. (2020)). We, in contrast, measured consumption frequency in our study on a continuous scale asking participants to judge their frequency from not at all to very much (representing values from 0 to 100), which was beneficial for the later statistical tests. While the measure did show a high correlation with a standard instrument (judging consumption frequency in the

last month on an 8 point Likert-scale) more research is admittedly needed to validate our measure further, e.g., whether it would capture similar population consumption levels as standard instruments. A further limitation was to only focus on consumption frequency while disregarding consumed amount which might be especially relevant for alcohol consumption, e.g., to assess binge drinking (Kuntsche et al., 2004). In summary, in future studies it would be important to also record and assess consumed amount and to further validate our consumption measure, e.g., for alcohol consumption what value range might indicate problematic drinking behaviour.

A further possible limitation of the factor analysis was the inclusion of the single item factor bitterness. Although the recommendation is to keep factors if conceptually sensical (Beavers et al., 2019) a strong factor should have at least 3 high loading items (Costello & Osborne, 2019). Due to the parallel analysis results, the lack of cross-loadings, the lack of high loadings on any other factor and due to the factor being conceptually interesting it was decided not to drop the single item factor, though the later analysis showed that bitterness was only weakly associated with consumption frequency for all eleven drinks as well as most participants. Therefore, in future research it might be preferable to drop the factor.

A limitation for the generalisability of our study were the extensive exclusion criteria, excluding any participants who did not consume alcohol at least occasionally (e.g., for medical reasons), had past or present alcohol-related disorders, any allergies to food or drink products, any learning disabilities, synaesthesia, psychological, psychiatric, or neurological conditions. The aim of these exclusions was to avoid potentially not fully representing the motives for alcoholic drink consumption for these groups, e.g., religious reasons. Furthermore, for people with past or present alcohol related disorders it would have been unethical to expose them to alcohol related stimuli without being able to provide support. In hindsight problematic was using the term “learning disabilities” instead of intellectual impairment. The reason for including the criteria was to ensure that participants would be able to understand and respond to our questions and/or have the ability to give consent, not to exclude for instance participants with high functioning autism or adhd. By referring to

learning disabilities some participants might have mistakenly thought they were excluded and dropped out which further limits the generalisability of our study. In the future it would be important to specifically refer to intellectual impairment or make it clear what abilities are needed to take part in the study. To allow for greater generalisability it would also be important to replicate the study to include individuals who do not consume alcohol and to compare their consumption motives for non-alcoholic drinks with the results of alcohol consuming individuals.

A further limitation of our study was to not include the first dimension of the SAM2 assessment framework, namely, contextualising the consumption of specific drinks in specific drinking situations (e.g., drinking beer in the pub, drinking coffee at work). As a consequence, participants had to generalize their judgments for a given drink across a variety of situations, which could have negatively impacted the accuracy of our results.

Phan and Chambers (2018) found differences in importance of eating motives across different meals and snacks which might indicate similar patterns for drink consumption. In contrast, our recent research into eating behaviour indicates that there would be little change in predictive profiles if we took drinking situations into account (Werner et al., 2022). Therefore, in the future, it could be useful to explore whether including specific situations increases prediction. Findings from Blevins et al. (2018), who found that situations were associated with different motives, suggests that including specific situations might well be important.

A further limitation of the study was its reliance on self-reported consumption frequency. Even though the data was collected anonymously online there might still be potential biases affecting participants' responses. For instance, alcohol consumption has been found to be underreported (Livingston & Callinan, 2015). Future studies would benefit from additionally using other approaches, such as the ecological momentary assessment (EMA) approach, to compare self-reported and more objective measures of consumption frequency.

Finally, future studies could further benefit from expanding the drinks selection to include different brands of the same beverage, and to test whether the associated consumption motives vary across these specific drinks. Additionally, future research could investigate whether people are aware of what drives their drink consumption and explore if reflecting about the underlying motives aids behaviour change.

2.4.4 Conclusion

Overall, our situated framework of drink consumption demonstrated the value of taking a comprehensive approach to understanding drinking behaviour. Our approach captured the similarities and differences of 11 typical UK beverages on 35 measures drawn from the Situated Action Cycle (Figure 1). The similarity of predictive profiles across the 11 drinks suggests that drinking behaviour might be driven by generalized motives that are relatively independent of beverage type. Nevertheless, individual differences exist as well, especially for individual people and to some extent drinks. These differences indicate the potential importance of individual-specific motives as well.

The distinction between general and specific motives may be relevant for future research, as well as for the development of interventions. Habit, socialising/positive consequences, positive taste, and regulation appear to be strong general factors that are strongly related to consumption frequency, thereby offering a possible starting point for working with unhealthy drinking behaviours. From this starting point, other individual-specific factors could be taken into account. For example, the negative correlation of consumption frequency with negative consequences that was exclusive to sugar-sweetened beverages might motivate related tools that can reduce their consumption. Similarly, the considerable individual differences in prediction profiles point towards an individualisation of interventions instead of a one-size-fits-all approach.

2.5 Declarations

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Conflicts of interest / competing interests

The authors declare no conflict of interests/competing interests.

Availability of data and material

Please find the data, all analysis scripts and ethics on the Open Science Framework (OSF https://osf.io/dctbe/).

Ethics

This study was approved by the University of Glasgow College of Science & Engineering Ethics Committee (Date: 10/07/2017, no: 300160183).

Chapter 3 Establishing Individual consumption motives and their stability across eating situations

This chapter is an exact copy of the following preprint manuscript:
Werner, J., Papies, E. K., Gelibter, E., & Barsalou, L. (2022, November 30). Why do you eat? – Establishing Individual consumption motives and their stability across eating situations.
https://psyarxiv.com/mjzf4

3. Abstract

This article examines individual consumption motives and explores their stability across eating situations. Study 1 established an extensive sample of foods consumed in the UK in different eating situations and informed which foods to include in Study 2 and 3. Study 2 evaluated potentially relevant eating motives for food consumption. Using a between participant design, each of 885 participants rated a subset of 341 situated foods from Study 1 on consumption frequency or desire, or on one of 30 possible consumption motives (e.g., food availability, automaticity, food sweetness etc.). An exploratory factor analysis reduced redundancies and established underlying eating motives, with five factors emerging (habitualness, unhealthiness/healthiness, fullfillingness, saviourness/sweetness, bitterness/sourness). Using a within-participant design (n=204), Study 3 then established individual differences in eating motives, their stability across eating situations, and participants' insights into these motives. Each participant evaluated a subset of foods from Study 1 in a specific eating situation (e.g., "usual breakfast") on consumption frequency and desire, and on 10 central eating motives: healthiness, fillingness, sweetness, bitterness, affordability, automaticity, self-identity, social connectedness, emotional satisfaction, situational transport (e.g., "How affordable do you find cheese for usual dinner?"). We found that the ten predictors explained a large amount of variance in both consumption frequency (median = .59, IQR = .19) and desire (median = .66, IQR = .17). Between participants, large individual differences emerged in predictive profiles, although within participants these profiles remained remarkably stable across eating situations. Lastly, participants showed little insight into the motives predicting their consumption frequency and desire. These results have implications for measuring eating behaviour and the development of interventions.

3.1 Introduction

Eating behaviour has important implications for individual, public and for planetary health. For the individual it has an impact on their physical health as well as cognition and mood as well. The consumption of ultra-processed foods, which are usually high in calories, sugar, trans fats and salt, has been connected to faster cognitive decline in later life (Weinstein et al., 2022), as well as to mood disorders (Lane et al., 2022). In contrast, a high quality diet may help to protect people from cognitive decline (Smyth et al., 2015). This makes it even more alarming that few people meet the recommended daily amount of fruit and vegetables (Stroebele-Benschop et al., 2018). The high numbers of overweight and obese individuals (Health Survey for England 2019 [NS], 2020) mean that eating behaviour is not only relevant for an individual's health and life quality but furthermore, through its associated diseases, a public health concern, putting extra pressure on health services (Allender & Rayner, 2007). Lastly, food production, especially animal agriculture greatly contributes to the emission of greenhouse gases and has therefore a direct effect on planetary health (O'Mara, 2011). However, our understanding of consumption motives, and how these may differ between and within individuals, as well as situations, is limited, which may hinder our ability to successfully influence behaviour to improve public and planetary health. Hence, the present research aims to establish individual consumption motives.

3.1.1.1 Eating motives

While hormones such as ghrelin and leptin regulate our physical hunger signals (Cousino Klein et al., 2004; Higgins et al., 2007), they are unspecific in what to consume. The same hunger signal might lead to one person eating a salad whilst another orders a pizza. Furthermore, people consume food and drink, especially very palatable ones, for a number of other, unrelated, reasons such as stress and emotional needs (Boggiano et al., 2015) or social factors (Higgs, 2015). Previous research has identified a multitude of environmental, cognitive, motivational, emotional, and social motives that predict eating behaviour (Boggiano et al., 2015; Brug et al., 2006; Renner et al., 2012; Steptoe et al., 1995; Stroebele-Benschop et al., 2018). Brug et al. (2006) for instance found that fruit consumption was best predicted by sex, subjective norms, attitudes, and habit.

The importance of habit was further shown by Stroebele-Benschop et al. (2018), who again found it emerging as strongest predictor for the consumption of various food groups. Steptoe et al. (1995), in contrast, found that sensory appeal, health, convenience, and price ranked highest as motives for food choice. Similarly, Honkanen & Frewer (2009) observed that consumer food choice was driven the most by sensory factors, availability, and price.

A striking observation about the previous assessment of eating motives is how little agreement there appears to be in the relative importance of specific motives. There are several potential explanations for this observation. One issue might arise through the use of different questionnaires, focusing on only a few specific motives of interest instead of a more exhaustive approach. Furthermore, most studies assess eating motives in an unsituated manner, meaning that participants judge motivations independent of specific foods or specific situations, e.g., "how much do you eat foods because they are healthy". When confronted with those unsituated questions it is then up to the participant to decide how to generalise the importance of different motives across foods and eating occasions. How this generalisation exactly occurs is likely to differ depending on how rating questions are worded. Wahl et al. (2020) for instance compared trait and state eating motives and found large differences in what people reported generally influenced their eating behaviour (trait) versus what influenced their eating behaviour during an eating occasion (state). A further limitation of these approaches is that they assume that people have a good insight into what motivates their eating behaviour.

3.1.1.2 The Situated Assessment Method (SAM^2)

Thus, to further our understanding of consumption motives, it is important to find ways to capture individual differences in consumption motives, assess their stability across consumption situations, and assess how much insight people have into them. A novel approach to investigate complex behaviours such as eating and drinking is the use of the Situated Assessment Method (SAM^2; for an in depth description see Dutriaux et al., 2021). Building on the theory of situated cognition (Barsalou, 2008) SAM^2 proposes that to fully understand and capture a complex behaviour such as eating and its individual differences, it is crucial to measure it in the situation where it occurs, as well as to assess all potential

factors that might influence the behaviour in these situations (Dutriaux et al., 2021). In practice, this means that instead of using very general questions, e.g., "how much do you think price influences your eating behaviour" SAM^2 would situate the question, e.g., "how affordable do you find eating a sandwich for lunch".

To assess consumption behaviour using the SAM^2 method, the first step is to identify the relevant situations where the behaviour occurs, along with the foods and drinks (to simplify presentation, "foods" will be used to mean "foods and drinks" from this point on) consumed (and not consumed) in them, e.g., identify foods consumed for breakfast. In a second step, all relevant situational motives are identified that could potentially explain consumption of foods in these situations. In SAM^2, the Situated Action Cycle is used to help identify possible motives, including factors related to the environment, self-relevance, affect, action and outcomes (for detailed information on the Situated Action Cycle see Dutriaux et al., 2021).

A key assumption of the SAM^2 approach is the importance of assessing the target behaviour of interest—in this case eating—in the relevant situations where it occurs, rather than assessing it in a generalised unsituated manner across situations. Situated assessments make it easier for participants to evaluate their behaviour and furthermore preserves complexities in it. Specifically, instead of establishing one general measure for each participant about how much they think taste influences their eating behaviour, the SAM^2 approach instead establish how much taste is associated with a person's consumption of different foods in different situations. This also allows to assess whether individual eating motivations vary across eating situations or are stable.

3.1.1.3 Variability in eating motives

Previous results suggest variability in eating motives across eating situations. Cadario and Morewedge (2022) and Phan and Chambers (2018), for example, both found that variety seeking and hedonic goals were less important for breakfast than for meals consumed later in the day. Similarly, Verain et al. (2022) found that food choice motives differed depending on meal moment, location, and social context. Phan and Chambers (2016) similarly observed

different motives for different foods, providing evidence that eating motives are food specific. These kinds of results suggest that eating motives do not generalise across situations or foods but are instead context specific. To understand such differences more comprehensively, it would be useful to measure eating motives with regard to specific situations for specific foods.

3.1.1.4 Using SAM^2 to assess variability in eating motives across situations and individuals

To comprehensively assess eating motives in the current article, we first established an extensive sample of foods consumed in the UK in different eating situations (Study 1). We then established a broad set of possible eating motives, assessed their relations to food consumption, and reduced them to an underlying set of factors (Study 2). Finally, we extracted the most important motives from Study 2 and used them to assess individual eating motives across eating situations (Study 3). We wanted to establish how much eating motives vary across individuals; at the same time, we also wanted to know how much eating motives vary across situations within individuals.

To assess eating motives as comprehensively as possible, we used two approaches to identify potentially relevant motives. First, we drew heavily on previous literature, including as many relevant motives as possible that we could identify there. Second, we used the Situated Action Cycle to also help us identify other potentially relevant motives (Barsalou, 2020; Dutriaux et al., 2021). We next describe the Situated Action Cycle and how we used it to identify possible eating motives.

The Situated Action Cycle proposes that behaviour in specific situations consists of five basic phases: environment, self-relevance, affect, action, and outcomes. For previous applications of this, see a review by Barsalou (2020). From this perspective, understanding action in specific situations one must assess all phase of the Situated Action Cycle. For our purposes here, it's essential to understand the motives for action that can originate in all its phases. We next describe a few examples of motives that can be associated with each phase. Table 3 contains a complete list of all the motives established in Study 2 from both examination of previous literature and the Situated Action Cycle. For each

motive in Table 3, our assignment of it to a phase of the Situated Action Cycle is shown in the left column.

In the environment phase of the Situated Action Cycle, relevant environmental cues often trigger an individual's eating behaviour (Marteau et al., 2012). Possible environmental factors that motivate eating include food availability and food affordability, which both have been found to be important for food choice in consumers (Honkanen & Frewer, 2009). Aggarwal et al. (2016) similarly found that the convenience of food was perceived as highly important for consuming it.

In the self-relevance phase of the Situated Action Cycle, an individual evaluates the self-relevance of the environmental cues with respect to the individual's long-term goals, norms, values, and identity. Important factors here include how much an agent likes the taste of a food (Aggarwal et al., 2016), social factors such as norms that influence eating behaviour (Higgs, 2015), emotion regulation goals, or weight management goals (Sproesser et al., 2011).

In affect phase of the Situated Action Cycle, affect results from establishing self-relevance to environmental factors in the previous two phases. Individuals, for example, may experience desire to consume a food (Papies et al., 2022), perhaps accompanied by feelings of conflict (Zhang et al., 2019).

In the action phase of the Situated Action Cycle, the affect generated in the previous phase may result in the individual acting (or not acting) to consume a food in the current situation. Relevant motives here can be associated with consumption habitualness (Stroebele-Benschop et al., 2018) and with the difficulty of limiting consumption (Higgs et al., 2012).

Table 3 – Variable names, rating questions including labelling, group size, ICC2, ICC2k, Median and IQR values

Underneath the rating question the scoring range as well as the question labelling can be found. Participants rated each of the 341 foods and drinks on one of the 32 motives. Group size started with a minimum of 20 participants for each motive and was gradually increased until ICC2k reached at least .79. Motives are organised based on the Situated Action Cycle.

Situated Action Cycle Phase	Motive	Question Score range, label	N	ICC2	ICC2k	Median (IQR)
Environment.	Food availability	How easy/difficult is it for you to obtain this food or drink for [situation]? (-3 to 3) (extremely difficult, neither difficult nor easy, extremely easy)	20	.18	.81	1.6 (2.8)
	Food convenience	In terms of overall time and effort, how convenient is it to consume this food or drink for [situation]? (1 to 7) (not convenient at all, moderately convenient, extremely convenient)	33	.14	.84	5.9 (2.3)
	Food affordability	How affordable do you find consuming this food or drink for [situation]? (1 to 7) (not affordable at all, moderately affordable, extremely affordable)	20	.17	.80	5.5 (2.4)
	Calories	How high/low in calories do you find this food or drink? (1 to 7) (low, medium, high)	20	.45	.94	4.0 (2.9)
	Fatteningness	How fattening (due to fat and sugar) do you find this food or drink? (1 to 7) (not fattening at all, moderately fattening, extremely fattening)	20	.60	.97	3.6 (3.7)
Self-relevance	Emotional satisfaction	How emotionally satisfied/dissatisfied do you feel after consuming this food or drink for [situation]? (-3 to 3) (extremely dissatisfied, neither satisfied nor dissatisfied, extremely satisfied)	34	.11	.82	0.7 (2.5)
/ Outcomes	Food fillingness	How filling do you find this food or drink for [situation]? (1 to 7) (not filling at all, moderately filling, extremely filling)	20	.24	.87	4.0 (2.8)
	Self-identity	How much is this food or drink related to your identity and self-concept? (1 to 7) (not at all, moderately, extremely)	20	.16	.80	3.2 (4.0)
	Descriptive norms	How many people do you think consume this food or drink for [situation]? (1 to 7) (none, someone, everyone)	20	.27	.88	4.4 (2.6)
	Injunctive norms	How much do you think people approve/disapprove of consuming this food or drink for [situation]? (-3 to 3) (disapprove a lot, neither approve nor disapprove, approve a lot)	20	.17	.81	1.3 (2.7)
	Like	How much do you like/dislike this food or drink for [situation]? (1 to 7) (extremely dislike it / neither like it nor dislike it /extremely like it)	33	.12	.82	0.9 (0.3)

Situated Action Cycle Phase	Motive	Question Score range, label	N	ICC2	ICC2k	Median (IQR)
	Tastiness	How tasty do you find this food or drink? (1 to 7) (not tasty at all, moderately tasty, extremely tasty)	34	.11	.81	4.8 (2.8)
	Healthiness	How healthy and nutritional do you find this food or drink? (1 to 7) (not healthy at all, moderately healthy, extremely healthy)	20	.52	.96	4.6 (3.0)
	Mood change goal	How often do you consume this food or drink for [situation] to change your mood or how you're feeling emotionally? (1 to 7) (never, sometimes, always)	42	.12	.86	2.4 (3.8)
	Energy level goal	How often do you consume this food or drink for [situation] to change your energy level? (-3 to 3) (always to decrease my energy level, never to change my energy level, always to increase my energy level)	41	.09	.80	0.0 (1.0)
	Weight change	How often do you consume this food or drink for [situation] to change your weight? (-3 to 3) (always to decrease my weight, never to change my weight, always to increase my weight)	26	.18	.85	0.0 (1.4)
	Visual appeal	How visually appealing do you find this food or drink for [situation]? (1 to 7) (not appealing at all, moderately appealing, extremely appealing)	25	.16	.82	4.6 (3.2)
Affect	Choice conflict	How conflicted do you typically feel about consuming this food or drink for [situation]? (1 to 7) (not conflicted at all, moderately conflicted, extremely conflicted)	28	.12	.79	2.1 (3.4)
	Connectedness	When consuming this food or drink for [situation], how much social connectedness do you typically experience with other? (1 to 7) (not at all, moderate, a lot)	51	.09	.84	3.7 (3.5)
	Desire	How weak/strong is your desire to consume this food or drink for [situation]? (-3 to 3) (extremely weak, neither weak nor strong, extremely strong)	20	.18	.81	0.5 (3.6)

Situated Action Cycle Phase	Motive	Question Score range, label	N	ICC2	ICC2k	Median (IQR)
Action	Resisting temptation	How easy/difficult is it for you to resist the temptation to consume this food or drink for [situation]? (-3 to 3) (extremely difficult, neither difficult nor easy, extremely easy)	33	.11	.80	0.8 (4.2)
	Consumption habitualness	How habitual is your consumption of this food or drink for [situation]? (1 to 7) (not habitual at all, moderately habitual, extremely habitual)	20	.17	.80	2.1 (3.7)
	Consumption automaticity	How automatically do you consume this food or drink for [situation]? (1 to 7) (never automatically, sometimes automatically, always automatically)	35	.14	.85	1.8 (3.7)
	Limiting consumption	Once you start consuming this food or drink for [situation], how easy/difficult is it to limit its consumption? (-3 to 3) (extremely difficult, neither difficult nor easy, extremely easy)	58	.07	.81	0.2 (3.5)
	Frequency	How frequently do you consume this food or drink for [situation]? (1 to 7) (never, monthly, weekly, daily)	26	.19	.86	2.2 (3.5)
Basic Taste Dimension	Savouriness	How savoury do you find this food or drink? (1 to 7) (not savoury at all, moderately savoury, extremely savoury)	20	.36	.91	3.5 (4.1)
	Saltiness	How salty do you find this food or drink? (1 to 7) (not salty at all, moderately salti, extremely salti)	20	.35	.91	2.1 (3.5)
	Sweetness	How sweet do you find this food or drink? (1 to 7) (not sweet at all, moderately sweet, extremely sweet)	20	.61	.97	2.8 (4.0)
	Bitterness	How bitter do you find this food or drink? (1 to 7) (not bitter at all, moderately bitte, extremely bitte)	21	.16	.80	1.3 (1.5)
	Sourness	How sour do you find this food or drink? (1 to 7) (not sour at all, moderately sour, extremely sour)	20	.17	.80	1.6 (2.4)
Meta-cognition	Consumption imagery	How vivid is the imagery that you have of consuming this food or drink for [situation]? (1 to 7) (not vivid at all, moderately vivid, extremely vivid)	37	.11	.81	4.1 (3.5)
	Situational transport	When you imagine consuming this food or drink for [situation], how easy difficult is it to feel transported to the situation where you're consuming it? (-3 to 3) (extremely difficult, neither difficult nor easy, extremely easy)	27	.15	.82	0.6 (3.4)

In the outcome phase of the Situated Action Cycle, actions performed in the previous phase may result in a variety of outcomes e.g., receiving a reward for an action. Relevant factors in this phase match the ones in the self-relevance phase. For instance, in the self-relevance phase the reward of consuming a food e.g., its tastiness, might have been anticipated and the consumption of said food in the action phase would then lead to experiencing the anticipated taste in the outcome phase.

Overall, reviewing the literature and using the Situated Action Cycle, we identified a total of 30 potentially relevant motives for food consumption (Table 3). We assumed that this relatively comprehensive set would allow us to capture each individual's specific motives for consumption well, thereby enabling an assessment of individual differences in eating motivation. Additionally, because we examined all these motives across different eating situations, we could assess the stability of eating motives across eating situations within specific individuals.

Using a situated approach and capturing eating behaviour in this extensive manner preserves important individual and situational information, that would be lost with an unsituated assessment. For instance, it is possible to assess whether people who mainly eat very healthy foods for lunch even enjoy the taste of unhealthy foods. Understanding individual differences at this level of detail is likely to be useful for the understanding of peoples' eating behaviour and establishing precision interventions for changing it.

3.1.1.5 Overview and predictions

Using the SAM^2 approach, three exploratory studies aimed to better understand the motives associated with food and drink consumption. Study 1 developed food and drink norms that captured the diversity of what people consume in the UK across eight eating situations (usual breakfast, usual lunch, usual dinner, brunch out, lunch out, dinner out, daytime snack and evening snack). We used these norms to sample the foods included in Studies 2 and 3. Using a between group design, Study 2 assessed 30 possible eating motives and performed exploratory factor analysis to establish the underlying consumption motives for consumption frequency and eating desire between individuals across eating

situations. Using a within-individual design, Study 3 then focused on a central subset of these motives across eating situations within individuals. In this final study, we expected to see large individual differences in what predicts individual participants consumption frequency and desire. Study 3 also aimed to establish the importance and stability of consumption motives across different eating situations. We predicted that eating situations would play an important role in eating motivation, with motives varying considerably across situations. Lastly, we expected a participant's subjective self-assessment of their eating motives would differ considerably from the profile for eating motivation that SAM[2] established implicitly for each individual.

3.2 Study 1

Study 1 was designed to establish a database of food and drinks consumed in the UK across different eating situations. Participants were asked to list foods consumed in eight different eating situations. The resulting food pool would later inform the foods we include in Studies 2 and Study 3. Additionally, the results are available online to other researchers and provide detailed information about the foods people consume in different eating situations, along with how frequently people consume them, and how healthy and tasty they perceive them to be (https://osf.io/anpmx/). From the original foods collected, four different food norms were created, differing in their level of detail, to support different research needs. The complete norms (including all details) are included here in Appendix B (SM-4).

3.2.1 Method

3.2.1.1 Participants

100 UK participants (51 female) were invited via the University of Glasgow subject pool to participate in an online survey. On average it took participants 52 min to complete it. Participants were paid at a rate of 6£ per hour.

3.2.1.2 Material and Procedure

After informed consent was obtained, participants were presented with the first of the eight eating situations: usual breakfast, usual lunch, usual dinner, daytime snack, evening snack, brunch out, lunch out, dinner out. For each

situation, participants were asked to imagine themselves in the situation as much as possible, before listing foods they consume in it. For each situation participants were asked to fully immerse themselves in the situation and generate up to ten foods for each of four categories: “Tasty, but not so healthy, consumed frequently”, “Tasty, but not so healthy, consumed only occasionally”, “Relatively healthy, consumed frequently” and, “Relatively healthy, consumed only occasionally”. These four food categories were probed to help activate memories of foods consumed and to increase variability in reported foods, as well as to evaluate how participants categorise the generated foods. Participants were instructed to list individual foods instead of meals, and to also include all associated condiments. For each of the eight situations a participant could consequently generate up to 40 items (a maximum of 10 per category). The situations were presented one at a time to the participant, with the order of situations randomised across participants.

3.2.1.3 Coding

To structure the large number of food items and to create informative norms, the foods were furthermore coded on seven dimensions. Appendix B (SM-Table 1) presents the coding results. Each row presents the results for one food within one eating situation.

The coding process proceeded as follows: First the foods were coded based on the eating situation in which they were generated (usual breakfast, usual lunch, usual dinner, daytime snack, evening snack, brunch out, lunch out, dinner out). Second, the items were coded based on their general food category (e.g., flour-based product, fish protein, starchy vegetable etc.). Third, each item was coded based on its ‘basic food’ type, nested with the broader general food categories (e.g., all different types of bread were coded as bread). Fourth, the more specific types listed for each ‘basic food’ category were further coded into more specific ‘types’ (e.g., scone was further coded as scone, fruit scone, and cinnamon). Fifth, possible ‘accompaniments were listed (e.g., for scones, butter was mentioned as an accompaniment).

The last two coding dimensions were specific for foods in the ‘complex foods’ group (e.g., curry). The sixth dimension specified the ‘main ingredient type’ of

a complex food, meaning whether it included meat or fish or was vegetarian. The seventh dimension then specified the ‘main ingredient subtype’ (e.g., for vegetarian curry, lentils).

For each food, the norms include the ‘overall consumption frequency’ of how many participants generated the food, along with the relative percentage of the four categories (Tasty but not so healthy, consumed frequently, Tasty but not so healthy consumed occasionally, Relatively healthy consumed frequently, Relatively healthy consumed occasionally) in which it was generated (for further details on the coding and the resulting norms see Appendix B (SM -1 and SM-4).

3.2.2 Results

Participants generated 1,494 unique foods, with many being listed in multiple variations. Combining the multiple variations into "basic foods" reduced the number to 1,374 unique basic foods. The total number of listed foods across the 8 situations differed greatly across participants, with a maximum of 40 being listed in each situation, for a total maximum of 320 (median = 115, range: 32-309, IQR = 51.5). Figure 8 presents the distribution of how many foods each participant listed for each of the eight eating situations. The spread is comparable across situations, each including a few participants who listed an enormous number of items and some who listed few. Across participants the most items were listed for usual dinner (236), dinner out (216), and usual lunch (215).

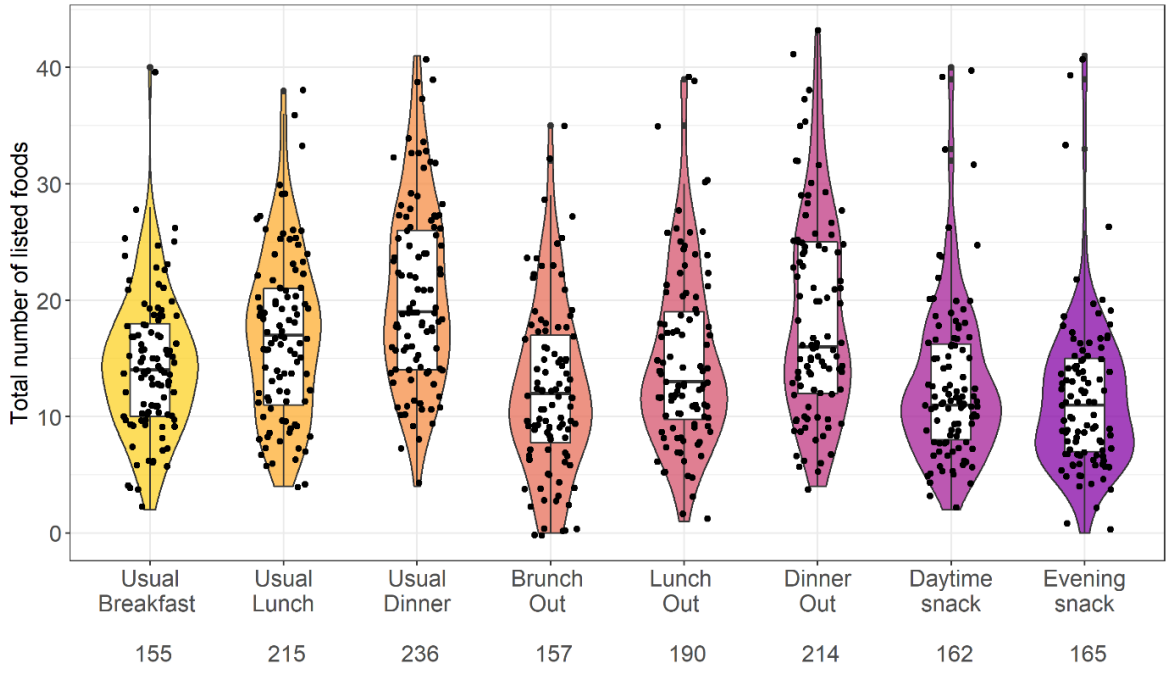

Figure 8 - Number of foods listed by each participant for each eating situation

Boxplots represents the median and IQR of the total number of foods listed by each participant for each of the eight-eating situation. The violin plot shows the distribution of the total number of listed foods while each dots represent a single participant's total number of listed foods. The number below the X-Axis label shows the total number of basic foods listed for each eating situation across all 100 participants

Figure 9 – Distribution of the frequency of how many participants listed the same basic food.

Histogram plots show the distribution of how many of the 100 participants listed the same basic food for each eating situation and how often that particular number of participants occurred across the basic foods in each eating situation. Plotted on the X-axis is the number of participants who listed a food. If a food has an X-axis value of "1" it indicates that only one single participant listed the food while 10 indicates that a food was listed by 10 individual participants. The maximum x Axis value would be 100, indicating that all 100 participants listed a food. In contrast the Y axis represents how many basic foods were listed by that specific number of participants (X-Axis value). A Y axis value of 10 and a X axis value of 20 would indicate that for that eating situation 10 basic foods were listed by 20 of the 100 participants.

Figure 9 visualises how many foods were listed by multiple participants within each eating situation. The X axis indicates how many participants listed a food (ranging from 1 to a possible 100), and the y axis indicates how many foods were listed by this number of participants (for instance how many foods were listed by just one single participant within the usual dinner eating situation). It's apparent that across eating situations, most foods were only listed by one to four participants. Beyond one or two foods that the majority of participants

mentioned there is little agreement in what they consume in each of the eight eating situations.

3.2.3 Discussion

The richness of the foods and drinks generated across situations and coding categories offers insight into the general diet of UK residents. These results illustrate how diverse people's diets tend to be. These results furthermore highlight the importance of including a great variety of different foods and beverages in research studies to ensure that most people's diets are sufficiently captured. The norms established here will be used as basis for sampling foods in Studies 2 and 3. And again, their publication here makes them available for use by researchers in their work.

3.3 Study 2

Study 2 aimed to comprehensively establish motives associated with food consumption. Thirty potentially relevant consumption motives were identified from previous research (e.g., Arnold et al., 2015; Boggiano et al., 2015; Burgess et al., 2014; Pollard et al., 1998). These motives were also chosen based on the Situated Action Cycle as described earlier to reflect the relevant factors for each of the five phases. As a result, motives related to the environment were sampled (e.g., food availability, food affordability), as were motives related to self-relevance (e.g., self-identity, healthiness), affect (e.g., choice conflict, connectedness), action (e.g., consumption habitualness, difficulty to resist temptation), and basic taste dimensions (e.g., savouriness, sweetness). Several additional measures related to metacognition were sampled as well, based on their relevance in our previous research (e.g., situational transport, consumption imagery) as well as measures related to basic taste dimensions (e.g., sweetness, saltiness).

Each participant rated a sample of the foods obtained in Study 1 on 1 of the 30 motives or on one of the 2 dependent variables (consumption frequency and desire). Table 3 presents the 32 measures assessed. Importantly, these assessments were made *between groups*. In other words, 32 different groups each evaluated 1 of the 32 different measures across the entire sample of foods.

On each judgment trial, participants assessed a food in one of the eight eating situations, but on each of the 32 measures. The study was designed to later select the consumption motives included in Study 3, which were then examined *within* each individual.

3.3.1 Method

3.3.1.1 Participants

885 UK Participants (524 female; age *M* = 35.00, *SD* = 11.69, *range* = 18-64) were recruited via the Prolific platform (www.prolific.co) and invited to take part in an online Qualtrics survey. Participants were randomly assigned to 1 of the 32 measures and only rated all foods on this one measure. We started with a minimum of 20 participants in each group, and gradually sampled additional participants until ICC2k, a measure of the stability of the mean reached, around .80, indicating a good stability of the mean (Koo & Li, 2016). When the initial ICC2k fell below .79, the Spearman-Brown formula was used to estimate the number of additional participants needed to reach this threshold. The number of participants per group varied therefore ranging from 20 to 58. Participants took an average of 28.52 min to complete the survey and were paid at a rate of £6 per hour.

3.3.1.2 Material: Foods

In total, 341 foods were included in Study 2 (Table 4). Using the food norms collected in Study 1, we included all foods that were listed by at least 10 of the 100 participants. Foods were excluded if they were not specific enough (e.g., the generic “vegetables” instead of a specific vegetable such as “broccoli”), even if it had been generated more than ten times. To increase variability and ensure capturing people’s diets to the fullest extent, an extra ten foods were chosen manually for each of the eight eating situations, which were listed in Study one by between one and nine participants. As a result, a total of 341 foods were included. Table 4 presents all these foods, each associated with one of the eight eating situations, along with their overall listing frequency in Study 1 and their mean consumption frequency here in Study 2.

All foods were presented within the Study 1 eating situation in which they were generated (usual breakfast, usual lunch, usual dinner, daytime snack, evening snack, brunch out, lunch out, dinner out). Some foods were included more than once as they were generated for multiple situations.

Table 4 – List of foods included in Study 2 and 3 organised by eating situation they were presented in

The Table shows all 341, in study 2, included foods organised in their eating situation. Frequency study 1 shows the absolute number of participants generating the food for the eating situation. Frequency study 2 shows the mean consumption frequency across participants in study 2 (rated on a continuous scale ranging from 0 to 10). In study 3 we included a subset of 177 foods, consisting of all foods from usual breakfast, usual lunch, usual dinner and daytime snack.

Usual Breakfast			Usual Lunch			Usual Dinner		
Food	Frequency Study 1	Frequency Study 2	Food	Frequency Study 1	Frequency Study 2	Food	Frequency Study 1	Frequency Study 2
bread	83	4.44	sandwich	59	5.44	pasta dish	74	4.81
breakfast cereal	69	4.15	pasta dish	57	3.55	chicken	70	4.77
coffee	66	3.98	water	56	5.82	pizza	53	4.12
eggs (only)	55	3.16	bread	51	4.17	side rice	52	3.58
tea	52	4.57	soup	45	4.06	side potatoes	52	4.45
fruit juice	51	3.58	chicken	41	3.54	fries/chips	49	4.30
banana	43	3.29	side salad	41	3.04	water	46	5.73
oats	39	2.84	soft drink	38	2.52	bread	45	3.24
sandwich	36	2.37	side rice	35	2.68	beef	39	3.66
yogurt	33	2.99	tea	30	4.12	burger and bun	38	2.93
bacon	31	2.79	cheese	29	4.06	curry dish	37	4.10
water	31	4.74	chips/fries	27	3.29	side salad	36	3.66
milk	31	3.53	coffee	26	2.99	soup	34	3.37
sausage	28	2.59	chocolate	25	3.01	salmon	28	2.66
croissant	23	2.48	pizza	25	2.93	cheese	28	4.26
cheese	20	2.66	eggs (only)	24	2.55	tomatoes	28	3.97
sweet pancake	18	2.25	tomatoes	24	3.57	broccoli	26	4.34
apple	18	2.68	banana	24	3.68	soft drink	25	3.32
muesli	17	2.22	burger and bun	24	2.69	wine	24	2.35
granola	15	2.13	crisps	22	3.38	beer	24	2.13
egg dish	15	3.25	fruit juice	22	3.18	pepper/capsicum	23	4.10
beans	13	2.49	side potatoes	21	2.32	tea	23	3.00
strawberries	13	2.22	tuna	20	3.32	noodle dish	22	3.37
biscuit	13	2.36	apple	19	2.97	meal salad	21	2.94
chocolate	12	1.89	salmon	17	1.85	sausage	20	3.49
snack bar	12	2.48	beef	16	2.52	carrot	20	4.60
blueberries	11	2.13	egg dish	16	3.02	sandwich	20	2.98
grapes	11	2.12	meal salad	16	2.91	eggs (only)	18	2.53
cake	8	1.85	pepper/capsicum	15	3.00	rice dish	18	4.26
smoothie	7	2.15	noodle dish	14	2.73	pork	17	2.97
fruit salad	6	2.27	beans	13	2.57	beans	16	3.57
nuts	6	2.39	lettuce	13	3.33	mushrooms	16	2.83
avocado	6	1.80	carrot	13	2.74	wrap	16	2.85
scone	5	1.76	mushrooms	12	2.11	onion	15	4.54
sweet waffle	4	1.87	broccoli	11	2.27	stir fry	15	3.35
watermelon	3	1.93	strawberries	11	2.22	fruit juice	15	2.80
doughnut	2	1.83	grapes	11	2.44	mashed potato	14	3.79
quinoa	1	1.31	sausage	9	2.69	egg dish	14	3.01
			curry dish	9	2.27	peas	14	4.12
			side couscous	6	2.04	ice cream	13	2.53
			olives	6	2.04	spinach	12	2.91
			cod	6	1.91	stew	12	3.28
			wine	3	1.62	yogurt	11	2.37
			nachos	2	1.81	cake	11	2.36
			split peas	1	1.78	milk	11	2.35
			potato bake	1	2.07	chilli dish	9	2.87
			casserole	1	1.67	savoury pie	8	2.79
						fish cake	6	2.21
						Quorn/mycoprotein	6	2.30
						coffee	6	2.81
						moussaka	2	1.72
						squid	1	1.51
						cocktail	1	1.57
						tiramisu	1	1.71
						fennel	1	1.56

Table 4 (continued)

Day time Snack			Evening Snack		
Food	Frequency Study 1	Frequency Study 2	Food	Frequency Study 1	Frequency Study 2
chocolate	71	4.67	chocolate	60	4.51
crisps	53	4.25	bread	48	3.24
banana	53	3.82	crisps	45	3.98
apple	46	3.49	banana	38	2.66
water	43	6.04	tea	37	3.31
bread	41	3.28	biscuit	35	3.52
coffee	41	4.08	apple	32	2.95
biscuit	40	4.30	water	29	5.38
nuts	36	3.31	nuts	26	2.68
snack bar	36	3.67	cheese	25	3.73
tea	33	4.76	ice cream	25	2.93
yogurt	26	3.44	yogurt	22	2.66
sandwich	26	3.33	milk	22	2.44
cheese	23	3.52	sandwich	21	2.62
cake	21	3.30	cake	20	3.08
soft drink	21	3.13	fruit juice	20	3.12
fruit juice	21	3.50	soft drink	19	3.04
ice cream	19	2.47	breakfast cereal	18	2.55
carrot	18	2.33	grapes	18	3.13
grapes	18	3.19	cookie	17	3.87
sweets (candies)	18	3.23	fries/chips	16	2.48
cookie	16	3.51	coffee	16	2.62
milk	16	2.52	beer	14	2.06
orange	15	3.20	wine	14	2.77
oatcake	14	1.80	carrot	13	2.14
fries/chips	11	2.52	popcorn	12	2.23
shake	11	2.18	strawberries	12	2.94
breakfast cereal	9	2.58	snack bar	12	2.85
rice cake	7	1.93	crackers	10	2.85
muffin	8	3.04	pizza	10	2.24
mango	6	2.10	oats	6	1.52
energy drink	6	1.65	eggs (only)	6	1.86
dried fruit	4	2.78	smoothie	6	2.05
popcorn	4	1.92	salmon	2	1.58
celery	1	1.50	dates	2	1.65
coconut water	1	1.38	spirit/liquor	2	1.99
scone	1	2.10	coconut	1	1.62
			mousse	1	1.82

Table 4 (continued)

Brunch Out			Lunch Out			Dinner Out		
Food	Frequency Study 1	Frequency Study 2	Food	Frequency Study 1	Frequency Study 2	Food	Frequency Study 1	Frequency Study 2
bread	57	3.17	fries/chips	56	3.45	fries/chips	80	3.75
coffee	55	3.43	burger and bun	56	3.09	pizza	77	3.18
eggs (only)	53	2.28	pasta dish	54	3.27	burger and bun	64	3.06
sandwich	49	3.07	sandwich	54	3.88	pasta dish	62	3.70
tea	45	2.97	pizza	51	2.68	beef	53	2.79
fruit juice	41	3.01	water	50	4.73	chicken	52	3.35
bacon	38	2.89	side salad	42	2.67	water	52	4.39
water	37	4.50	soup	42	2.61	wine	52	2.67
sausage	29	2.80	soft drink	41	3.32	curry dish	49	2.82
sweet pancake	27	2.51	bread	30	3.31	soft drink	45	3.36
egg dish	25	2.61	chicken	30	3.09	beer	42	2.12
cheese	23	2.38	coffee	30	3.40	side rice	40	3.23
tomatoes	23	2.79	tea	27	3.55	side salad	39	2.79
soft drink	21	2.50	beer	27	1.78	bread	37	2.78
chips/fries	18	2.30	fruit juice	24	2.90	cheese	33	3.60
mushrooms	18	2.08	cheese	22	3.24	side potatoes	28	3.02
salmon	17	1.35	beef	18	2.42	soup	26	2.27
side salad	16	2.06	wrap	18	2.88	noodle dish	23	2.93
beans	15	2.77	meal salad	18	2.58	meal salad	23	2.53
cake	15	2.47	side rice	17	2.28	sandwich	21	2.62
croissant	15	2.79	cake	17	2.87	salmon	20	1.97
sweet waffle	15	2.00	tomatoes	16	2.54	cake	20	3.40
banana	14	1.83	wine	16	1.57	rice dish	19	3.28
granola	13	1.55	crisps	15	3.27	sushi	19	1.90
yogurt	13	2.08	noodle dish	15	2.22	wrap	19	2.35
avocado	12	1.80	sushi	15	1.63	fruit juice	18	2.53
burger and bun	12	2.22	side potatoes	14	2.42	ice cream	17	2.19
muffin	11	2.13	curry dish	14	2.34	pork	16	2.23
smoothie	11	2.39	salmon	12	1.79	tomatoes	16	2.98
hot chocolate	11	3.02	pastry/bake/pasty	12	3.53	tea	14	2.45
soup	10	2.02	eggs (only)	11	1.97	prawns	13	1.89
apple	10	2.05	ice cream	11	2.17	spirit/liquor	12	2.58
oats	6	1.57	prawns	7	1.55	mushrooms	11	2.58
spinach	6	1.57	falafel	7	1.77	pakora	11	1.66
cookie	6	2.34	dumplings	7	1.44	chocolate	5	2.52
cocktail	3	1.49	milk	7	1.87	broccoli	8	2.62
quiche/tart	2	1.43	apple	7	2.14	savoury pie	8	2.43
meal salad	2	1.76	seabass	2	1.52	fruit salad	7	1.75
fritters	1	1.39	green beans	1	1.65	egg dish	6	2.10
savoury crepe	1	1.72	tofu	1	1.41	oysters	5	1.51
			kebab	1	2.13	lentils	2	1.71
			samosa	1	2.11	crème brulee	2	1.87
						venison	1	1.65
						ratatouille	1	1.57

3.3.1.3 Material: Motives

As described earlier, motives were included that have been addressed in previous literature and that are also motivated by the Situated Action Cycle. Table 3 presents these 30 predictors, along with the 2 dependent variables (consumption frequency and desire). Table 3 also presents the number of participants who evaluated each measure, relevant intraclass correlations discussed later, and the median of each judgment across participants and foods (along with the IQR).

3.3.1.4 Procedure

After providing informed consent, participants were randomly assigned to one of the 32 measures. Participants then judged each of the 341 foods on their measure using a 7-point continuous scale. Each food item was presented in the context of its specific eating situation (Table 4). The order of situations as well as the order of foods within each situation was randomised across participants. At the end of the survey participants were asked to provide demographic information (age, gender, residency, student status, accommodation, education, height, weight, eating following specific diet, eating disorders, food allergies, dietary restraint).

3.3.2 Results

3.3.2.1 Factor analysis

To reduce redundancies, simplify the 30 motives, and further understand the underlying structure of the data, an exploratory factor analysis was performed. First, for each of the 341 foods, the means for each of the 30 motives were calculated across the participants in each rating group (e.g., mean 'like' for each of the 341 foods across the 33 participants in the Like group). These means were then used in the exploratory factor analysis. Parallel analysis suggested that a five-factor solution would be the best fit for the data. As factors were expected to correlate, an oblique rotation (promax) was selected. Table 5 displays the resulting factors and each motive's factor loadings.

As can be seen in Table 5, many variables show considerable cross loadings across at least two of the five factors. As a consequence it is possible that the parallel analysis suggested a underfactored solution (Li et al., 2020). To explore this further we also ran the factor analysis with six factors. The same five factors described earlier emerged with the additional single variable sixth factor "affordability". Because affordability showed a significant cross-loading on the habitualness factor (Beavers et al., 2019), and had a high communality with the other variables in the five-factor solution (Costello & Osborne, 2019), we decided to drop the factor and instead keep the original five-factor solution proposed by the parallel analysis. A possible solution for the considerable cross-loadings would have been to exclude all crossloading items and re-running the factor analysis with only the remaining items (Beavers et al., 2019), though this

would have had the undesirable outcome that many items that were conceptually likely to be important would not have been included in the factor-analysis (Beavers et al., 2019). As the main point of this exploratory analysis was to better understand the underlying structure of the 30 motives instead of creating a reliable measurement instrument and to identify which motives to include in Study 3, we therefore decided to keep the cross-loading items in the factor solution.

The first factor captured items related to *habitualness*. Both consumption habitualness (.95) and consumption automaticity (.91) loaded very highly on this factor. Additionally, the motives for mood change goal (.92), availability (.92), self-identity (.90), consumption imagery (.88) and situational transport (.88), and all related to habit formation and maintenance, emerged with high loadings.

The second factor combined multiple facets of *unhealthiness / healthiness'* related to eating motives. The highest loadings included healthiness (-1.02), choice conflict (.91) weight change (.91) and fatteningness (.88).

The third factor combined multiple aspects of *fulfillingness* related to eating motives. The highest loadings were for fillingness (.70) and emotional satisfaction (.57).

The fourth factor combined three of the five taste dimensions that could motivate eating: savouriness (.89), saltiness (.67) and sweetness (-.94). To reflect the two facets, we called this factor *savouriness / sweetness*.

The fifth factor combined the other two taste dimensions, bitterness (.88) and sourness (.75). To reflect both facets, we called it *bitterness / sourness*.

In total, the five-factor model explained 81% of the overall variance in the food means. Table 5 presents the proportion of the variance that each factor explained.

Table 5 – Results Exploratory factor analysis

Results from the exploratory factor analysis resulting in a five-factor solution with an oblique rotation (promax). Measures are organised based on the factor they load highest on.

Motive	Habitualness	Unhealthiness / Healthineess	Fullfilligness	Saviourness / Sweetness	Bitterness / Sourness	h2	u2
Consumption habitualness	.95	-.11	-.17	.08	.08	.84	.16
Descriptive norms	.93	.01	.02	0	.07	.86	.14
Mood change goal	.92	.07	.02	.04	-.05	.87	.13
Food availability	.92	.19	-.34	-.01	-.02	.73	.27
Consumption automaticity	.91	-.01	-.02	-.06	-.09	.85	.15
Self-identity	.90	-.15	-.03	.25	.09	.84	.16
Consumption imagery	.88	.12	.13	.07	.13	.86	.14
Situational transport	.86	-.08	.14	.02	-.04	.86	.14
Food convenience	.77	.12	-.23	-.26	.02	.63	.37
Like	.68	-.08	.42	.11	-.08	.86	.14
Visual appeal	.63	.13	.48	-.06	0	.88	.12
Tastiness	.58	.16	.48	-.05	.01	.80	.20
Connectedness	.49	.53	.06	.07	.34	.65	.35
Food affordability	.44	-.25	-.19	.07	-.42	.56	.44
Energy level goal	.41	-.40	.10	-.14	-.18	.46	.54
Resisting temptation	-.80	-.13	-.20	.02	.09	.82	.18
Choice conflict	-.24	.91	-.13	-.06	-.06	.86	.14
Weight change goal	.11	.91	.09	-.02	-.09	.89	.11
Fatteningness	.01	.88	.22	0	-.08	.94	.06
Calories	-.03	.80	.34	-.02	-.08	.94	.06
Limiting consumption	-.39	-.55	-.40	.12	.03	.82	.18
Injunctive norms	.41	-.66	.34	.03	.19	.69	.31
Healthiness	-.15	-1.02	.15	.01	.03	.93	.07
Food fillingness	-.16	.12	.70	.29	-.20	.71	.29
Emotional satisfaction	.54	.05	.57	.10	-.04	.87	.13
Savouriness	.07	-.08	.28	.89	.01	.96	.04
Saltiness	-.01	.23	.37	.67	-.07	.78	.22
Sweetness	-.13	.26	.22	-.94	.01	.95	.05
Bitterness	.10	-.01	-.33	.12	.88	.83	.17
Sourness	-.08	-.26	.03	-.27	.75	.68	.32
Proportion Variance	**.36**	**.20**	**.11**	**.09**	**.06**		

Table 6 – Results from a simple linear regression analysis predicting consumption frequency with the factor scores from the factor analysis

Factor	Estimate	Std Error	*t*	*p*
Habitualness	.87	.028	30.88	<.001 ***
Unhealthiness / Healthineess	-.08	.029	-3.02	<.001 ***
Saviourness/Sweetness	.01	.028	1.61	.62
Bitterness/Sourness	-.14	.029	-4.89	<.001 ***
Fullfillingness	-.15	.031	-4.92	<.001 ***

*** $p > .001$

Table 7 – Results from a simple linear regression analysis predicting desire with the factor scores from the factor analysis

Factor	Estimate	Std Error	*t*	*p*
Habitualness	.69	.022	29.60	<.001 ***
Unhealthiness / Healthineess	-.19	.023	-9.30	<.001 ***
Saviourness/Sweetness	.12	.023	.86	<.001 ***
Bitterness/Sourness	-.19	.024	-5.47	<.001 ***
Fullfillingness	.36	.026	16.73	<.001 ***

*** $p >.001$

3.3.2.2 Linear regression

We next performed simple linear regressions to determine how well the five factors explained the two dependent variables (consumption frequency and desire), as well as to establish each factor's importance in predicting the two dependent variables. The estimated factor scores for each food from the exploratory factor analysis were used to predict the standardized consumption frequency and desire ratings. The regression model did not include any interaction or random effects. Because all measures were standardized, regression coefficients are standardized as well, thereby being interpretable in standard deviation units.

As Table 6 and Table 7 illustrate, the five factors explained 76% of variance when predicting self-reported consumption frequency and 84% of variance when predicting desire. The most important predictor for consumption frequency was habitualness (ß = .87, t = 30.188, p> 0.001). The standardised coefficient of .87 indicates that for every standard deviation change in habitualness, consumption

frequency increased by .87 of a standard deviation. This is very large effect. The other significant predictors were unhealthiness / healthiness (β = -.08, t = -9.30, p> 0.001), bitterness/sourness (β = -.14, t = -4.89, p> 0.001) and fullfillingness (β = -.15, t = -4.92, p> 0.01), indicating that consumption frequency increased as habit increased and decreased as unhealthiness / healthiness, bitterness / sourness and fulfillingness inrease. Together, these four factors explained 76% of the variance in consumption frequency. Saviourness / sweetness did not explain significant variance above and beyond the variance explained by habitualness, unhealthiness / healthiness, bitterness / sourness and fullfillingness.

Desire was also most highly predicted by habitualness (β = .69, t = 29.60, p> 0.001). Additionally, however, desire was also predicted significantly by unhealthiness / healthiness (β = -.19, t = -7.89, p> 0.001), fulfillingness (β = .36, t = 13.93, p> 0.001), bitterness / sourness (β = -.19, t = -7.83, p> 0.001), and saviourness/sweetness (β = .12, t = 5.30, p> 0.01). In other words, desire increased as habitualness, fullfillingness, and saviourness / sweetness increased, but decreased as unhealthiness and bitterness increased. Together, these five factors explained 84% of the variance in consumption desire. Again, the standardised coefficient of .65 for habitualness indicates that it has a very large effect on consumption desire.

3.3.3 Discussion

The aim of Study 2 was to comprehensively establish eating motives that predict consumption frequency and desire. Participants rated 341 foods each situated in 1 of 8 eating situations for either 1 of 30 different eating motives or for 1 of the 2 dependent variables.

To simplify and eliminate redundancies, the 341 food means of the 30 eating motives were submitted to an exploratory factor analysis. A five-factor solution emerged, consisting of factors for habitualness, unhealthiness / healthiness, saviourness / sweetness, fullfillingness, and bitterness / sourness.

The corresponding factor scores were then used in simple linear regressions to predict consumption frequency and desire. Both consumption frequency and

desire were most highly predicted by habitualness. Furthermore, both were significantly predicted by unhealthiness/ healthiness, bitterness / sourness and fullfillingness. Desire was also significantly predicted by saviourness / sweetness. These factors allowed us to comprehensively explain variance in consumption frequency (R^2 = .76) and in consumption desire (R^2 = .85).

A limitation of the resulting factor model were the considerable cross loadings, which means the factors should be interpreted carefully, as well as that two factors (fulfilling and bitterness / sourness) were only weak as they only had included two, albeit strong, items (Beavers et al., 2019). Though, despite these limitations, the resulting factor model is still informative as a reference point to choose which motives to include in Study 3. Because the predictors in Study 2 captured consumption motives at the group level comprehensively, we believed that they would also capture consumption motives at the individual level as well, including individual differences in them. We therefore used the results of Study 2 to inform the motives to examine in Study 3.

3.4 Study 3

Using a between-participants design, Study 2 allowed us to comprehensively establish important motivational predictors associated with food consumption. Of primary interest in Study 3 was evaluating these predictors in a within-participants design. As some of the factors emerging from the exploratory factor analysis appeared to reflect multiple facets, we decided to split those factors into multiple motives, resulting in a total of ten predictors of interest in Study 3: automaticity, self-identity, situational transport, social connectedness, healthiness, sweetness, bitterness, emotional satisfaction, fillingness, and affordability. To maintain a manageable study duration and still allow for all participants to rate all foods on all relevant predictors and dependent variables, we further needed to limit the number of included foods. Using the food pool from Study 2, we decided to include only foods from four of the original eating situations instead of the original eight: usual breakfast, usual lunch, usual dinner, daytime snack. Doing so reduced the number of foods evaluated in Study 3 to 177. The same foods for these four situations from Table 4 assessed in Study 2 were also assessed in Study 3.

Several issues were of interest in Study 3. First, were the same motivational predictors important in Study 2 at the group level also important at the individual level? For example, did habitualness continue to be the most important factor for both consumption frequency and desire? Second, how much do motivational predictors vary between individuals? Do individuals vary widely in the motives that predict their consumption frequency and desire. Third, how stable are these individual patterns of motivational prediction across eating situations? Do an individual's motives for eating vary widely across eating situations, or do they remain relatively constant? Finally, how much awareness do participants have of the motives associated with their consumption frequency and desire? Do self-assessments of their motivation correspond to the predicted patterns implicit in their SAM^2 judgments?

3.4.1 Methods

3.4.1.1 Participants

230 UK residents were recruited via the Prolific platform (www.prolific.co). Participants were included if they were between the ages of 18 and 70, fluent English speakers, and had taken part in at least 10 previous prolific studies with a 95% acceptance rate. Participants were excluded if they had taken part in Study 2. Because the study took 135 min in total, it was split into three sessions only after successfully completing all three sessions were participants paid £20 for their participation. In total 212 Participants completed all three sessions (see Appendix B (SM-2) for dropout rate information). To ensure data quality, each individual's data was assessed by evaluating study duration, number of flatlines, and two diagnostic correlations (see Appendix B (SM-3) for details). Based on these data quality assessments, 8 participants were excluded from the final data set, resulting in 204 participants (152 female, 51 male, 1 other; age *M* = 35.91, *SD* = 10.4, *range* = 18-63).

3.4.1.2 Material: Foods

Because participants rated all foods on the ten predictors as well as on the two dependent variables, we needed to reduce the number of foods evaluated, thereby making the overall time needed to perform the study manageable. As a result, participants evaluated a total of 177 foods situated in 1 of 4 eating situations. As in the previous studies some foods were presented in multiple

eating situations. In other words, all foods were included for each situation in Study 1 that were generated by at least 10 of those 100 participants, as well as ten extra foods that were generated by 1 to 10 participants to increase variability. The foods for these four eating situations can be found in Table 4.

3.4.1.3 Material: Dependent variables and predictors

We used the results of the Study 2's exploratory factor analysis to choose which consumption motives to include in the study. All five factors were represented, with some of the more complex factors represented multiple times to ensure that its diverse facets were represented. To capture the first factor, habitualness, we included automaticity as well as self-identity, situational transport, affordability and social connectedness. The second factor, unhealthiness / healthiness was represented by healthiness. As taste dimensions from the third and fifth factors, sweetness and bitterness were both included, respectively. To fully capture the fullfillingness factor, we included both emotional satisfaction and fillingness. In total, ten consumption motives, along with the two dependent variables, consumption frequency and desire, comprised the 12 measures assessed in Study 3. For the full set of judgment questions, scales, labels and ICC2, ICC2k, median and IQR across foods and participants, see Table 8.

3.4.1.4 Procedure

Participants were invited via Prolific to take part in an online survey that assessed how they perceive specific food and drinks. It was explained that the study would consist of three separate sessions and that participants would only be paid if successfully completing all three sessions.

For each session, participants received a four-day window to start and complete its respective survey. Once started, a session had to be completed in a single attempt and could not be saved and returned to later. In session one, after informed consent was obtained, participants evaluated the 177 foods on consumption frequency, desire, connectedness, and fillingness. In session two, they evaluated the 177 foods on self-identity, affordability, emotional satisfaction, and sweetness. In session three, they evaluated the 177 foods on automaticity, situational transport, healthiness, and bitterness. At the end of

the third session, participants provided meta-cognitive judgments about their eating motives, completed additional individual difference questionnaires, and provided demographic information.

Table 8 – Study 3 rating question, scoring range, scoring label, ICC2, ICC2k, Median and IQR

	Motive	Question Score range, label	ICC2	ICC2k	Median (IQR)
DV	Frequency	How frequently to you consume this food or drink for [situation] ? (1 to 7) (never/monthly/weekly / daily)	.22	.98	2.4 (4.0)
	Desire	How strong/weak is your desire to consume this food or drink for [situation]? (-3 to 3) (extremely weak / neither weak nor strong / extremely strong)	.15	.97	-.4 (4.4)
Predictors	Healthiness	How healthy and nutritional do you find this food or drink? (1 to 7) (not healthy at all, moderately healthy, extremely healthy)	.53	1.00	4.2 (3.6)
	Filligness	How filling do you find this food or drink for [situation]? (1 to 7) (not filling at all, moderately filling, extremely filling)	.28	.99	3.6 (3.5)
	Sweetness	How sweet do you find this food or drink? (1 to 7) (not sweet at all, moderately sweet, extremely sweet)	.56	1.00	2.3 (4.0)
	Bitterness	How bitter do you find this food or drink? (1 to 7) (not bitter at all, moderately bitte, extremely bitte)	.13	.97	1.0 (1.2)
	Affordability	How affordable do you find consuming this food or drink for [situation]? (1 to 7) (not affordable at all, moderately affordable, extremely affordable)	.20	.98	4.9 (2.5)
	Automaticity	How automatically do you consume this food or drink for [situation]? (1 to 7) (never automatically, sometimes automatically, always automatically)	.14	.97	2.4 (3.9)
	Self-Identity	How much is this food or drink related to your identity and self-concept? (1 to 7) (not at all, moderately, extremely)	.07	.94	3.4 (4.2)
	Social Connectedness	When consuming this food or drink for [situation], how much social connectedness do you typically experience with others? (1 to 7) (not at all, moderate, a lot)	.13	.97	2.4 (4.0)
	Emotional satisfaction	How emotionally satisfied/dissatisfied do you feel after consuming this food or drink for [situation]? (-3 to 3) (extremely dissatisfied, neither satisfied nor dissatisfied, extremely satisfied)	.11	.96	.4 (2.9)
	Situational transport	When you imagine consuming this food or drink for [situation], how easy difficult is it to feel transported to the situation where you're consuming it? (-3 to 3) (extremely difficult, neither difficult nor easy, extremely easy)	.09	.95	.4 (3.6)

The order of the four judgment blocks within each session was fixed in the order described above. The two dependent variables—consumption frequency and desire—were collected first, followed by the 10 predictive measures. Within a session, predictive measures were ordered in a manner to diversify the measures assessed within a session as much as possible. Within each judgment block for a measure, the order of the 4 eating situations was randomized for each participant, as was the order of the 177 foods. Each time when starting to evaluate foods within a new eating situation, participants were instructed to completely immerse themselves in the situation and to visualise it before making their judgments (see Best et al., 2018).

3.4.2 Results

3.4.2.1 Descriptive means for foods and individuals

For each of the 12 measures, we first present the mean judgments for each food and each individual to provide a sense of how each measure behaved. Panel A of Figure 10 presents the mean for each of the 177 foods across the 204 participants for each of the 10 predictors as well as for the 2 dependent variables (consumption frequency, desire). Considerable variability emerged across foods for each measure, reflecting the wide variety of foods included in the study. Healthiness, sweetness, and situational transport exhibited the greatest range, while self-identity varied least. Bitterness in contrast was rated as low for the vast majority of foods.

Panel B of Figure 10 presents the mean for each of the 204 participants across the 177 foods for each predictor and dependent variable. Again, considerable variability emerged across participants for each measure, especially for consumption frequency and situational transport. Overall, the results establish that large individual differences exist in how participants evaluated the same set of 177 foods on the 12 measures.

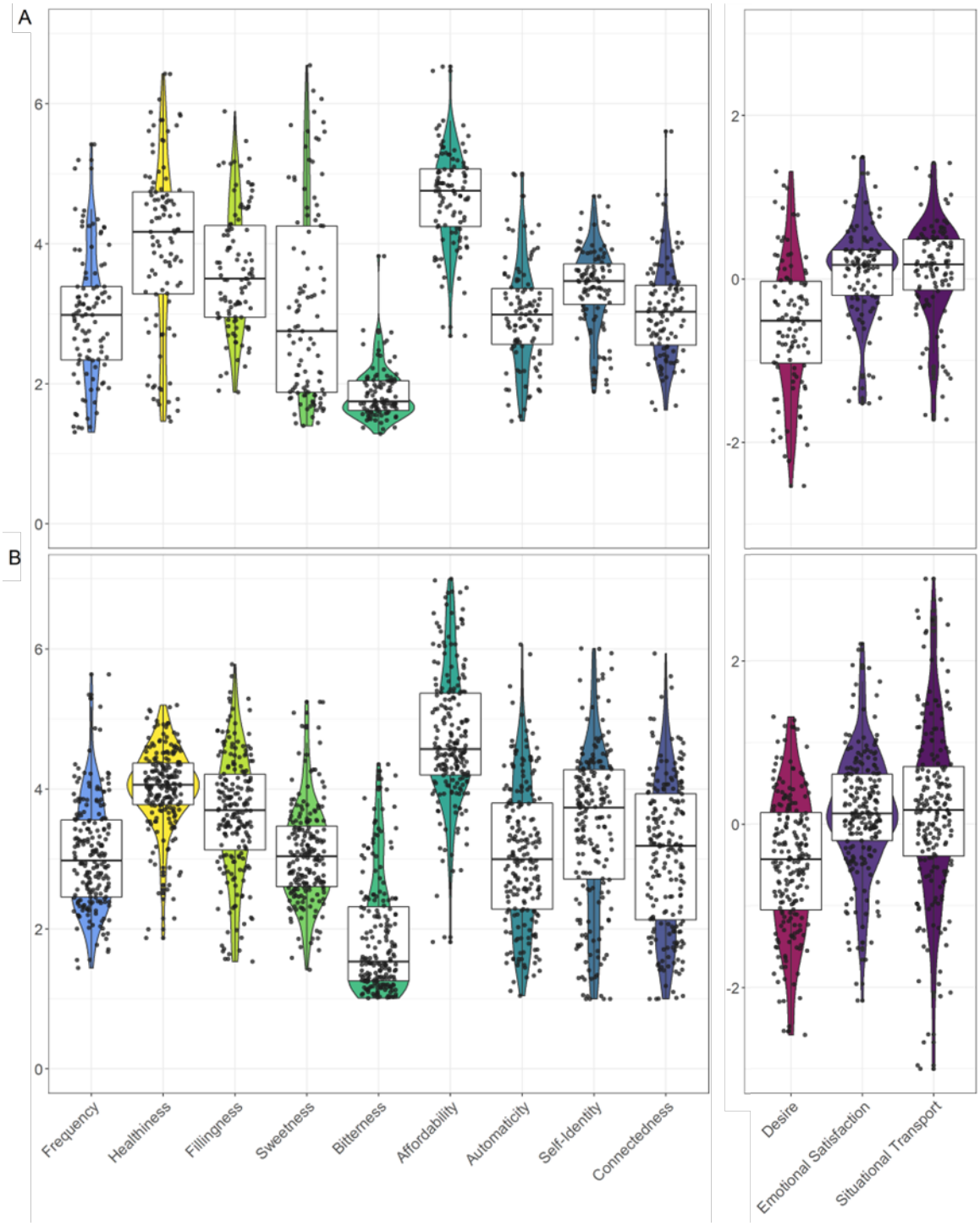

Figure 10 – Distribution of mean judgment for individual foods (A) and participants (B)

Violin plots visualise the distribution of average judgments for each of the 177 foods across the 204 participants (Panel A) and average judgment for each of the 204 participants across the 177 foods (Panel B). Consumption frequency, Healthiness, Fillingness, Sweetness, Bitterness, Affordability, Automaticity, Self-Identity, and Connectedness were rated on a continuous scale from 0 to 7 while Desire, Emotional Satisfaction and Situational Transport were rated on a continuous scale from -3 to 3. Each dot represents either the mean judgment of a food (A) or participant (B). The box plot presents the median and IQR for each rating.

3.4.2.2 Group level correlation and regression analysis

Of interest in this next analysis was how strongly each of the ten predictors was associated with each dependent variable at the group level. We will later compare these results at the group level with the analogous results at the individual participant level, as well as with findings from the literature.

To perform this analysis, we first computed each participant's mean judgment for each of the 10 predictors and for each of the 2 dependent variables across the 177 foods. This resulted in 12 values for each participant. In the next step, those participant means were used to perform two group-level correlation analysis, each assessing the association of the ten predictors with the two dependent variables. Figure 11 presents the results.

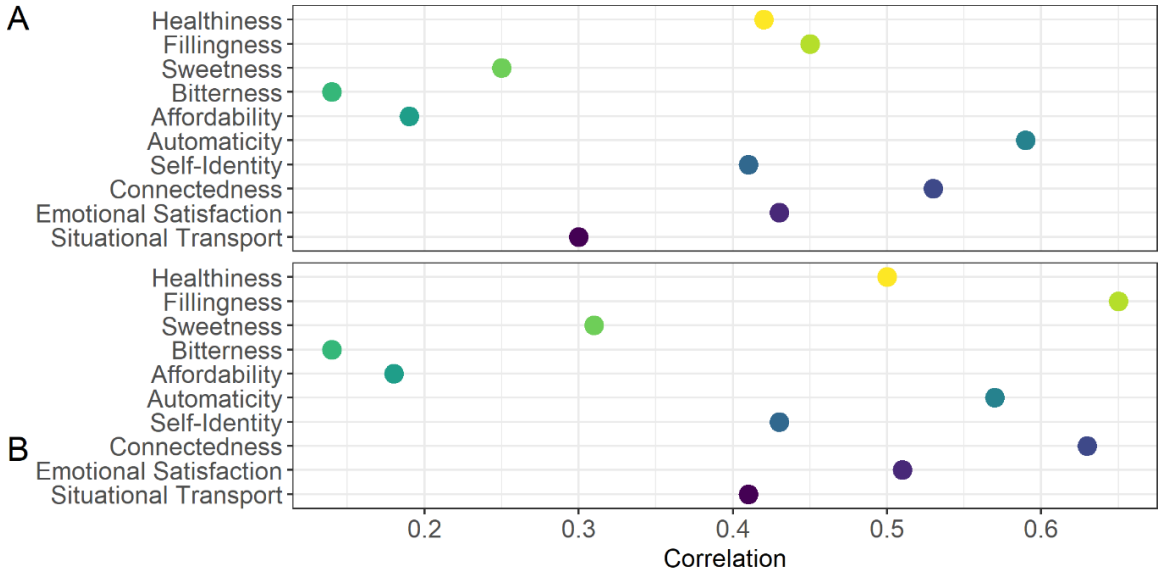

Figure 11 – Group correlation results between the ten predictors and consumption frequency (A) and desire (B)

Figure visualises the group correlation results between participants' mean ratings across foods and the two dependent variables. Panel A shows the correlation between consumption frequency and the ten predictors while Panel B shows the correlation between desire and the ten predictors.

The strongest correlation for consumption frequency was with automaticity (.59), followed by connectedness (.53) and fillingness (.45). Consumption frequency was also moderately associated with emotion (.43), self-identity (.42), emotional satisfaction (.4) healthiness (.42), connectedness (.37), and transport (.3). Sweetness only correlated weakly with consumption frequency (.25).

The strongest correlation for desire was with fillingness (.65) followed by connectedness (.63), automaticity (.57), healthiness (.50), self-identity (.43), transport (.41), and sweetness (.31). In comparison to consumption frequency, desire exhibited stronger associations than consumption frequency across most motives. Affordability and bitterness only correlated weakly with both consumption frequency (.18, .14) and desire (.19, .14).

Simple linear regressions assessed how well the ten predictors explained the variability in consumption frequency and desire. These analyses were again performed on the individual participants' means for each predictor and dependent variable across the 177 foods. Each regression model only included the ten motives without any interactions or random effects. For consumption frequency, the ten predictors explained 47% of the variance. For desire, the variance explained was 63%.

3.4.2.3 Individual correlations and regression analyses

Analogous to the group-level correlation and linear regression analysis just presented, we performed comparable analyses at the individual participant level. Of particular interest was, first, how much correlations between the ten predictors and two dependent variables varied across individuals, and second, how the overall pattern across individuals compared to the pattern at the group level.

For each participant, we calculated 10 correlations between consumption frequency and each of the 10 predictors across the participant's raw judgments for each measure across the 177 foods. We then calculated the analogous 10 correlations between desire and each predictor. Figure 12 Panels A and B visualise the results, with each dot representing the correlation for a single participant.

For both consumption frequency and desire, large individual differences emerged. Individuals differed considerably in how strongly each of the ten motives correlated with consumption frequency and desire. The most consistently strong correlations across participants for both consumption frequency and desire was automaticity, followed by self-identity and situational transport, although the latter two show considerable individual differences across participants. Consumption frequency and healthiness were weakly to moderately positively correlated for the vast majority of participants, with only a minority of participants exhibiting weak negative correlations. In contrast the correlations between desire and healthiness appeared split, with about half the participants showing positive and half negative correlations. For desire, a handful of extreme outliers emerged for automaticity, self-identity, connectedness, emotional satisfaction, and situational transport. All these participants exhibited strong negative correlations between these predictors and desire, while the majority of participants exhibited moderate to strong positive correlations. For both taste-related motives, sweetness and bitterness, correlations across the majority of participants ranged from weakly positive to weakly negative for both consumption frequency and desire, again with the exception of a few outliers in either direction.

As these results illustrate, large individual differences exist in the motivational factors that predict consumption frequency and desire. Nevertheless, the overall patterns at the individual level correspond to the overall patterns we saw earlier at the group level. For both consumption frequency and desire, strong associations with automaticity, self-identity, and transport again emerged. Healthiness again only moderately and positively correlated with consumption frequency, although a small group of participants exhibited strong positive correlations. As for the group-level correlations, the two taste dimensions sweetness and bitterness correlated only weakly with consumption frequency and desire. In summary, the general pattern across participants mirrored the results of the group correlations, although large individual differences in correlation strength emerged for all predictors, highlighting the importance of assessing motivation at the individual level.

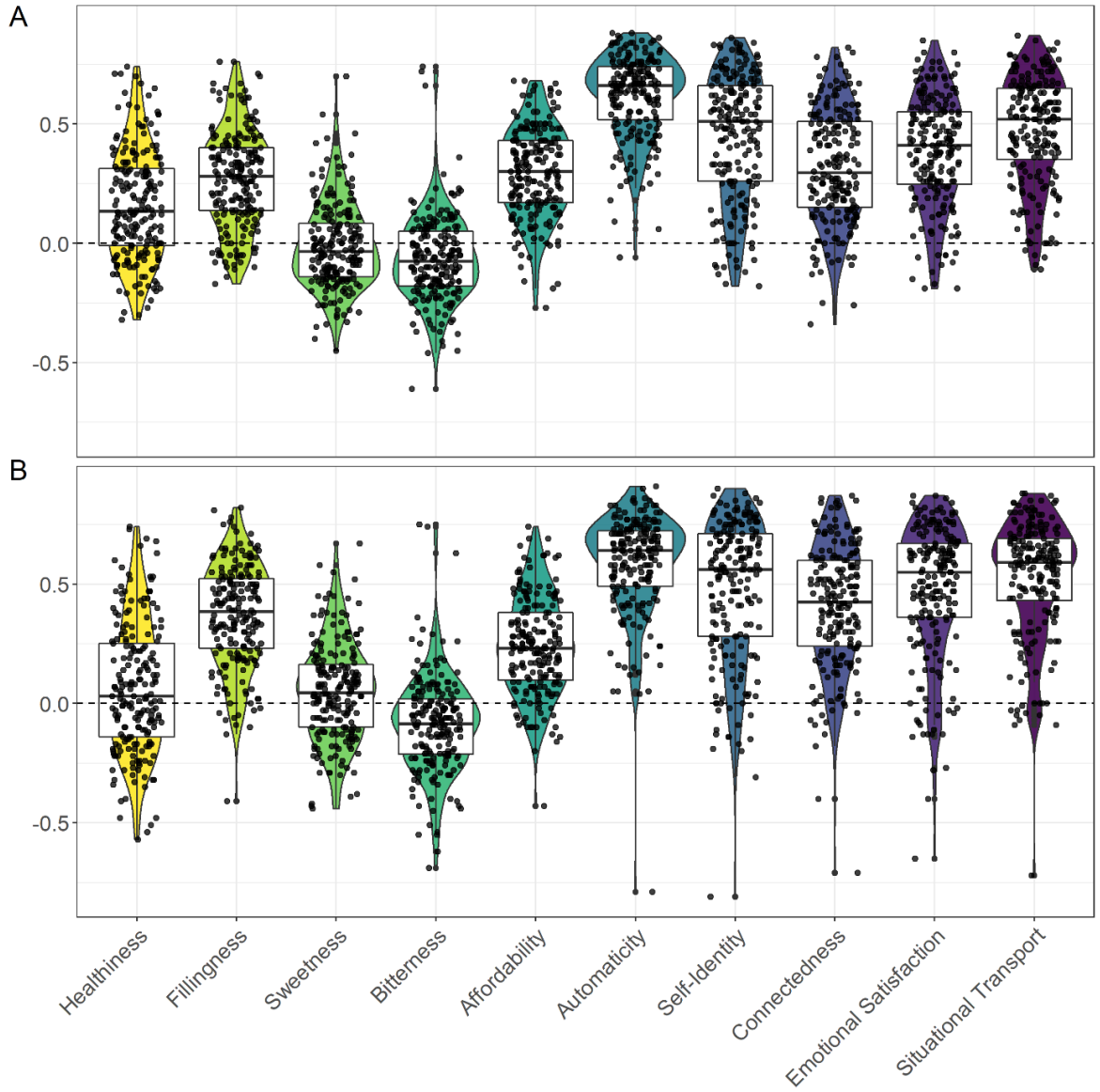

Figure 12 – Results of the individual correlations between the ten predictors and consumption frequency (A) or desire (B)

Violin plot that visualises the results for individual correlations between the ten predictors and the two dependent variables: Consumption frequency (Panel A) and Desire (Panel B). Each dot represents the correlation of one participant between one the DVs with one of the predictors.

Next, to examine each participant's individual prediction profiles for consumption frequency and desire, we visualised their individual correlations in Figure 12 as heatmaps in Figure 13 and Figure 14, respectively. Each row of each figure presents the correlation profile for a single participant across the 10 predictors, where each column presents the correlations for a single measure across the 204 participants. As a cell becomes redder, a correlation approaches 1; as it becomes bluer, it approaches -1; as it becomes whiter, it approaches 0.

On the left of each heatmap, a dendrogram from hierarchical clustering using the Ward D measure clusters participants by the similarity of their prediction profiles. On the top of each heatmap, an analogous dendrogram clusters the 10 predictors by how similarly they order participants.

As Figure 13 and Figure 14 illustrate, considerable differences exist in prediction profiles across participants, and no clear groups with similar predictive profiles emerged for either consumption frequency nor desire when taking all motives into account. Within each motive there are large individual differences in correlation direction and strength, with the exception of automaticity which consistently emerged across participants as positively correlated, with the exemption of an extremely small minority at the bottom of the heatmap.

For consumption frequency, it appeared that the participants with high correlations for situational transport also tended to exhibit the highest correlation for automaticity (Figure 13). A different group of participants showed a similar pattern for self-identity and emotional satisfaction. The greatest differences within a motive appeared again for healthiness, which exhibited a large spread between negative and positive correlations.

The greatest differences in correlations with desire could be detected in its association with healthiness (Figure 14). Participants appeared split, with half of the participants showed positive correlations while the other half showed negative correlations. Furthermore, two extreme groups emerged for this motive, with a few participants presenting high to moderate correlations, while in contrast another group presenting moderate negative correlations. At the bottom emerged a couple of participants who presented with highly negative correlations across most eating motives except bitterness and sweetness.

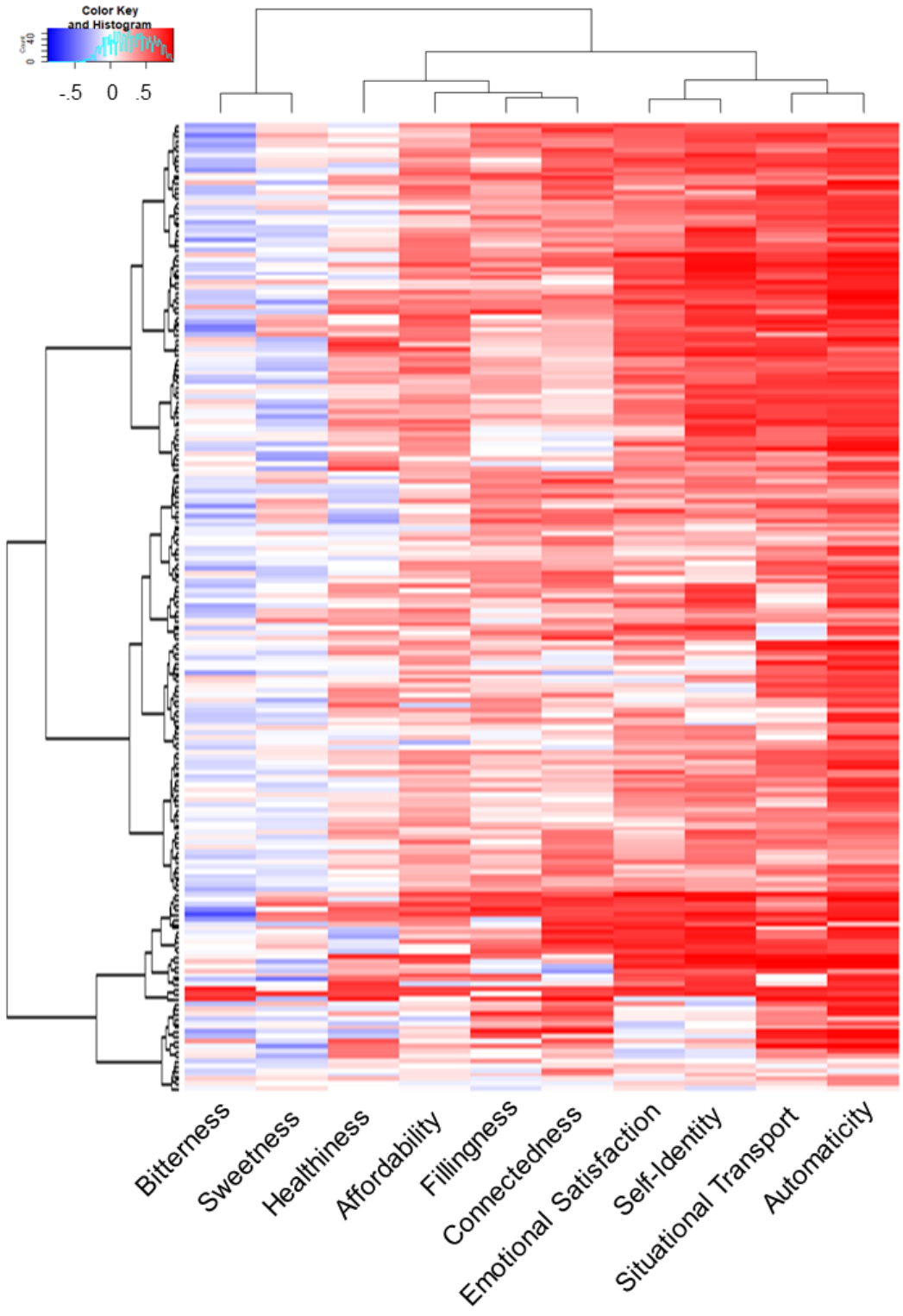

Figure 13 - Individual correlations between ten predictors and consumption frequency

Heatmap shows the individual correlation results between consumption frequency and the ten predictors. Each row presents the correlation profile of one participant across the ten predictors. Each column presents all of one predictors correlation. The more the correlation approaches zero the whiter the cell, the more the correlation approaches one the redder the cell. The more the correlation approaches minus one the bluer a cell.

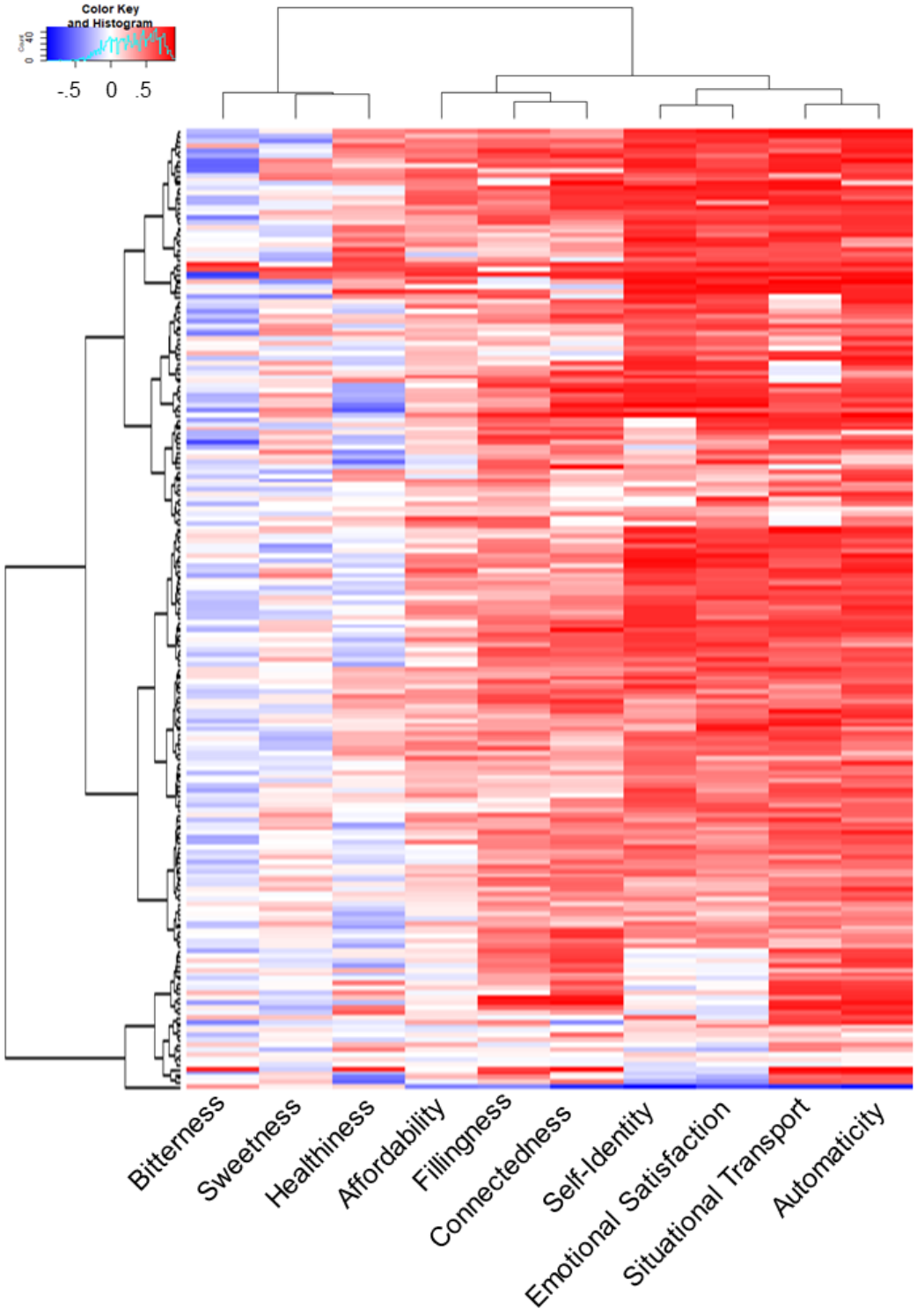

Figure 14 - Individual correlation profiles of desire

Heatmap shows the individual correlation results between desire and the ten predictors. Each row presents the correlation profile of one participant across the ten predictors. Each column presents all of one predictors correlation. The more the correlation approaches zero the whiter the cell, the more the correlation approaches one the redder the cell. The more the correlation approaches minus one the bluer a cell.

Analogous to the group-level analysis, simple linear regression models were used to assess how much variance the ten motives were able to explain when predicting consumption frequency and desire for each individual participant. Specifically, we computed two simple regressions for each participant by predicting their consumption frequency or desire ratings with the 10 predictors across the 177 foods. No random effects or interactions were included. All included values were first standardized on the individual participant level.

Generally, these regression models explained considerable variance in consumption frequency and desire for most participants. For consumption frequency, the median R^2 across the 204 individual regressions was .59 (IQR = .19). For desire, median R^2 was .66 (IQR = .17). Figure 15 presents R^2 values for consumption frequency and desire for each of the 204 participants, each illustrated by a single point. Although considerable variability exists across participants, the ten predictors explained large amounts of variance in consumption frequency and desire for most.

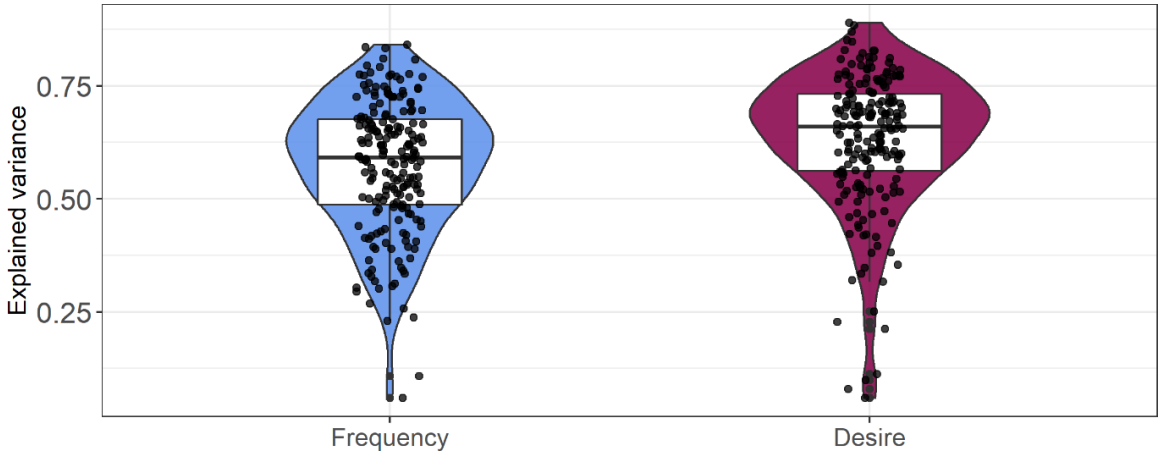

Figure 15 – Individual linear regression's explained variance distribution

Violin plots that visualise the distribution of explained variance when predicting consumption frequency and desire with the ten predictors. For each participant a simple linear regression analysis was performed to predict consumption frequency and desire with the ten predictors. Each dot represents the explained variance for one of the 204 participants.

3.4.2.4 Individual consistency in motivational patterns across eating situations

As the previous two sections have shown, the 10 predictors do an excellent job of explaining variance in consumption frequency and desire at both the group and individual levels. Of interest in this next analysis is how stable these patterns of prediction are at the situational level. Specifically, do the individual patterns of prediction in Figure 13 and Figure 14 vary much across the four eating situations: typical breakfast, typical lunch, typical dinner, and daytime snack? Or does the pattern of prediction remain relatively constant across situations?

To evaluate this issue, we used the intraclass correlation to assess agreement *within an individual* for their four prediction profiles across the four eating situations (Shrout & Fleiss, 1979). Specifically, for each individual, we computed the correlation between each of the ten predictors and consumption frequency *across only the foods in each situation* (and analogously for desire). In other words, we computed four prediction profiles for each participant, one for each situation (i.e., four sets of ten predictive correlations). Each set can be viewed as the predictive profile for how strongly the ten predictors predicted an individual's consumption frequency in one of the four situations (and analogously desire). Of primary interest was the question: How similar are the four predictive profiles? How similar is the pattern of prediction for an individual across the four eating situations?

The intraclass correlation offers a means of addressing this question. Specifically, it measures how much similarity exists between each set of individual-specific prediction profiles. From the perspective of the Shrout and Fleiss (1979) framework for understanding intraclass correlations, the four situations serve as judges, and the ten predictive correlations serve as the judged objects. From this perspective, the question is how much do the four situations (judges) agree on the pattern of ten predictive correlations (judged objects). If the pattern of prediction varies considerably across situations, the intraclass correlation should approach 0. If the pattern of prediction is highly stable across situations, the intraclass correlation should approach 1. Intuitively, an intraclass correlation estimates the average correlation between all pairs of

situations in their pattern of prediction across the 10 predictive correlations. Because we have only sampled a subset of eating situations, we have used the random effects form of the intraclass correlation, thereby allowing the agreement observed to generalize across other eating situations as well (i.e., the ICC2 in Shrout & Fleiss, 1979).

Figure 16 presents the results of this analysis. The violin-boxplot on the left presents the results for consumption frequency; the violin-boxplot on the right presents the results for desire. Each of the 204 points in a plot represents the ICC2 for a single individual. As these results illustrate, considerable agreement existed in the patterns of prediction across eating situations for consumption frequency and desire. For consumption frequency, median agreement was .74, and for desire it was .78. Intuitively, these values indicate that the average correlation in the pattern of prediction across pairs of eating situations averaged .74 consumption frequency and .78 for desire. For the typical participant, the pattern of prediction varied little across eating situations. Or in other words, the eating situation had relatively little impact on the pattern of prediction for most participants. Within an individual, the pattern of motivation, as reflected in the 10 predictive correlations, remained remarkably stable across situations.

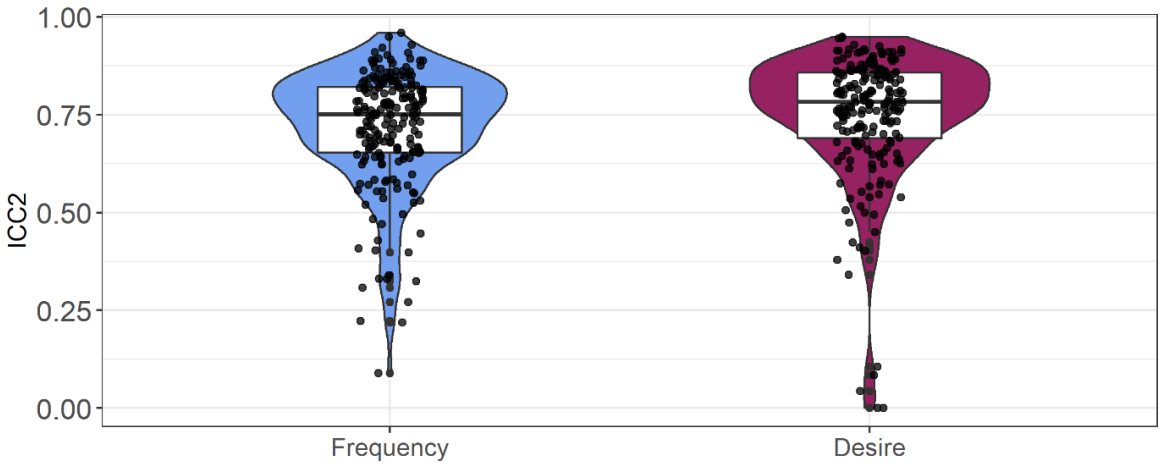

Figure 16 - ICC2 assessing the stability of predictive profiles across the four eating situation within each individual

Violin-boxplots visualising the distribution of explained variance when predicting consumption frequency and desire with the ten predictors. For the analysis simple linear regression analysis were run separately for each individual. Each dot represents the explained variance for one participant.

3.4.2.5 Individual self-assessment

How much awareness do participants have of their predictive profiles in Figure 13 and Figure 14? If they were asked how much each of the ten predictors influences their eating consumption frequency or desire, how well would their subjective estimates match the correlations computed from their judgments across foods? These next analyses addressed this question (across all four situations together).

As described in the Methods, participants estimated how much they believed that each of the 10 motivational predictors influences their consumption frequency, along with how much the 10 predictors influence their desire. The two left panels in Figure 17 visualise these self-assessments (consumption frequency on the top, desire on the bottom). The estimates of consumption frequency and desire were highly correlated, with a median correlation of .82 and an IQR of .25.

Once again, considerable individual variability emerged across individuals. Nevertheless, participants generally believed that some motivational factors were more likely to influence their consumption frequency and desire than others. In particular, emotional satisfaction and fillingness were rated as most influential, whereas bitterness and situational transport were rated as the least. Affordability was rated as more important for consumption frequency than for desire, whereas sweetness exhibit the opposite pattern. Healthiness and emotional satisfaction were generally judged important for both, whereas self-identity and situational transport were generally judged unimportant for both.

Notably the general patterns of prediction in Figure 17 departed considerably from the patterns of prediction observed in Figure 12, Figure 13, and Figure 14. Although participants believed that emotional satisfaction, affordability, fillingness and healthiness were the most important influences on consumption frequency as well as desire (Figure 17), their implicit judgments in Figure 12, Figure 13, and Figure 14 showed instead that automaticity was the most important predictor for consumption frequency as well as desire, followed by self-identity and situational transport. The greatest difference occurred for sweetness, which by the participants themselves was overall rated as yielding

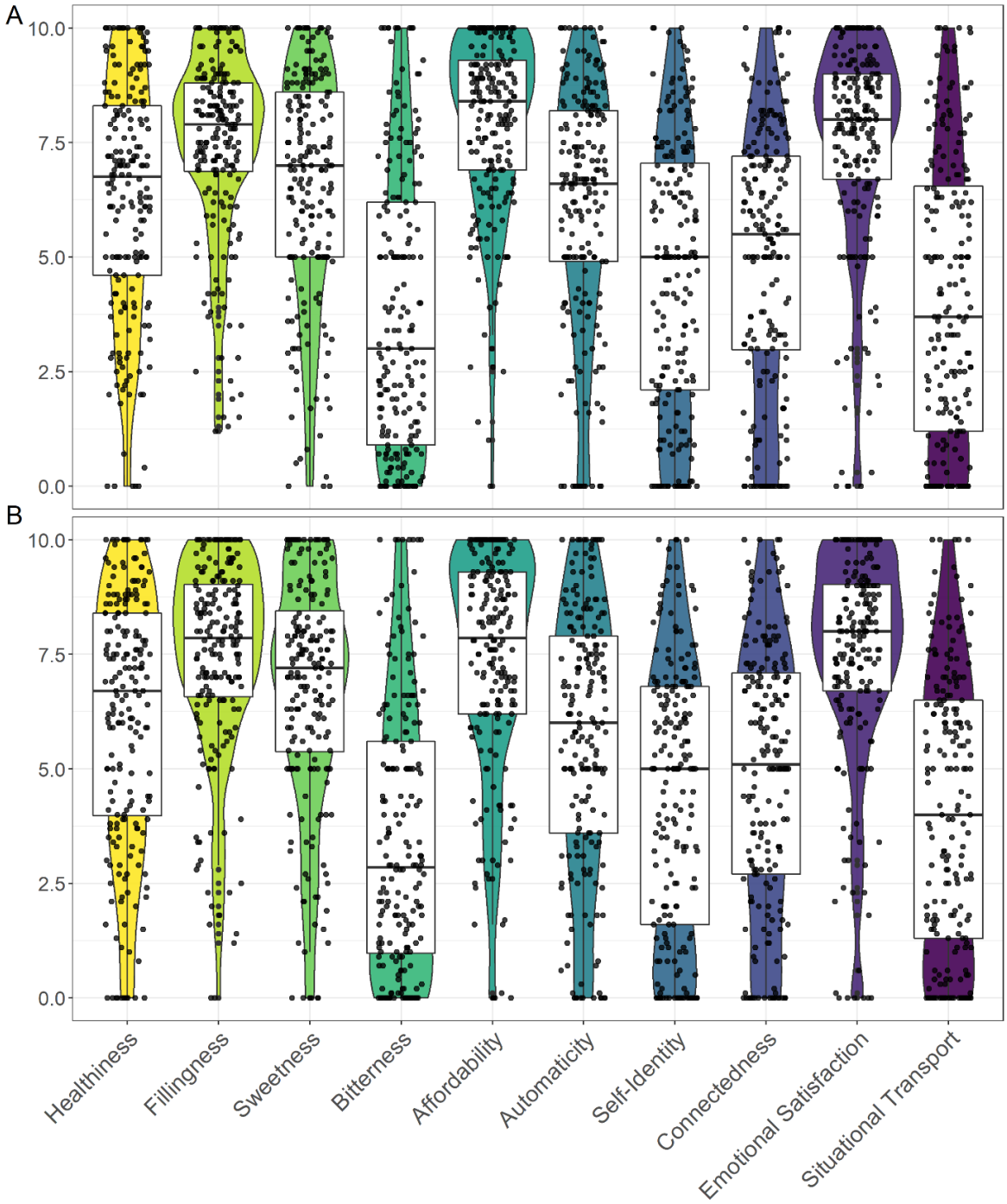

Figure 17 – Participants' self-assessment of how influential each of the ten predictors are for their consumption frequency (A) and desire (B)

Violin plots show participant's self-assessment of how much each of the ten predictors predicts their consumption frequency (A) and desire (B). Participant rated the importance on a continuous scale ranging from 0 to 10. The boxplots present the median and IQR of the distribution while each dot represents the correlation result of one single participant.

great influence especially for desire, while in our prediction sweetness only very weakly correlated with consumption frequency and desire.

To assess the agreement between an individual's predictive correlations for consumption frequency and their self-assessments of them we calculated the correlation between their prediction profile in Figure 13 and their self-assessments in Figure 17 Panel A. Agreement for desire was computed analogously, using the prediction profiles in Figure 14 and their self-assessment in Figure 17 Panel B. Figure 18 visualises the distribution of agreement across participants, with the median correlation for consumption frequency being .14 (IQR = .48) and for desire .11 (IQR = .50). As these results illustrate, agreement was only weak to moderate for most participants. Participants exhibited relatively little awareness of the factors that predict their consumption frequency and desire as measured by their judgments for specific foods in specific eating situations.

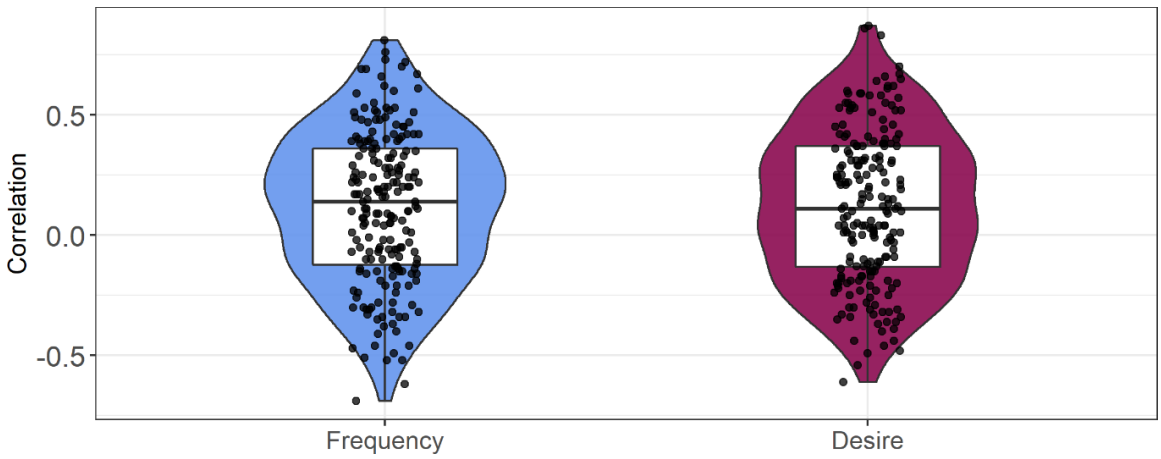

Figure 18 – Individual correlation results between what SAM[2] predicted to influences a participant's consumption frequency and desire and their own self-assessment

Violin plots shows the distribution of the individual correlation between what we predict influences a participant's consumption frequency and desire and their own self-assessment. The boxplots present the median and IQR of the distribution while each dot represents the correlation result of one single participant.

3.4.3 Discussion

The purpose of Study 3 was to expand on the results of Study 2 by assessing consumption motivation within individuals, allowing us to explore individual prediction patterns, their stability across eating situations and compare our predictions with participants self-assessment.

On the group level we found both, consumption frequency and desire, to be highly correlated with automaticity, connectedness and fillingness. Desire was furthermore strongly associated with emotional satisfaction and healthiness (Figure 11). On the individual level our ten predictors were able to explain large amount of variance in consumption frequency and desire (Figure 15), though the correlation patterns differed greatly between participants (Figure 12, Figure 13, and Figure 14). Only automaticity consistently emerging as strongly correlated with consumption frequency and desire across participants. Within participants we found little variation in motivation patterns across eating situations. Lastly, we found little agreement between the implicit prediction of SAM[2] and participants' self-assessment.

3.5 General discussion

The overarching aim of the work presented here was to gain a better understanding of people's eating and drinking behaviour. Study 1 produced an extensive dataset of foods and drinks consumed in different eating situations, revealing the wide variety of foods that people consume in different eating situations, as well as large individual differences. Using a between-group design, Study 2 identified five factors that underlie a diverse set of possible consumption motives, namely, habitualness, unhealthiness / healthiness, savouriness / sweetness, fullfillingness, and bitterness/sourness.

Study 3 built on both previous studies and examined consumption motivation within individuals, assessing individual patterns of prediction and their stability across situations. At the group level, automaticity, connectedness, and fillingness emerged as the strongest predictors for both consumption frequency and desire, with emotional satisfaction and healthiness also being strong (Figure 11). These results were partly mirrored at the individual level (Figure 12, Figure

13, and Figure 14). Across participants, automaticity consistently emerged as most highly associated with consumption frequency and desire. Next highest were situational transport, self-identity, and emotional satisfaction, again for both consumption frequency and desire. Next highest for both were connectedness, affordability, and fillingness. Healthiness was on average relatively unimportant for both, though its importance differed greatly between participants. Similarly, the two taste dimensions bitterness and sweetness were only weakly correlated. Although minor differences occurred in the individual prediction of consumption frequency and desire, their general patterns of prediction were quite similar, with predictions overall tending to be higher for desire than for consumption frequency.

Complementing these overall trends at the group level, considerable individual differences occurred at the individual level (Figure 12, Figure 13, and Figure 14). Healthiness especially differed considerably across participants, ranging from highly positive to weakly negative for consumption frequency and highly positive to moderately negative for desire.

Despite these large individual differences in predictive patterns, the predictors generally explained large amounts of variance when explaining consumption frequency and desire for individual participants. Across the 204 participants at the group level, the 10 motivational predictors explained a median .59 (IQR = .19) of the variance for consumption frequency and a median .66 (IQR = 17) of the variance for desire. These large values of R^2 indicate that the 10 motivational predictors offer a relatively comprehensive account of consumption frequency and desire.

Within most participants, little variation in predictive patterns emerged across the four eating situations, indicating that eating situation had little impact on the profile of eating motivations (Figure 16). Nevertheless, we also found substantial individual differences in the motivational factors that predict their consumption frequency and desire. Putting these two findings together, large individual differences exist in individual motivations for consumption, but these large differences are highly stable within individuals. Finally, participants showed little insight into the motivational factors associated with their

consumption, with their self-assessments departing considerably from their actual judgments of consumption.

3.5.1 Implications

On both the group and individual levels, automaticity emerged consistently as one of the strongest predictors for consumption frequency as well as desire. Those results are in line with previous findings that habit strength strongly predicts the consumption of various food groups (Brug et al., 2006; Stroebele-Benschop et al., 2018). Healthiness in contrast was only moderately correlated with both consumption frequency and desire at the group level, although considerable variability emerged for individuals, with some showing very high associations and others showing none or even highly negative correlations. Similar patterns emerged across all predictors, further substantiating the need to include individual level results when investigating eating behaviour or risk losing important information by aggregating results. The large individual differences in predictive patterns furthermore provide a starting point for the development of novel intervention methods, tailored to the individuals' unique motives.

Two other large sources of variability further suggest caution in conducting eating research and designing eating interventions. First, foods varied widely on factors related to eating motivation (Figure 10, Panel A). Second, individuals varied widely in how they perceive motivational factors in the same foods (Figure 10, Panel B). For these reasons, researchers must be careful when choosing foods and drinks to assess an individual eating behaviour. For instance, when trying to choose healthy or tasty foods for neuroimaging or intervention studies, it is important to record and take into account each participant's unique perception of the foods included.

One of the main findings in Study 3 was the surprising result that different eating situations had relatively little impact on the motivational factors associated with both consumption frequency and desire. This finding contrasts with other studies that found motives for breakfast differ from other meals (e.g., Cadario & Morewedge, 2022). It furthermore diverges from what we would have expected based on SAM^2's theoretical groundwork, the grounded

cognition theory (e.g., Barsalou, 2008; Papies et al., 2020). SAM^2's situated questions (e.g., "cake for usual breakfast"), were expected to activate the relevant situated conceptualisation and prompt (partial) simulations of eating the food in the situation (Papies, 2013a). As these situated conceptualisations are formed and updated through prior interaction with the food, they are consequently unique for individuals, foods and situations. These differences are then captured by SAM^2, resulting in intra- as well as individual differences. One explanation for the lack of variability might be our use of 'usual' eating situations. Potentially this triggered generalized patterns that guide typical' consumption, which is independent of eating situation. Potentially including other less common and more specific eating situations, such as eating out in a restaurant or ordering take away, might have engendered greater variability in predictive patterns across situations. Expanding on the eating situations assessed here could be an informative direction for future studies.

Another surprising finding was the lack of agreement between how much people believe each predictor influences their consumption frequency and desire and what their detailed judgments across foods actually predicted. For instance, affordability was rated as highly influential by most participants for consumption frequency as well as desire, whereas our analysis of detailed food judgments showed only moderate effects overall. This same pattern was even more pronounced for sweetness, which was rated as highly influential in the self-assessment, but together with bitterness, barely correlated with consumption frequency or desire for most participants in their food judgments. Though it is important not to overinterpret the observed difference as the SAM^2 value was aggregated across different foods whereas the self-assessment data was not aggregated. To further assess the difference between SAM^2 and traditional instruments it would be important to use the aggregated results of for instance, TEMS to compare SAM^2 to.

While greatly differing from the SAM^2 measure, the trends across the self-assessment questions fit in well with the Food Choice Questionnaire's (Steptoe et al., 1995), findings that affordability, sensory appeal and health were on average reported to be most important for food choice. Similarly, the relative importance of Liking and Health was mirrored as well in the The Eating Motive

Survey (Renner et al., 2012), although here, in contrast to our self-assessment, habit was rated as highly important as well. The similarities between the established questionnaires and our self-assessment questions are perhaps unsurprising as all require participants to generalise their ratings across eating situations and foods, likely basing their judgments on intuitions and stereotypical thinking instead of actual 'empirical data' capturing their consumption. Consequently, the findings that the relative importance of motives differ greatly between SAM[2] and self-assessment might indicate that the latter is less reflective of participants actual motives for consumption frequency and desire when consuming specific foods and more informative about participants self-image ("I am a healthy eater") and potentially social norms ("people eat because they like the taste") concerning food choice. This might furthermore explain findings by Wahl et al.'s (2020), that when assessing trait eating motives, participants, on average, overestimate the importance of most motives on their eating compared to state motives. Overall, these results emphasize the great importance of including specific eating occasions when researching eating behaviour instead of relying on generalised judgments.

3.5.2 Strengths and limitations

One strength of the presented studies was the inclusion of Studies 1 and 2 to inform the design of Study 3. Instead of choosing foods for Studies 2 and 3 using experimenter intuition, we collected a large food pool by asking 100 participants to list what they consume typically and occasionally in different eating situations. Similarly, Study 2 allowed us to identify the most relevant consumption motives out of 30 potential candidates. The inclusion of 177 foods in Study 3 helped to ensure large variability in the foods sampled, thereby capturing most people's diets, while remaining manageable for participants to evaluate on 10 predictors and 2 dependent variables.

Perhaps the most significant limitation of the current studies is the assessment of only one time-point for the 12 measures. Consequently, we were unable to examine the stability of the predictive patterns across time. In the future, at least repeating the ratings once after a delay would enable assessing the stability of predictive patterns over time. A further limitation was that participants rated the foods outside of actual eating occasions, e.g., before their

dinner and were instead asked to immerse themselves into the four eating situations (e.g., “usual breakfast”). The majority of questions then aimed to capture participants general / pre-consumption perception of the foods within the situation (e.g., how healthy do you think food is for usual dinner) though some question (e.g., emotional satisfaction) were chosen to judge post-consumption experience instead (" how emotional satisfied to you feel after consuming this *food*) instead of anticipatory (e.g., " how emotionally satisfactory do you think *food* is for a snack”). Capturing post-hoc instead of anticipatory emotional satisfaction might have been affected by judgment biases, e.g., food guilt, rationalisation and negative health outcomes and might have skewed (reduced) the reported emotional satisfaction for some eaters (van Strien et al., 2019) and might have therefore not been representative of the actually experienced (potentially higher) nor the anticipated (potentially higher) emotional satisfaction. Though it is important to note here that SAM^2 did find high associations with the emotional satisfaction rating and consumption frequency as well as desire. This indicates that the measured construct does appear to be relevant for both dependent variables. Nevertheless, in the future it would be important to assess this question further and evaluate how the SAM^2 food perception measures change before and after consumption – for instance does the expected emotional reward match the later experienced emotional satisfaction, and, if there is a difference, to assess which one has more impact on later consumption frequency.

A second limitation was the oversight in Study 1 to record all potentially relevant demographic information of our participants, meaning that it was not possible to assess how representative the participants, and consequently the sampled foods, are for the general UK population. A further limitation was the inclusion of only four eating situations in Study 3, all of which covered usual eating situations. As mentioned earlier, only including these four situations might explain the lack of differences in predictive patterns across eating situations. We hasten to add, however, that it’s nevertheless interesting, informative, and perhaps counter-intuitive that eating motivations appear relatively stable across usual eating situations. Future studies could include more eating situations to test whether this stability holds more generally. Similarly, it would be interesting to include ecological momentary assessment methods in addition to our questionnaires.

Lastly, even though we were able to explain a great amount of variance with our consumption predictors for the majority of participants, there appear to be a number of participants whose consumption frequency and desire were not explained well by our predictors. In the future it could be helpful to use qualitative methods, such as qualitative interviews, to further explore what might predict these individuals' consumption and potentially add other motives in a replication of Study 3. One option might be, for instance, to first ask participants to complete the SAM^2 measure with the previously identified motives and afterwards to interview them and asking them directly which other motives they think might be relevant and how they think these motives might influence their food consumption (e.g., sustainability), whether they think those motives are context-specific etc. Future studies could then add these measures to the existing SAM^2 and assess how relevant they are for the general population to further refine and improve the SAM^2 measure.

3.5.3 Conclusion

Automaticity emerged consistently as the most important predictor for consumption frequency and desire at both the group and individual levels. Overall, we found considerable individual differences in predictive patterns while being able to explain great amounts of variance for the majority of participants when predicting consumption frequency and desire. Furthermore, eating situation did not appear to alter the predictive patterns within participants. Lastly, there was little agreement between what participants believe influences their eating consumption and what we found to predict it.

3.6 Declarations

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Conflicts of interest / competing interests

The authors declare no conflict of interests/competing interests.

Availability of data and material

Please find the data, all analysis scripts and ethics on the Open Science Framework (OSF https://osf.io/anpmx/).

Ethics

This project was approved by the University of Glasgow College of Science & Engineering Ethics Committee (Date: 29/06/2016, no: 300150156).

Chapter 4 Assessing individual motivation for consuming diverse food groups over a two-week period

This chapter is an exact copy of the following preprint manuscript:
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4. Abstract

When attempting to lose weight or adopt a more sustainable diet, most people struggle considerably to permanently change their eating behaviour. To develop novel interventions needed to help participants achieve their goals, it is first necessary to understand what motivates individual consumption. In the present study, we assessed individual consumption motivation in 70 participants for 16 diverse food groups across 5 time points over a two-week period. Participants were recruited to take part in an online survey. Across time points, participants rated the 16 food groups 5 times, first, on 2 dependent variables (consumption frequency and portion size), and second, on 6 potential motives that could predict consumption (enjoyment of taste, fillingness, healthiness, automaticity, emotional satisfaction, and self-identity). The two dependent variables were later combined by calculating their product to create a single dependent variable for consumption. Of interest was firstly to assess whether implicit learning effects emerged, specifically an increase in correlation strength between dependent variable and predictors from timepoint 1 to timepoint 5. Second, using G-Theory and intraclass correlations, we assessed the stability of each individual's consumption motives over time. We also established the motives that best explained each individual's consumption and how much variance they explained. Lastly, we assessed how much insight individuals have into their consumption motives. We found significant implicit learning effects in the association of consumption with healthiness, self-identity and fillingness. Across the five time points, participants consumption motives remained remarkably stable. We observed large individual differences in motivation for consumption across participants. Finally, participants exhibited little awareness of their consumption motives as captured by their implicit motivation judgments. To our knowledge this is the first study to establish the stability of situated consumption motivation over time. Our results furthermore provide possible starting points for novel interventions, empathising the importance of individualised instead of 'one size fits all' approaches.

4.1 Introduction

Food has a unique place in our life. The specific kinds of food we consume have an impact not only on our physical health (Ignarro et al., 2007; Willett, 1994), but also on our mental health (El Ansari et al., 2014) and even our cognition (Spencer et al., 2017). Consistently overconsuming foods results in excessive body fat, which is further associated with numerous negative health outcomes, including various forms of cardiovascular disease and cancer (Calle & Kaaks, 2004).

Although the hormones ghrelin (Higgins et al., 2007) and leptin (Cousino Klein et al., 2004) act as physical signals to motivate food consumption, eating is a much more complex process than the pure satisfaction of physical signals. For example, other motivators not related to hunger such as stress (Groesz et al., 2012), emotion (Reichenberger et al., 2020), norms (Higgs, 2015), and identity (Bisogni et al., 2002) can influence eating behaviour extensively.

Food production in general, and especially meat production, is a substantial contributor to global greenhouse emissions (O'Mara, 2011), that play a major role in global warming (Al-Ghussain, 2019). Consequently, food choice not only shapes an individual's long-term health and wellbeing but can furthermore affect planetary health (Birt et al., 2017). To make their eating more sustainable, people will have to decrease their meat consumption in favour of a more plant-based diet (Sabaté & Soret, 2014). Despite a considerable increase in media attention, most people remain largely unaware of the link between their individual food choices and climate change, again especially related to their meat consumption (Macdiarmid et al., 2016; Tobler et al., 2011).

Furthermore, when people try to shift towards more sustainable diets, numerous obstacles, such as negative social feedback (Wehbe et al., 2022), must be overcome. Novel interventions are needed to help people adopt more sustainable diets. One possible starting point for developing such interventions can be found in establishing an individual's motivations for eating. Vainio et al. (2016), for instance, found that the importance of eating motives was different

for people actively changing their diet compared to those with established diets, implicating the importance of eating motives in behaviour change.

In summary, novel eating interventions are needed to help people achieve their dietary goals. To work towards this aim, it is fundamental to first fully understand the underlying motives, not only for meat consumption, but for consuming all types of food. It is also important to assess how much eating motivation varies across individuals, how stable it is over time, and how much insight people have into it.

4.1.1.1 The Situated Assessment Method (SAM^2)

The Situated Assessment Method (SAM^2) is a psychometric approach that evaluates individual differences in a target behaviour along two dimensions of situatedness (Dutriaux et al., 2021). First, SAM^2 assesses the target behaviour in the situations where it occurs, rather than abstracting across situations as in most psychometric instruments. Second, it evaluates the target behaviour across all phases of the Situated Action Cycle, including the environment, self-relevance, affect, action, and outcomes (for a detailed description of the Situated Action Cycle see Barsalou, 2020; Dutriaux et al., 2021). To understand eating, for example, a SAM^2 approach would assess food consumption in the situations where they occur and would assess it across all phases of the Situated Action Cycle.

SAM^2 has previously been used to study a range of diverse target behaviours such as habits (Dutriaux et al., 2021), eating behaviour (Werner et al., 2022), and stress (Pedersen et al., 2022). The Pedersen et al. (2022) study is of particular interest here. In Pedersen et al. (2022), stress was assessed once a week at three timepoints over a two-week period. At each time point, participants received covid-related situations (e.g., worrying about catching the virus, taking public transport) and evaluated each one on two dependent variables (eustress and distress) and on potentially relevant factors from the Situated Action Cycle known to influence stress (e.g., expectation violation, threat, coping effectiveness). As expected, based on previous SAM^2 studies, participants showed large individual differences in the factors that predicted their distress and eustress. Remarkably, however, and surprisingly, both distress and eustress

became increasingly correlated with the stress predictors across timepoints. For example, judgments of both distress and eustress correlated more highly with expectation violation at the third timepoint than at the first. Similar increases in predictive strength occurred for the other predictors as well.

These results implicate implicit learning effects across timepoints as participants evaluate stress and its predictors. In the process of evaluating stressful situations for distress, eustress, and predictive factors from the Situated Action Cycle, relations between these measures grow stronger. Building on those results, one aim of the current study was to assess whether the same implicit learning effects occur when people assess their food consumption over time. Do motivational factors that predict consumption (e.g., healthiness, taste) correlate with consumption increasingly as participants evaluate them across multiple timepoints?

4.1.1.2 Previous SAM^2 work on consumption motives

The current study also built on previous SAM^2 work that investigated motives for food consumption, such as healthiness, fillingness, and sweetness (Werner et al., 2022). For this previous project, we used SAM^2 to establish individual differences in consumption motives at a single timepoint. Our first aim was to assess how much consumption motives varied across individuals, along with how much variance they explained in their consumption frequency and desire. We were also interested, however, in how stable these motives were across different eating situations (breakfast, lunch, dinner, snack).

In the last of three studies, 204 participants rated 177 foods, each situated in 1 of 4 eating situations. Specifically, each participant evaluated each food on two dependent variables (consumption frequency and desire) and on ten consumption motives sampled from the Situated Action Cycle (healthiness, fillingness, sweetness, bitterness, affordability, automaticity, self-identity, social connectedness, emotional satisfaction, and situational transport).

Large individual differences emerged in motivational profiles (i.e., in the specific motives that predicted consumption frequency and desire) for each individual). Nevertheless, the ten predictors tended to explain large amounts of

variance for each individual's consumption frequency and desire (median explained variance across individuals of 59% and 66%, respectively). Surprisingly an individual's motives tended to be highly stable across the four eating situations. In other words, an individual's motives in one eating situation tended to predict their motives in another eating situation. Lastly, we assessed how much insight participants showed into what predicted their behaviour and found little agreement between these assessments and prediction profiles in their SAM[2] data. Participant's beliefs about their eating motives diverged considerably from their situation- and food-specific judgments of eating motives.

4.1.1.3 Design of the current study

A remaining question we had been unable to address in our previous study was how stable eating motives are over time. To assess stability over time, it is necessary to have participants repeatedly assess eating motives at multiple time points. Thus, a primary purpose of the current study was to assess eating motives on multiple occasions, in this case, over five time points every few days across a two-week period. Doing so further allowed us to assess the implicit learning effects observed in the multi-timepoint stress study described earlier (Pedersen et al., 2022).

We couldn't, however, simply repeat Werner et al.'s (2022) study design at multiple time points, because its design was much too large. Specifically, it assessed 177 foods in 4 eating situations on 2 dependent variables and 10 predictors, with all this data collection requiring 3 sessions of 45 minutes over the course of 2 weeks. In the study here, we needed to distil this original assessment into a single session taking participants only about 15 minutes to complete.

We therefore decided to try a new approach. Instead of asking individuals to evaluate a large number of specific foods (n = 177), we asked people to evaluate how much food they consumed for each of 16 food groups that cover all foods comprehensively (e.g., fruits, vegetables, breads, unprocessed meat). For each food group, participants were asked to remember the foods they had consumed from the group over the past few days, and then to estimate how frequently they'd consumed these foods and the typical number of portion sizes consumed.

To further distil the study design, we decided not to include specific eating situations. This was further supported by the observed lack of variation in an individual's eating motivation across situations in Werner et al. (2022). Based on those results, measuring motivation in specific situations here would not have been a good use of time and resources. So, we simply asked participants to evaluate how much they had consumed each of the 16 food groups across eating situations over the previous two days.

Finally, we further distilled the study design by reducing the number of motives assessed. Results from Werner et al. (2022) informed the motives included in the current study. Because automaticity, emotional satisfaction, and self-identity strongly predicted consumption frequency and desire in Werner et al., we included them here. In contrast, sweetness and bitterness only correlated weakly with consumption frequency and desire in Werner et al. (2022), although participants believed that they were strongly associated with their consumption behaviour. To capture the taste dimension in the current study, we therefore decided to simply include a measure of how much participants had enjoyed the taste of each food group over the past two days. Although healthiness and fillingness did not correlate with consumption frequency and desire as highly as automaticity, emotional satisfaction, and self-identity in Werner et al. (2022), they tended to be moderately important, and participants again believed that they were highly associated with their consumption. For these reasons, we decided to also include them in the present study. In summary, we included six predictors of consumption frequency here: enjoyment of taste, fillingness, healthiness, automaticity, emotional satisfaction, and self-identity.

To measure our dependent variable—consumption of a food group over the past two days—we assessed two facets of consuming the food group: frequency and typical portion size. Specifically, we first asked people to estimate how many times they had consumed the food group over the past two days (consumption frequency). Across these occasions, we then asked them to estimate the typical number of portions consumed at each, where a portion was defined as the amount equivalent to one hand-full (a widely used method in dietary recommendations; (Brown et al., 2021)). To compute the consumption amount for the food group at this time point, we simply took the product of an

individual's frequency and typical portion size estimates. If, for example an individual had consumed sweets on three occasions over the past two days with a typical portion size of two handfuls, their consumption of sweets at this time point was specified as six portions.

4.1.1.4 Overview and predictions

The aim of the present study was to assess individual differences in consumption motives of diverse food groups, to measure the stability of consumption motives over time, and to explore whether we could detect implicit learning effects. The study built on and extended our previous findings into individual differences in eating motivation (Werner et al., 2022), as well as implicit learning effects over time for stress (Pedersen et al., 2022).

At 5 separate time points during the two-week study duration, participants were asked to evaluate 16 diverse food groups on 6 eating motives as well as the 2 facets of our dependent variable (consumption frequency and typical portion size), whose product constituted our dependent variable of consumption. Three of the five timepoints assessed consumption over two weekdays (Tuesday and Wednesday), with the remaining two timepoints assessing consumption over the weekend (Saturday and Sunday). The length of two days was chosen to ensure the entirety of the weekend (Saturday and Sunday) was captured, whereas the two weekdays (Tuesday and Wednesday) were chosen to be of an equivalent length to the weekend but in the middle of the week. At each timepoint, we also asked participants to self-assess how much they believed that each of the six predictors had influenced their food consumption over the previous two days. Notably, at each time point, participants were repeatedly instructed to only recall their experience of the past two days when making their judgments.

Based on previous results, we expected to observe implicit learning effects, namely, the association of consumption with the six predictors was predicted to increase from timepoint 1 to timepoint 5. We furthermore expected to observe large individual differences in the motives associated with consumption. Furthermore, we predicted the consumption motives that were important for each individual would explain a large amount of variance in their consumption. Lastly, we expected little agreement between an individual's beliefs about their

consumption motives and their actual motives associated with their consumption in the SAM[2] data.

4.2 Methods

4.2.1 Participants

A total of 79 UK residents (48 Female, age *M* = 37.94, *SD* = 12.7, BMI *M* = 26.91 *SD* = 6.42) were recruited via the Prolific platform (https://www.prolific.co). Participants were eligible to take part if they were between the ages of 18 and 70, spoke English fluently, and had previously taken part in at least 10 other Prolific studies with an acceptance rate of 95%. Participants were informed that they should only participate in the study if they could complete all five sessions (failing to complete any session would lead to exclusion from the remaining study and without monetary compensation for previous participation). Only the 70 participants who completed all five sessions were included in the analyses to follow. Eight out of the original 71 participants failed to complete all five timepoints in the first collection cycle, despite multiple attempts by the researcher to reach out via email during the data collection timepoints, indicating that participants either simply forgot to respond in time or decided not to continue with the study (2 dropouts in T2, 4 dropouts in T3, 1 dropout in T4, 1 dropout in T5). The missing participants then replaced with 8 new participants during a second collection cycle during which one participant dropped out after T3, resulting in complete data sets for 70 participants. After successfully completing all five sessions, participants were paid 15£ for their participation (for a total of about 1.5 hours time across the 5 sessions).

4.2.2 Materials

4.2.2.1 Food groups

To fully capture participants' eating experiences, whilst also keeping the duration of the survey manageable, participants were asked to report their consumption of food groups instead of specific foods. Informed by nutritional websites and other relevant studies, we identified 16 distinct food groups that we expected would cover most individual diets (Table 9). The food groups included both meats and plant-based products to cover carnivore, vegetarian,

and vegan diets. When participants were asked to assess a food group on one of the dependent variables or on any of the six predictors, they were always presented with the food group's name, along with a few examples of foods belonging to it (as Table 9 illustrates). For instance, the food group "Nuts / Seeds" was illustrated with "raw almonds, walnuts, sunflower seeds, chia, etc." Examples like these ensured that participants understood what foods were included in each food group and aided memory of foods consumed from it over the past two days.

4.2.2.2 Dependent variables

Instead of measuring the dependent variable, consumption, directly by asking how much of a food group participants had consumed during the past two days, we measured two of its facets separately (consumption frequency and portion size). Doing so allowed us to preserve potentially interesting individual differences (eating small portions frequently on multiple occasions versus eating one large portion in a single sitting). Furthermore, we thought that having participants remember all eating occasions first before judging the typical portion size might facilitate accuracy.

Table 9 – Food groups evaluated by participants and corresponding examples used to illustrate them

Food Group	Examples
Fruit	apples, strawberries, bananas, oranges, dates etc.
Vegetables	broccoli, tomatoes, lettuce, potatoes, carrots etc.
Beans Pulses Legumes	kidney beans, lentil, chickpeas etc.
Nuts Seed	raw almonds, walnuts, sunflower seeds, chia etc.
Unprocessed Meat	unprocessed chicken, beef, pork turkey etc.
Processed Meat	ham, sausages, bacon, salami etc.
Fish Seafood	salmon, tuna, cod, mussels, squid, prawn etc.
Dairy Egg	cheese, butter, yogurt, cream cheese, sour cream etc
Plant-based Meat	tofu, tempeh, quorn, meat-free sausages, mince etc.
Plant-based Dairy Egg	vegan cheese, egg, yogurt etc.
Bread	toast, bread rolls, Yorkshire pudding, wraps etc.
Pasta Rice	spaghetti, couscous, white rice, brown rice, rice noodles etc.
Cereal	oatmeal, granola, cornflakes, etc.
Sweets	chocolate, chocolate bar, toffee, ice cream, cake, pie, biscuits, cookies etc.
Salt Snack	crisps, salted nuts, crackers etc.
Fried Food	chips / fries, fried fish, fried chicken, onion rings etc.

Specifically, at each time point, participants first indicated on how many occasions they had consumed a food group (a discrete scale ranging 0 to 10 occasions) over the past two days. Participants then estimated the typical portion size consumed across these occasions in handfuls (a continuous scale ranging from 0 to 5 handfuls). For the typical portion size, it was explained to participants that if they had consumed a food group on two occasions in total, and that on the first occasion their portion size was two handfuls whereas on the second occasion their portion size was four handfuls, they should report a typical portion size of three. Finally, to create our dependent variable, consumption, we took the product of consumption frequency and typical portion size. If, for example, a person had consumed sweets on 6 occasions during the past two days and reported a typical portion size of 2 handfuls during the past 2 days, their consumption score for sweets was scored as 12 handfuls.

4.2.2.3 Predictors

The six predictors included were informed by our previous study on individual differences in eating motivation (Werner et al., 2022), and, as previously discussed, chosen to cover a broad range of eating motivations. In total six predictors were included: enjoyment of taste, fillingness, healthiness, automaticity, emotional satisfaction, and self-identity (Table 10). Importantly, when assessing a predictor, it was stressed to the participant that they should only think of their experience the past two days (e.g., “how much did you enjoy the taste of fruits and nuts the past two days?”). Table 10 presents the eight judgment questions (two dependent variables and six predictors). Predictors were always presented in the same order to all participants across the five timepoints, whereas the order of the 16 food groups within a predictor’s rating block were randomised. Participants responded to all predictors on a continuous scale, ranging from 0 to 10 (see Table 10 for the corresponding scale labels).

Table 10 – Dependent variables and predictors, including the judgment question, scale, labels, and ICC2 for each measure

Dependent variables (DV) and predictors, together with their corresponding evaluative question. Shown underneath each question is the scoring range and corresponding labelling. The ICC2 establishes participants' agreement on their judgments for an evaluative question across the 16 food groups in Table 9. Because the ICC2 estimates random effects, these values can be generalized to other individuals from the same population. The two DVs, frequency and portion, were combined by calculating their product to create an overall measure of consumption. For each judgment question, FOOD GROUP refers to 1 of the 16 food groups assessed in Table 9.

Variable name	Evaluative question	ICC2
Frequency (DV)	On how many occasions did you consume FOOD GROUP the past 2 days? (Discrete 0 to 10) (0;1;2;3;4;5;6;7;8;9;10)	.40
Portion Size (DV)	Across those occasions what was the typical number of portions you consumed? [1 portion = 1 cupped hand] (Continuous 0 to 5) (0; 1; 2; 3; 4; 5)	.32
Consumption (DV)	*Product of frequency and portion size*	.30
Enjoy Taste	How enjoyable was the taste of FOOD GROUP for you the past 2 days? (Continuous 0 to 10) (Not at all enjoyable; somewhat enjoyable; moderately enjoyable; highly enjoyable; extremely enjoyable)	.23
Fillingness	How filling was consuming FOOD GROUP for you the past 2 days? (Continuous 0 to 10) (Not at all filling; somewhat filling; moderately filling; highly filling; extremely filling)	.24
Automaticity	How automatic was consuming FOOD GROUP for you the past 2 days? (Continuous 0 to 10) (Not at all automatic; somewhat automatic; moderately automatic; highly automatic; extremely automatic)	.24
Healthy	How healthy was consuming FOOD GROUP for you the past 2 days? (Continuous 0 to 10) (Not at all healthy; somewhat healthy; healthy; highly healthy; extremely healthy)	.62
Emotional Satisfaction	How emotionally satisfying was consuming FOOD GROUP for you the past 2 days? (Continuous 0 to 10) (Not at all satisfying; somewhat satisfying; moderately satisfying; highly satisfying; extremely satisfying)	.22
Self-Identity	How related was consuming FOOD GROUP to your self-identity the past 2 days? (Continuous 0 to 10) (Not at all related; somewhat related; moderately related; highly related; extremely related)	.12

4.2.3 Procedure

The study was part of a larger project investigating eating and covid stress, running online over a two-week period. Over this period, participants performed five sessions at five time points, each assessing the eating experience of the previous two days. Timepoints one, three, and five took place on Thursdays and captured the previous two weekdays (Tuesday and Wednesday). Timepoints two and four took place on Monday and captured the weekend (Saturday and Sunday).

Participants were informed that we were interested in their eating and covid stress over a two-week period, without disclosing our exact research questions. Then, without participants knowing, we randomly assigned them to one of the two groups, “the eating group” or “the covid stress group”. The covid-stress group was a follow-up to Pedersen et al. (2022) and will be reported elsewhere. During the first and last timepoints, both groups filled out the exact same surveys, differing only on whether the eating survey came first (eating group) or after the covid stress survey (covid stress group). The main difference between the two groups were in timepoints two, three and four, when the eating group only assessed their eating behaviour and the covid stress group only assessed their covid stress experience.

Both groups filled out the same questionnaires in differing orders on timepoints one and five, plus additional questions at the end that collected demographic information and individual difference measures (age, gender, education, household, religious affiliation, current dieting status, diet restrictions, food responsibility in the household, past eating disorders, covid related measures and survey experience). In this article, only the 70 previously described participants from the eating group and their eating behaviour results are reported.

4.3 Results

All following data analyses reported next were conducted using R (R Core Team, 2019) and R Studio version R-3.6.1 (RStudio Team, 2020) and all data and analysis scripts for this study will be made available online.

4.3.1 Consumption measure

As described earlier, participants judged how frequently they consumed each of the 16 food groups at each of the 5 time points and also estimated the typical portion size (in handfuls) consumed across those occasions. We then combined these two measures for each food group at each time point by taking their product, thereby establishing the overall amount consumed. All following analyses were performed on this combined measure of consumption, except where noted otherwise. Interested researchers can access the raw data online if they wish to analyse consumption frequency and/or typical portion size separately.

4.3.2 Implicit learning effects

Of interest in the first analysis was to assess whether the same implicit learning effects, observed previously for stress in Pedersen et al. (2022), would also occur for food consumption here. Across time points, did the correlation between consumption and each consumption motive increase? To assess this issue, we computed the difference between timepoint one and timepoint five in the correlation between consumption and each consumption motive.

Specifically, we used the raw judgments at time point one to compute the correlation between consumption and each consumption motive across the 16 foods for each participant, resulting in 6 correlations for each of the 70 participants. We then repeated this procedure for time point 5, again resulting in 6 correlations for each of the 70 participants. For each consumption motive, we then subtracted its correlation at timepoint one from its correlation at time point five. A positive value indicated that the strength of correlation increased across time points, implying an implicit learning effect. In contrast a negative value indicated a decrease in correlation strength across timepoints.

Figure 19 presents the results for each consumption motive, with each dot representing the increase in correlation strength for a single participant from timepoint 1 to timepoint 5 for a single motive. Although, large individual differences emerged, overall, the median difference for each consumption motive was positive, suggesting the presence of implicit learning across timepoints.

To assess these possible effects statistically, we used bootstrap one-sample t-tests with 10000 repetitions, to determine whether the differences in correlations for each consumption motive were significantly larger than 0, indicating that the strength of correlation had increased from timepoint one to timepoint five across participants. For one-tailed bootstrap t-tests that predicted an increase in correlation strength from timepoint 1 to timepoint 5, these increases were significantly greater than 0 for healthiness (p = .015, bootstrap mean = .086), self-identify (p = .034, bootstrap mean = .057), and fillingness (p = .039, bootstrap mean = .067). Although the increases were in the predicted direction for taste, automaticity and emotional satisfaction, they did not reach significance (for enjoyment of taste, p = .166, for automaticity, p = .139; for emotional satisfaction, p = .053).

Lastly, for each participant, we computed a combined measure of the difference in correlation strength between timepoint one and five across all six consumption motives together. Specifically, we computed the sum of the six differences in correlation for each participant (shown in Figure 19), resulting in one value for each of the 70 participants (median = .47, IQR = 1.25, range= -1.85 to 1.84). Analogous to the significance analysis for the individual consumption motives, we performed a bootstrap one-sample t-test with 10000 repetitions, which found that the mean of the combined correlation difference score was significantly greater than 0 (p = .002, bootstrap mean = 0.31).

In summary, we found large individual differences in how the strength of association between consumption and consumption motives changed from timepoint one to timepoint five. Nevertheless, three of our six consumption motives exhibited significant evidence for implicit learning. Furthermore, when all six consumption motives were combined, a highly significant learning effect emerged across participants. Analogous to Pedersen et al. (2022), when participants evaluated their consumption motives across timepoints, correlations between these motives and consumption increased. Possible explanations of this implicit learning effect are addressed later.

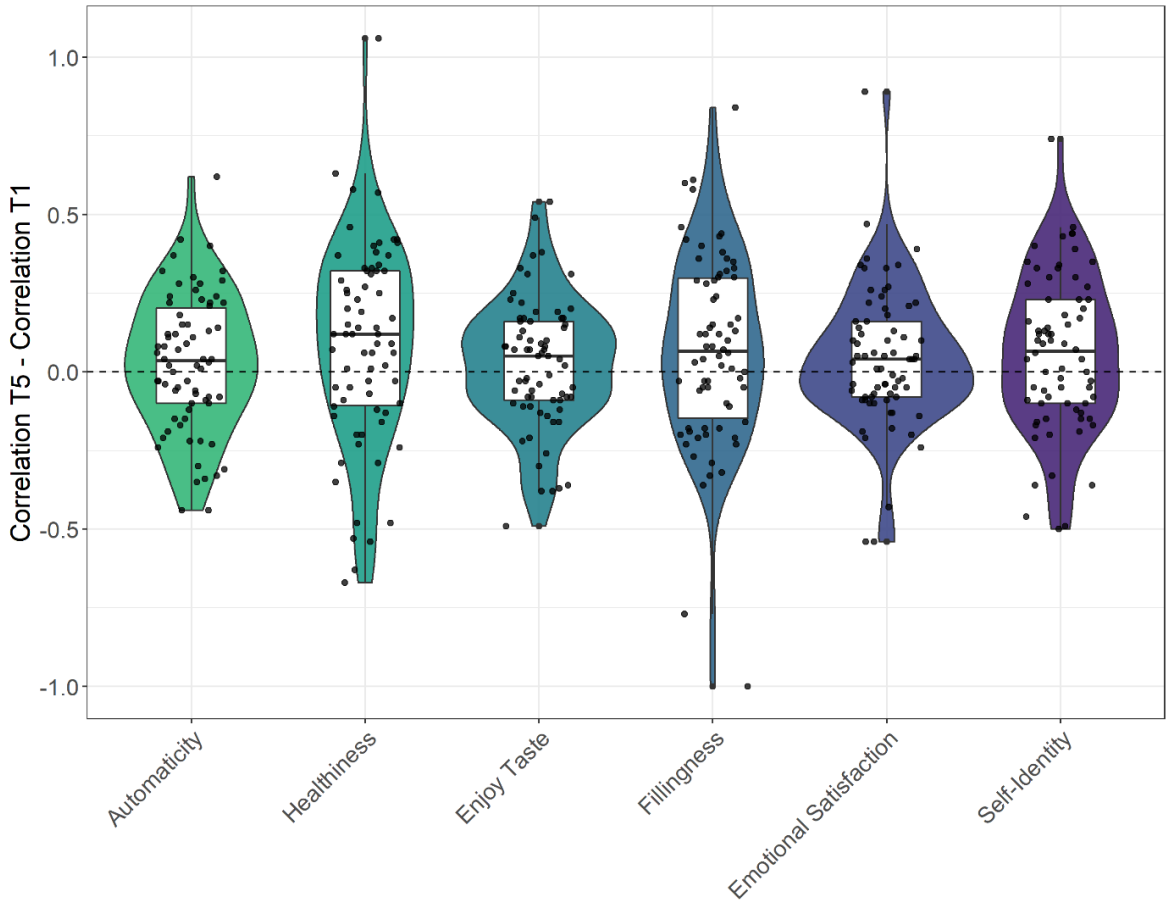

Figure 19 - Individual learning effects

Violin-boxplot represents the distribution of how much the correlation in timepoint 1 and timepoint 5 differed from each other for each participant. Each dot represents the difference for a single participant

4.3.3 G Theory and ICC results

Of interest in this next analysis was assessing the relative importance of different sources of variance in our data related to consumption, including food groups, participants, timepoints, their interactions, and residuals. Of particular interest was assessing the stability of consumption for the 16 food groups across the 5 timepoints.

Generalizability Theory ("G theory") offers a method for both breaking out important sources of variance in consumption and for assessing its stability (reliability). Another way of stating this is that G Theory allows one to distinguish how much variance in a measure, such as consumption, is explained by the different random effects (Monteiro et al., 2019). In our study, the random effects included food groups, participants, timepoints, and all the two-way interactions between them (participant x food group; participant x timepoint; food group x timepoint). A final variance component for the residuals was also estimated.

We first assessed the relative sizes of these variance components. As Panel A in Figure 20 illustrates, large differences emerged between them. As can be seen, the largest variance component was for the interaction between participants and food groups, followed by the variance components for food groups and participants. In other words, the variability in consumption observed at the group level largely reflected systematic differences across the 16 food groups, across the 70 participants, and, most significantly, in the interaction between food groups and participants. Surprisingly, timepoint barely explained any variance in consumption (nor did any of its interactions), providing a first indication of how stable the ratings remained across the five timepoints.

In terms of consumption, these results first indicate that consumption hardly varied across timepoint. Consumption somewhat varied across individuals, with some individuals consuming more than others. Consumption varied much more across food groups, with different food groups (not surprisingly) being consumed much more often than others (as illustrated in detail later).

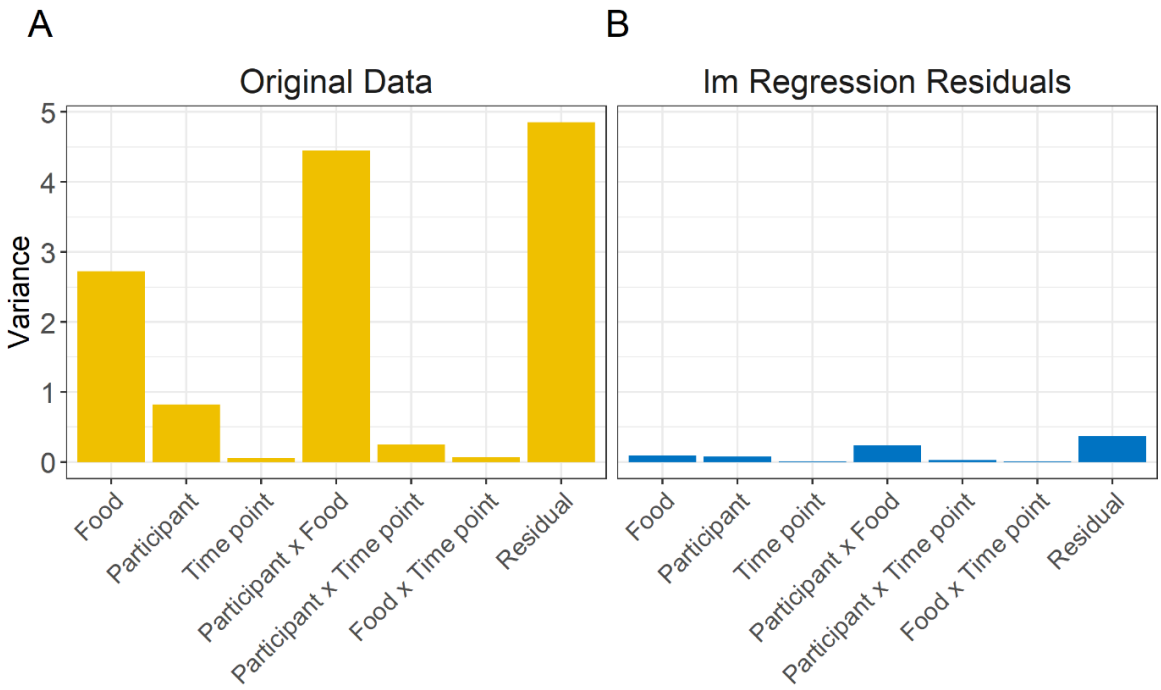

Figure 20 – G-Theory Results for original data and residuals from a simple linear regression

Results from the G-Theory analysis. Panel A shows the variance in consumption from each of the possible sources when explaining the raw original data. Panel B shows the same results when explaining the residuals of a simple linear regression analysis performed on the group data.

Perhaps most notably, the largest variance component was for the interaction between participants and food groups, indicating tremendous individual differences in how much different participants consumed different food groups (also illustrated and quantified in detail later).

As we just saw, consumption appeared to be remarkably stable across time points. To examine this finding more closely, we next computed intraclass correlation coefficients (ICCs) for individual participants that assessed how stable their consumption estimates were across time points. We also computed ICCs for each of the six consumption motives as well, to examine how stable these judgments were across time points.

In general, ICCs provide researchers with a means of assessing how much different judges agree in their judgements for a set of judged objects (Koo & Li, 2016; Shrout & Fleiss, 1979). Applying this general framework here, the 5 timepoints for a single participant served as judges and the 16 food groups

served as the judged objects. For a given measure, such as consumption, the resulting ICC estimated how much the 5 time points agreed in an individual's judgments for the 16 food groups. In other words, the ICC assessed the stability of an individual's judgments for the 16 food groups across the 5 time points. To generalise whether these ICCs for the 5 timepoints assessed here to larger population of time points for each individual, we used the random effects version of the ICC, the ICC2 (Shrout & Fleiss, 1979).

For each participant, we computed a total of nine ICC2s: Three ICCs related to the dependent variable for consumption (frequency, typical portion size, and their product); six ICCs for the six motives used to predict consumption. ICC2s approaching 1 can be interpretated as illustrating high stability across the five time points (i.e., participants rated the 16 food groups consistently across timepoints). Conversely, ICC2s approaching 0 imply no stability across time points (i.e., participants rated the different food groups with no consistency across the timepoints).

Figure 21 presents the results. Consistent with the findings from G Theory in Figure 20A, we observed high stability across time points for the majority of participants. Overall, the highest agreement was observed for healthiness (median ICC2 = .84, IQR = .13), followed by self-identity (median ICC2 = .76, IQR = .31), emotional satisfaction (median ICC2 = .76, IQR = .20), and automaticity (median ICC2 = .75, IQR = .15). Agreement was somewhat lower across timepoints for the three dependent measures, although still remaining quite high: consumption (median ICC2 = .59, IQR = .20), frequency (median ICC2 = .67, IQR = .14), typical portion size (median ICC2 = .53, IQR = .15). The overall median ICC2 across all measures (dependent variables and predictors) and individuals was .70 (IQR = .22). Interestingly, agreement for typical portion size varied the most, suggesting that individuals varied somewhat in the portion sizes consumed on different occasions.

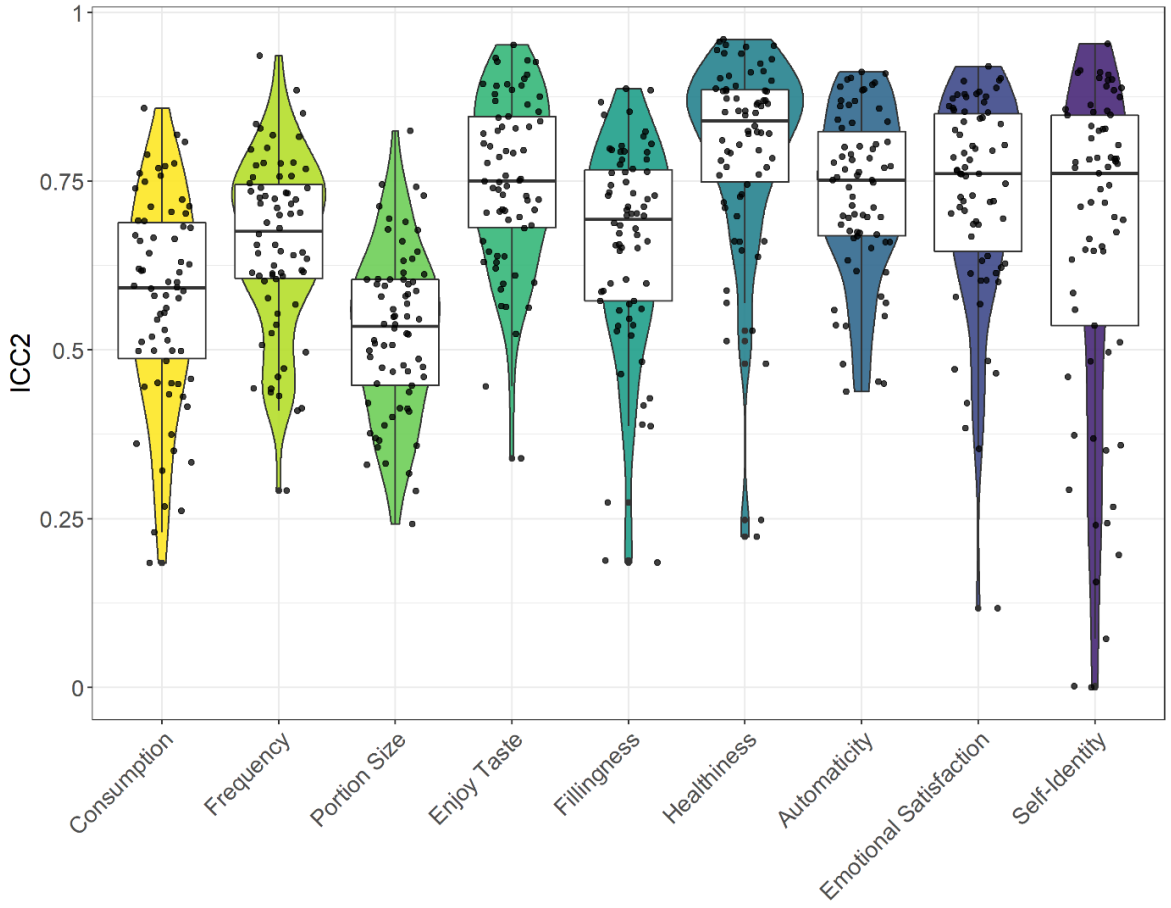

Figure 21 – Distribution of individual ICC2 values representing stability of each rating across

Violin-Boxplots showing the distribution of individual ICC2 values for each rating question. Separately for each participant the agreement of how they rated the sixteen food groups was assessed for each rating question across the five timepoints (5 timepoints were used as judges and 16 food groups as judged objects). Each dot represents the ICC2 of one participant for one rating question.

In summary, both the G-Theory and ICC2 results demonstrated a surprising lack of intraindividual variability across the five time points, disconfirming our original prediction that variability would be higher. In other words, participants were remarkably stable in how they evaluated the 16 food groups across the 5 timepoints for both the dependent variables related to consumption and for the six predictors for consumption motivation. One implication of this result is that it may typically be sufficient to assess an individual's consumption for a single time point, rather than at multiple time points, unless implicit learning is of interest.

It's perhaps worth noting in this regard that the implicit learning effects noted in the previous section are not inconsistent with the stability of consumption motives observed here. Implicit learning, for example, could have occurred across patterns of consumption motives that remained relatively stable across time points. Although the relative importance of the six consumption motives remained relatively constant for an individual across timepoints, their correlations with consumption could have simultaneously increased.

Based on these results, we removed timepoint from all later analyses. Doing so greatly simplified the results reported and allowed us to focus on other patterns in the data. Specifically, to simplify the data set for each of the 70 participants, we computed their average judgment across timepoints for each of the 16 food groups, once for consumption and once for each of the six consumption motives. Doing so further removed the small variant components for timepoint as well as their interactions observed in the G-Theory results, leaving only food group and participants as the remaining random effects. Researchers interested in examining the analyses to follow on individual time points can do so by accessing the complete raw data set online.

4.3.4 Variability for individuals and food groups

As we just saw, little variability occurred for timepoints, with consumption judgments remaining remarkable consistent across them. Here we next look at two further variance components in Figure 20A for which there was much larger variability: participants and food groups.

Figure 22A and Figure 22B visualise the variability for participants and food groups. Figure 22A plots participant means for consumption across timepoints for each food group. Each of the six panels in Figure 22B similarly plots participant means for one of the six consumption motives across timepoints for each food group.

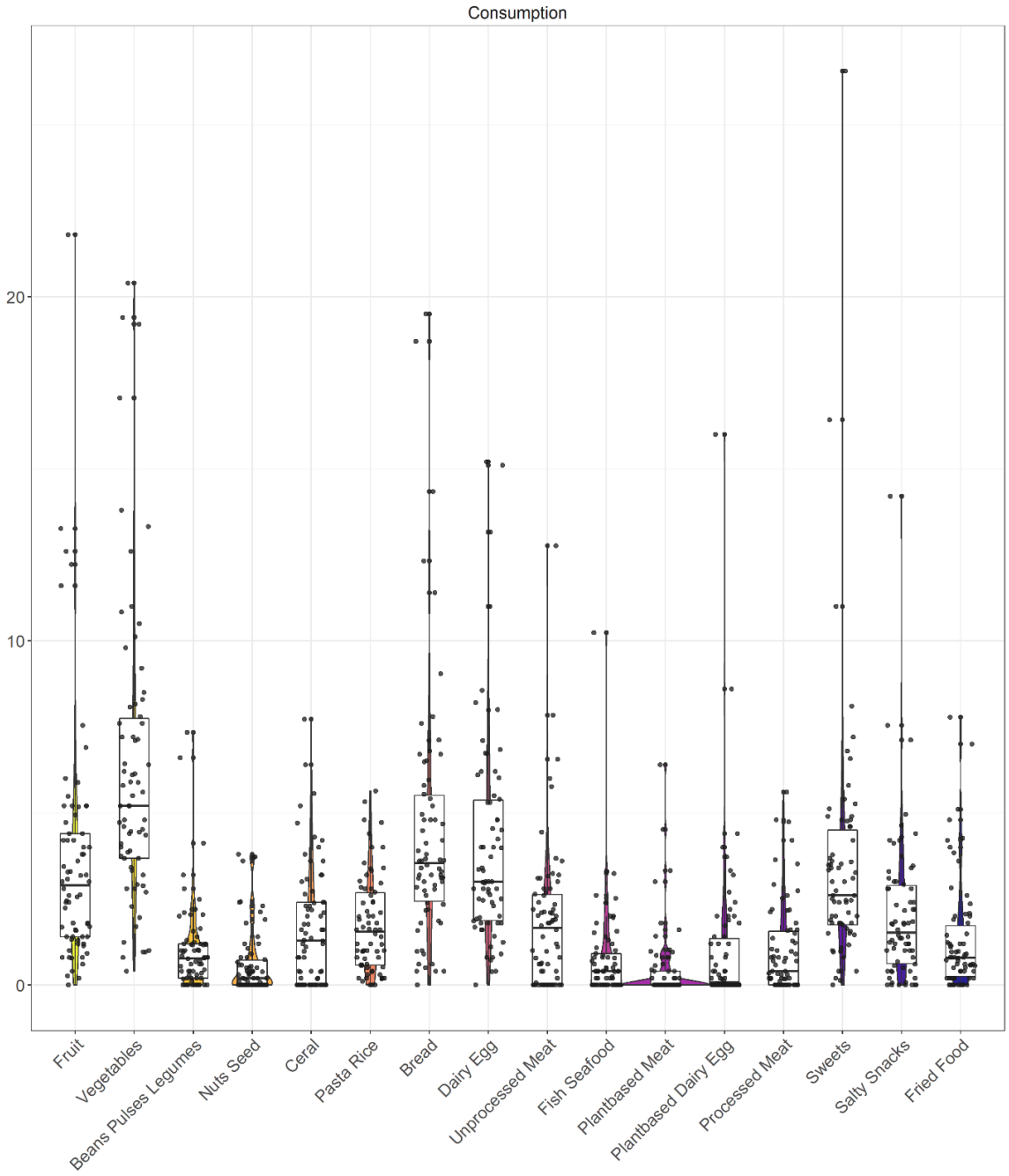

Figure 22A – Distribution of participants' average consumption for each food group

Violin-boxplots show the distribution of how many handful participants reported to have consumed. Each participant's consumption was calculated by taking their average across the five timepoints. Each dot represents the average consumption for a single participant.

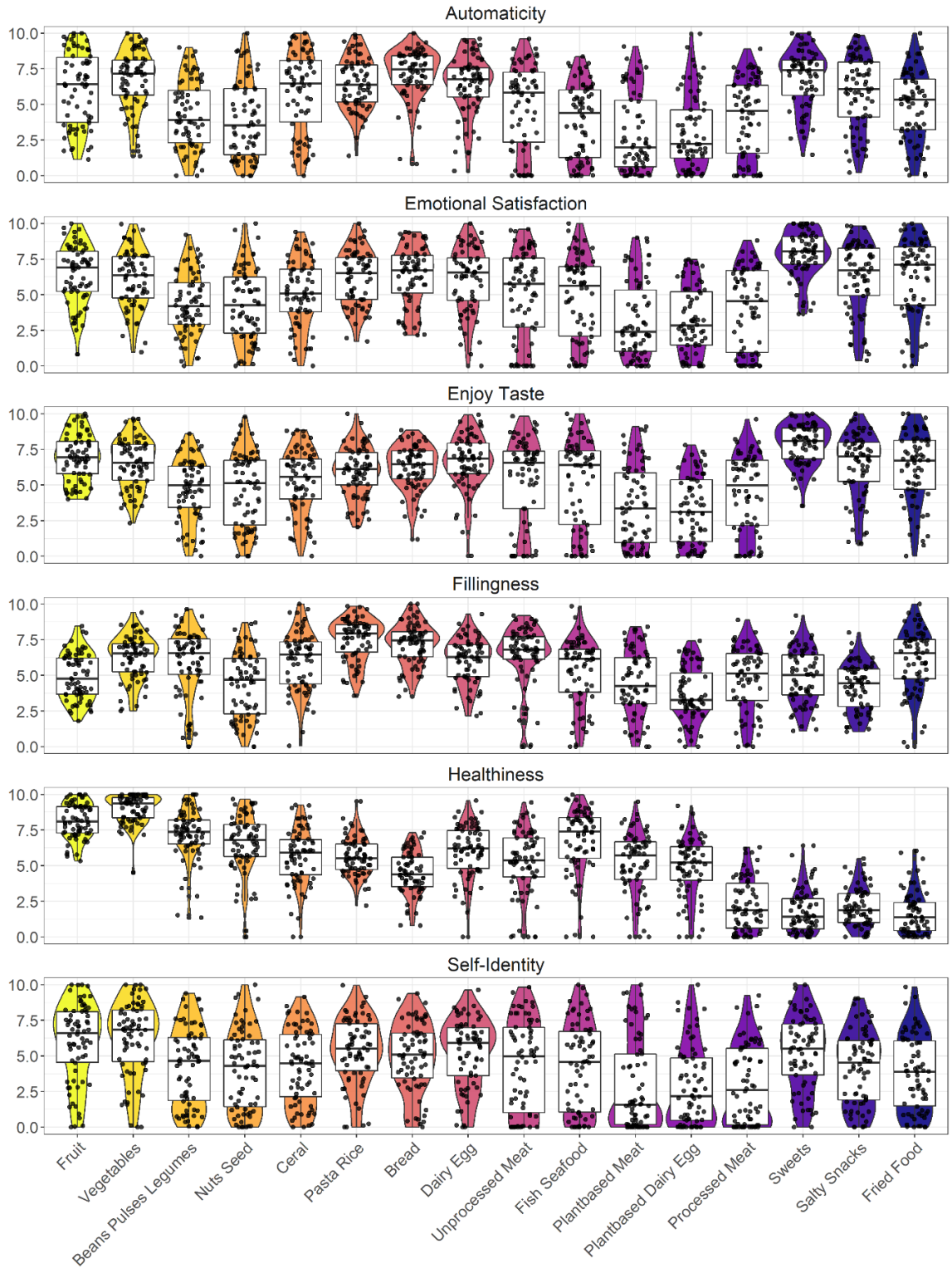

Figure 22B – Distribution of participants' average predictor rating for each food group

Violin-boxplots show the distribution of how participants rated each food group on the six predictors. Each participant's score was calculated by taking their average score across the five timepoints. Each dot represents the average score for one participant.

As Figure 22A illustrates, consumption varied greatly across food groups and participants (0 to a maximum of 26.5 handfuls consumed), with a median value of 1.24 handfuls (IQR = 2.92). Specifically, median consumption varied widely between food groups, with participants varying widely within food groups as well. These findings further illustrate the large variance components seen earlier for food groups and participants in Figure 20A. The highest median consumption, along with the highest variability across participants, emerged for vegetables (median = 5.20, IQR = 4.01), bread (median = 3.54, IQR = 3.08), dairy and egg (median = 3.00, IQR = 3.50). and fruit (median = 2.90 handful, IQR = 3.00).

Figure 22B presents analogous results for the six consumption motives. Again, large amounts of variance emerged across both food groups and participants. Variability across participants tended to be especially high for self-identity, automaticity, and emotional satisfaction across food groups, demonstrating large individual differences on these measures. Even for the measures commonly assumed to be more objective such as healthiness and fillingness, large individual differences emerged, even though some agreement emerged for foods considered healthy (i.e., lower variability across individuals for fruit, vegetables, fish and seafood) and for foods considered unhealthy (sweets, salty snack, fried food). When comparing food groups across consumption motives, fruit and vegetables were consistently judged high on all predictors, whereas plant-based foods were consistently judged low (with the exception of healthiness).

4.3.5 The individual by food group interaction for consumption

As we saw earlier in Figure 20A, the largest variance component for consumption was the participant by food group interaction. Figure 23 visualises this variance component. Specifically, each row visualises 1 of the 70 participant's consumption for the 16 food groups shown across the 16 columns. As a cell becomes darker, the participant consumed more of the food group (averaged across the five time points). As a cell becomes lighter, the participant consumed less of the food group. As the legend on the upper left illustrates, the unit of consumption is the number of handfuls consumed over the past two days, ranging from 0 to more than 21.

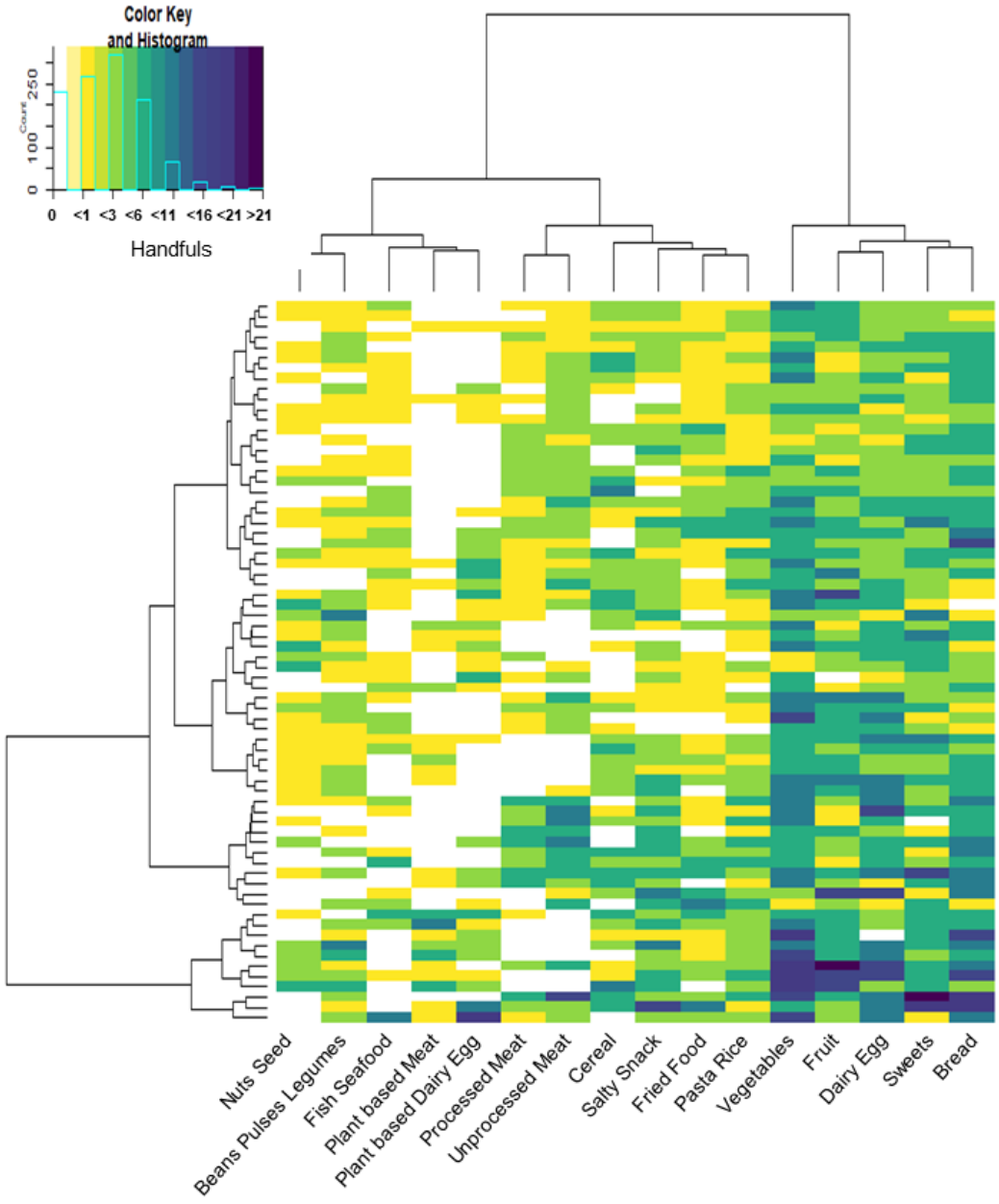

Figure 23 - For consumption, the Interaction between participants and food groups.

Heatmap shows consumption (product of consumption frequency and portion size) in handfuls that each participant consumed on average (across the five timepoints) within two days. Each row represents one participant's values for each food group. Each column shows the consumption across participants for one food group. For simplification the exact number of handfuls was further coded as 0, between 0 and 1, between 1 and 3, between 3 and 6, between 6 and 11, between 11 and 16, between 16 and 21 and above 21). White tiles represent 0 handfuls consumed (no consumption). The darker the tiles the greater the amount of handful consumed.

To increase the legibility of this figure, discrete bins of handfuls were plotted instead of the continuous measure (e.g., 11 < handfuls < 16).

Figure 23 visualizes the variance components for both food groups and participants. For food groups, the darkest columns indicate the foods consumed most often. For participants, the darkest rows indicate the participants who consumed the most food overall. Hierarchical clustering of the columns clusters food groups consumed similarly across individuals. Similarly hierarchical clustering of the rows clusters individuals who consumed the food groups similarly.

Most importantly, Figure 23 visualises the participant by food group interaction as differences between the rows for individuals. If all individuals had exhibited the same pattern of consumption across the 16 food groups, all 70 rows should look identical. To the extent that the pattern of consumption across columns varies for different individuals, this reflects the individual by food group interaction. As the clusters of participants along the left of Figure 23 illustrate, participants differed considerably in their patterns of consumption across food groups.

The ICC2 can be used to quantify this interaction. In this context, the judges are the 70 participants, and the judged objects are the 16 food categories. Of interest is how much the participants (the judges) agree in their consumption of the 16 food categories (the judged objects). As Table 10 illustrates, the ICC2 for consumption was only .30, indicating that, on average, one participant's consumption of the 16 food categories only correlated .30 with another participant's consumption of them. This low value for this ICC2 explains why the largest variance component in Figure 20A was for the participant by food group interaction.

Table 10 also provides ICC2 values for the six consumption motives, establishing how much participants agreed in these judgments across the 16 food categories. As can be seen, the agreement tended to be low across all 6 consumption motives (median = .24, IQR = .09), although agreement was relatively high for judgments of healthiness, as it often is (ICC2 = .62; see Werner et al., 2022).

In summary, we observed large differences between the 16 food groups, along with large individual differences in how the 70 participants evaluated them. These results provide evidence that using the 16 food groups (instead of a much larger number of individual foods) still allowed us to capture large individual differences in both food groups and participants.

4.3.6 Individual correlation and regression analyses

We next explored how well the six consumption motives predicted consumption for participants. In this analysis, we again used each participant's average scores across time points for both consumption and the consumption motives. For each participant, we computed the correlation between consumption and each consumption motive across the 16 food groups, resulting in 6 correlations. Figure 24 presents the distribution of correlations for each consumption motive, with each point being a correlation for one participant. Correlations approaching 1 or -1 indicate that a consumption motive predicts consumption highly, whereas correlations approaching 0 indicate a lack of prediction.

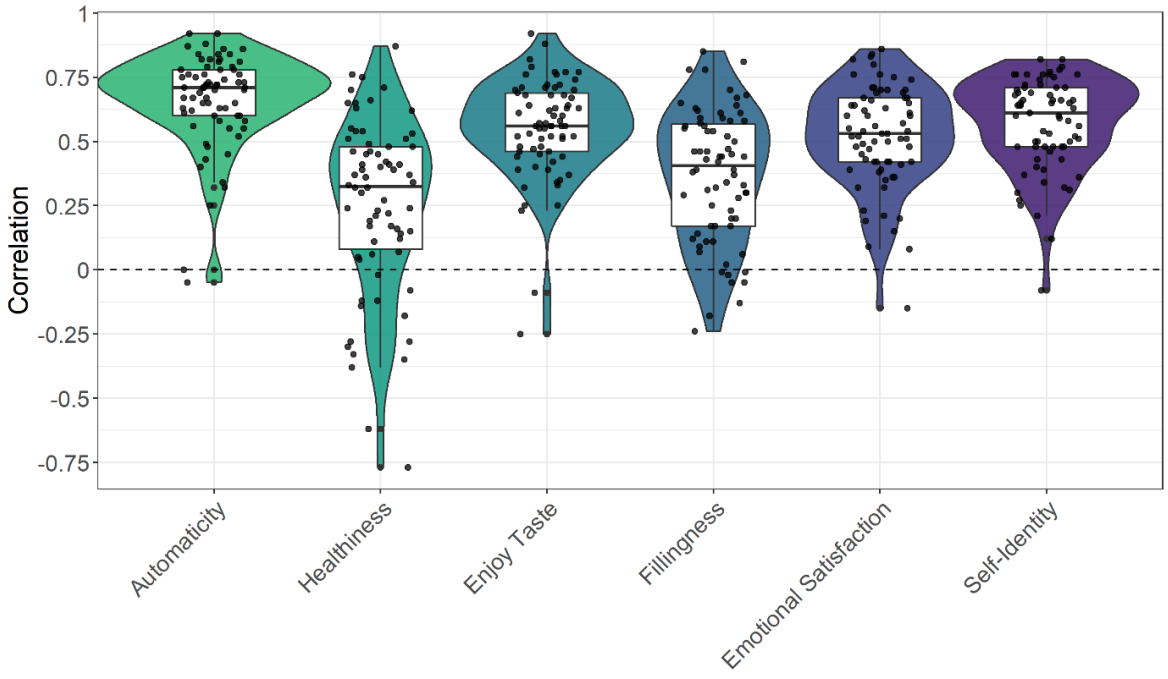

Figure 24 – Results of the individual correlation analysis showing general trends across the group

Violin-boxplots present the results of the individual correlation analysis. Correlations were performed on the average participant scores across the five timepoints. For each of the 70 participants the correlation between consumption and the six predictors across the sixteen food groups were computed. Each dot represents the correlation of one single participant.

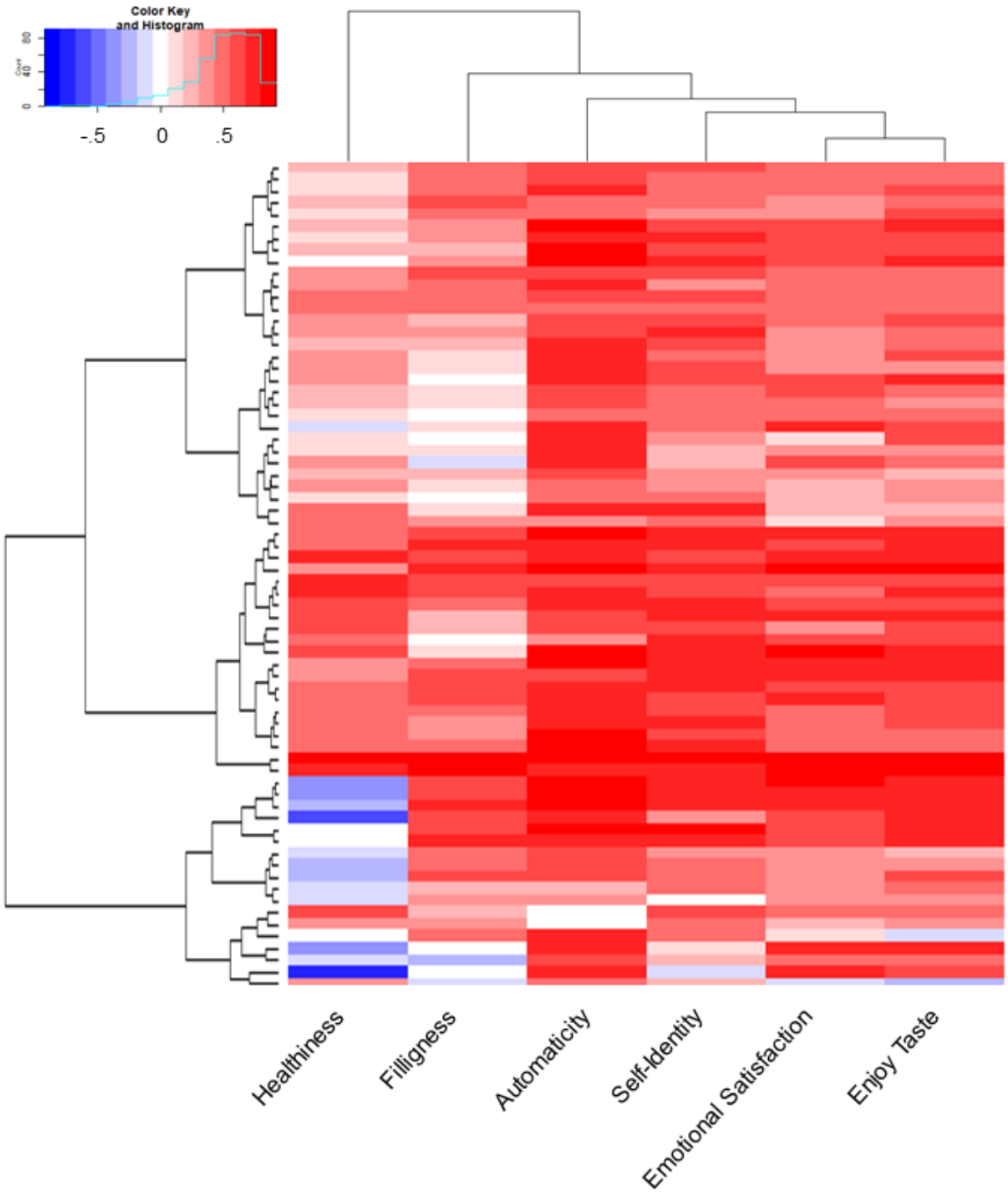

Figure 25 – Results of the individual correlation analysis visualising each participant's predictive profile for consumption

Heatmap presenting the same results as Figure 24. Each row represents the correlation profile of one participant. Each column shows all participants' correlations for one predictor. The colour of each tile reflects the correlation result. The more a correlation approaches 1 the redder the cell, the more it approaches zero the whiter the cell and the more the correlation approaches -1 the bluer the cell.

Figure 25 presents the same results as Figure 24 but as a heatmap that visualises each participant's prediction profile. Specifically, each row visualises the six predictive correlations for a single participant, with increasingly red cells representing increasingly positive correlations and increasingly blue cells representing increasingly negative correlations.

Hierarchical clusters on the left capture groups of participants with similar prediction profiles; clusters along the top capture similarity in prediction across consumption motives. Across the majority of participants, automaticity most strongly predicted consumption, followed by self-identity and enjoyment of taste (Figure 24 and Figure 25). Healthiness and fillingness, in contrast, exhibited the weakest correlations with consumption across participants. Finally, all six predictors exhibited considerable variability across participants, indicating large individual differences in consumption motives. Correlations of healthiness, for instance, ranged from highly negative to highly positive across individuals. Similarly, fillingness ranged from weakly negative to highly positive.

How much variance do the six consumption motives explain in an individual's consumption? To assess this question, we regressed an individual's consumption scores onto their judgments for the 6 motives across the 16 food groups.

Again, these analyses used mean judgments across the five time points. All measures were standardized and entered into a simple linear regression for each participant, with no random effects or interactions. Across these 70 individual regressions, the median R^2 was .71, indicating that the 6 consumption motives did an excellent job of explaining consumption variance in individual participants (IQR= .15, range= .36 to .98). As in Werner et al. (2022), we sampled a relatively comprehensive set of consumptions motives that was sufficient to explain consumption well for most participants.

One final analysis further demonstrates how well the six consumption motives explain the consumption variance in this study. We performed a simple linear regression at the group level on the original data set assessed with G Theory in Figure 20A. Specifically, we simultaneously regressed consumption for each participant for each food group for each timepoint onto the six consumption

motives, again for each participant for each food for each timepoint. No random effects or interactions were included.

After performing this regression, we obtained the residuals that remained after predicting consumption with the six consumption motives and submitted them to a second G Theory analysis. Figure 20B presents the results. Of interest was how much the six consumption motives were able to explain the original variance components in Figure 20A. If the six consumption motives are sufficient to explain the original variance components for participants, foods, participants X foods, and the original residuals, then all these variance components should decrease significantly after regressing consumption onto the six consumption motives. Figure 20B illustrates that this was indeed the case. By in large, all the original variance components almost disappeared entirely, indicating that the six consumption motives captured most of the variance in them. These results further demonstrate that the six consumption motives are sufficient for comprehensively explaining the variance in consumption for participants, foods, and the participants by foods interaction.

4.3.7 Individual self-assessment

Lastly, we addressed the question of how much insight participants have into what predicts their consumption (as measured with their judgments of consumption and the six consumption motives: Figure 24 and Figure 25). To do so, we asked participants at the end of each session to judge how much they believed each of the six predictors had influenced their food consumption the past two days.

We again assessed the stability in the self-assessment ratings across the five time points (i.e., how much did participants self-assessment judgments vary across timepoints). Analogous to earlier assessments of stability, we used the ICC2 to quantify how much each participant agreed on average with their own self-assessment judgments across the five timepoints. In other words, the five timepoints were treated as judges and the six consumption motives were treated as judged objects. Overall, participants ratings were again quite stable across timepoints (median = .64, IQR = .35) though the level of stability differed greatly across participants (range = .03 to .94). Stability here was slightly lower than

observed earlier for participants' consumption and consumption (median = .70, IQR = .22). Again, though, their judgments showed considerable stability across time points. Taking into account the considerable stability across timepoints, we again decided to compute the average for each rating across the five timepoints separately for each participant and use these averages in all later analyses.

Across participants, taste emerged as the consumption motive that they believed had most influenced their consumption, followed by emotional satisfaction, automaticity, and fillingness. In contrast, self-identity was rated the least influential. These results diverge considerably from the pattern of prediction in their SAM[2] judgments of consumption motives (Figure 24 and Figure 25). Although enjoyment of taste did appear as a strong predictor in those judgments, automaticity emerged as a much stronger predictor. The largest difference emerged for self-identity. Although it emerged as highly predictive of consumption in participants' SAM[2] judgments (Figure 24 and Figure 25), participant did not believe intuitively that it had influenced their consumption behaviour recently (Figure 26).

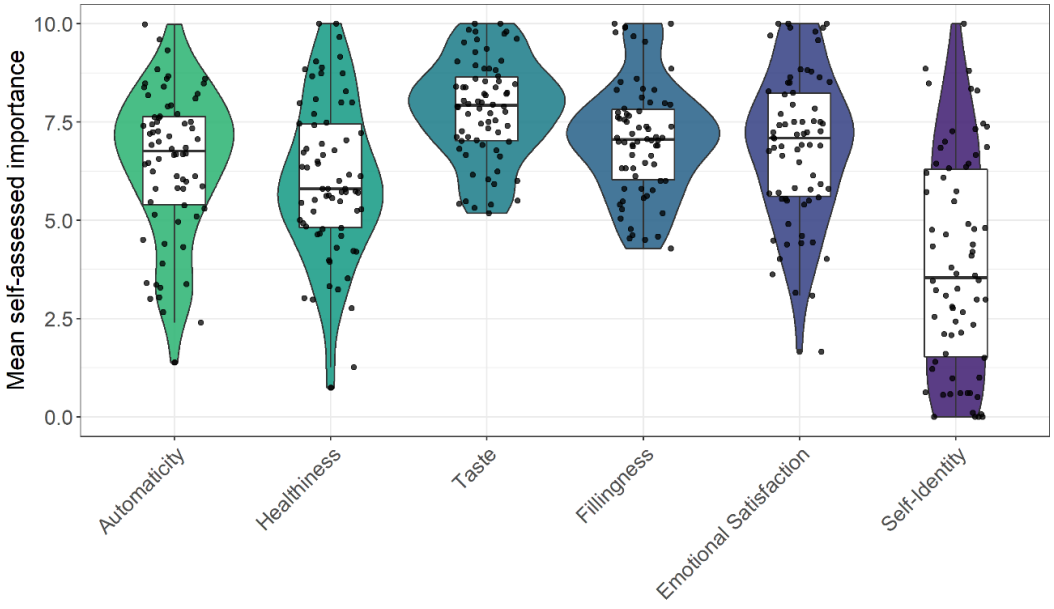

Figure 26 – Each participant's averaged self-rated importance of each of consumption motive

Violin-boxplots present participants' average self-assessed importance of each of the six predictors. Participants rated importance on a continuous scale from 0 to 10. Each dot represents one single participant's rating. Mirroring our previous results, we observed large individual differences in what participants believed to have influenced their food consumption.

Finally, we assessed how much the SAM^2 judgments of consumption motives matched the self-assessed motives that participants believed had influenced their recent consumption. Based on previous studies, we expected to see little agreement between the implicit and explicit measures. To enable a comparison for each participant, we took their correlations for the 6 consumption motives in Figure 25 and correlated them with their average self-assessment judgments in Figure 26. If a participant had insight into the consumption motives that influence their consumption, then these correlations should be high. Motives that participants believe influence their consumption should be highly correlated with consumption in their SAM^2 data, whereas motives they believe are uninfluential should be exhibit weak correlations. Although the SAM^2 judgments only capture *correlations* between consumption and the consumption motives, if a participant's explicit self-assessments of what influenced their consumption are correct, then the correlational SAM^2 data should be consistent with their causal judgments.

Figure 27 presents the results of this analysis. As can be seen, these correlations tend to be low, with a median of .0.02 (IQR = .8). In general, participants had little insights into their consumption motivation associated with their eating

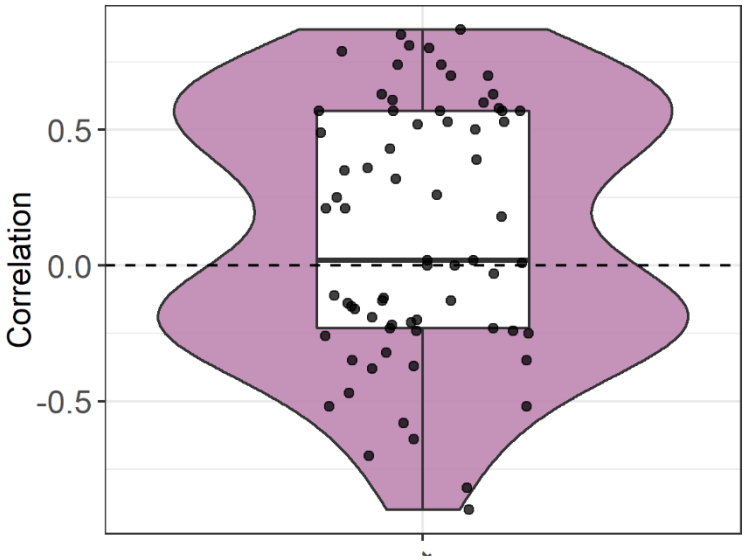

Figure 27 – Correlation between SAM^2 prediction and participant's self-assessment

Figure shows the correlations between what we predicted to be important for each participant's consumption and the participant's self-assessment. Each dot represents the correlation for one single participant.

behaviour. Although a subgroup of participants demonstrated moderate to high level insight into their consumption motivations, another subgroup demonstrated the opposite. It is difficult to tell from these data whether some participants actually have high insight, or whether they're simply on the upper end of random variability.

4.3.8 Individual study experience

Lastly, we were interested in gaining a better understanding of how participants experienced taking part in our study and completing our eating motive questionnaire. To assess this, we asked participants at the end of timepoint five to judge their experience on three rating questions using a continuous scale from zero to 10.

First, we asked participants whether they had learned something interesting/useful about their eating behaviour from participating in the study (M = 6.02, SD = 2.62). Second, we asked whether participants felt they learned something about the factors that influence their eating behaviour (M = 5.61, SD = 2.64). Third, we asked whether they had learned to better regulate their eating behaviour (M = 4.26, SD = 2.74). Overall, from these responses, it appears that most participants felt that taking part in our study resulted in increased knowledge about themselves. Although as discussed previously, this was not reflected in changes to their self-assessment. Interestingly, about 10% of participants reported, unprompted in the open feedback section, that they and enjoyed the study and that it had helped them with their eating behaviour (e.g., "The questions regarding my feelings and eating really made me think about what I eat;" "You've made me keep a better note of the food I eat & I'm more aware of my reasons for eating at times.")

4.4 Discussion

In this study, we assessed individuals' motivation for consuming sixteen food groups over a two-week period, exploring implicit learning effects as well as individual differences in what predicts an individual's consumption and the stability of these motives across timepoints. We also assessed participants' insights into their eating motives.

4.4.1 Implicit learning effects

Comparing the difference in correlation strength between timepoint one and five for each of the six consumption motives revealed large individual differences in change across time-points. Nevertheless, implicit learning effects emerged (Figure 19). Significant implicit learning effects occurred for three of the six measures (healthiness, self-identity and filligness), and also for the combined measure (summed up differences in correlation across all 6 measures) of difference.

As noted earlier, Pedersen et al. (2022) observed similar implicit learning for eustress and distress (i.e., correlations with stress predictors increased over time). The attenuation of correlation offers a potential explanation for all these effects (Schmidt & Hunter, 1996). As is well known, when a true correlation in nature is measured, the observed correlation is attenuated by the reliability of the two measures being correlated. As the reliabilities of these measures decrease, the observed correlation is attenuated, relative to the true correlation in nature. Though it is important to stress here, that the potential increase in reliability in the measurement does not equate evidence of its validity, an invalid measurement could still be reliable and/or become more reliable overtime (Bannigan & Watson, 2009).

The implicit learning effects that Pedersen et al. (2022) observed and that we observed may reflect a decrease in attenuation across timepoints. The observed correlations at each timepoint can be described as dependent on the correlation of the 'true scores' and the reliability of the measured variables (Schmidt & Hunter, 1996). By asking participants to repeat the measures five times, their measurement reliability might have increased. This effect might have been especially pronounced for portion size. Although participants might have initially been unfamiliar with measuring their foods in handfuls and might have consequently been not very reliable in their estimates during timepoint one (Gibson et al., 2016), knowing they will have to report their portion size again in the subsequent timepoints might have made them more aware of their portion size, thereby increasing their accuracy at later time points. Similar effects might have occurred for the predictors. Across measures, as their reliability increased over time, correlations between them may have increased. Although more

research is needed, this account offers one way to understand the implicit learning effects observed here and in Pedersen et al. (2022). Individual differences in consumption motives

Individual correlation analysis established large individual differences in consumption motives, although automaticity emerged as consistently high in importance across participants (Figure 24 and Figure 25). Additionally, the six consumption motives explained large amounts of variance in individual consumption (median = .71, IQR = .15). Even though large individual differences emerged in consumption motives, G Theory and ICC2 results revealed that an individual's motives tended to remain highly stable across five timepoints over a two-week period (Figure 20 and Figure 21). Lastly, we observed little agreement (Figure 27) between a participant's predictive profile in their SAM^2 judgments of consumption motives (Figure 23 and Figure 24) and their explicit self-assessment of what they believe influences their food consumption (Figure 26).

Our findings furthermore provide insight into the consumption behaviour of UK residents. We found large individual differences in participants patterns despite assessing the consumption of relatively broad food groups (instead of assessing individual foods). As Figure 21 illustrated, peoples' diets differed greatly from each other in the food groups they consumed most often (Figure 23) and how they perceived the 16 food groups with respect to the consumption motives (Figure 22). The only agreement that emerged was that most (but not all) participants appeared to consume fruit and vegetables the most and agreed that they are relatively high in healthiness. Plant based products appeared to be rarely eaten by most of the participants. Both of the plant-based food groups were rated the lowest on self-identity, automaticity, and taste, despite being judged as especially healthy food groups.

These particular results are in line with previous findings in Danish consumers, where taste was a barrier for increasing plant-based food consumption in meat eaters (Reipurth et al., 2019). Even though some questions about the healthiness and sustainability of plant based alternatives remain (Choudhury et al., 2020), their benefit compared to animal agriculture is evident (Mäkiniemi & Vainio, 2014) and they play an important role in making diets more sustainable

to effectively address climate change (Sabaté & Soret, 2014). Our results point towards possible new starting points for interventions, such as focusing on changing people's perception of plant-based products' taste and increasing their association with people's self-identity.

In line with previous findings (Werner et al., 2022), automaticity, emerged as the most important motive for consumption of the 16 food groups across participants. This result mirrored other findings such as Brug et al. (2006) and Riet et al. (2011) who both found habit to be most predictive for consumption. In contrast participants differed greatly on how important the other five motives were for their consumption. Furthermore, the same pattern was not reflected in participants' self-assessments, who, with some exceptions, judged taste to be most influential for their food consumption. Similar we found healthiness to be rated as highly influential for consumption across participants, whereas the same importance did not emerge from the SAM^2 data for the majority of participants.

The observed stability of consumption motivation across time matched previous findings showing the stability of eating motivations across eating situations (Werner et al., 2022). These results might be again reflective of the aforementioned importance of habit for predicting consumption – since habitual consumption would be expected to emerge as consistently important over time. These findings also indicate that, in future research, a single assessment at one timepoint would be enough to reliably establish individual consumption motives.

4.4.2 Self-assessments of eating motives

In general, we found participants' explicit self-assessments of how much the six consumption motives influenced their consumption (Figure 26) were largely unrelated to the most predictive consumption motives in their SAM^2 data (Figure 23 and Figure 24). In other words, the results from the more explicit (Self-assessment) and the more implicit (SAM^2) approach differed substantially. Potentially this might indicate that participants do not have much insight into what actually motivates their behaviour. Though admittedly it is important not to overinterpret this difference as the measures were differing in their aggregation level. SAM^2 was aggregated across the dimensions of food groups

and time whereas the self-assessment was only aggregated across time (Ostroff, 1993). In a future study it would be more informative to compare SAM^2 to a similarly aggregated measure, e.g., the TEMS whose motives are aggregated across multiple items. Nevertheless, the difference might further provide an explanation for the difficulty people encounter when trying to change their eating behaviour or maintain weight loss (Wing & Phelan, 2005), or when they try to establish a more sustainable diet. Because of this poor insight, individuals may often adopt ineffective approaches to changing their diet. If participants received more accurate accounts of their eating motives, such as from a SAM^2 analysis, perhaps they would be more successful in altering their diets. If, for example, an individual mistakenly believes that healthiness motivates their consumption when, in actuality, automaticity does, focusing on healthiness to change a diet may be ineffective, whereas focusing on automaticity and habits may be more effective.

The survey experience questions in timepoint five, along with the open comments, pointed towards the possibility of using a SAM^2 approach to help people gain a better understanding of what drives their food consumption, potentially even using it as a brief intervention by providing participants with feedback about their consumption motives. Further research, however, is needed to systematically assess whether SAM^2 may be useful in helping change people's eating behaviour.

4.4.3 Strengths and limitations

A strength of the present study was the inclusion of multiple timepoints, allowing us to investigate the stability of consumption motives across a two-week period. Further research into temporal stability would be needed to assess whether longer-term stability exists over month and years, and to understand how motives possibly evolve over time.

A second strength of this study was to situate all measures in the past two days, allowing us to assess potential differences across time. A further strength of our study was additionally recording participants self-assessment, allowing us to compare those to our SAM^2 measure and providing an insight into participants own beliefs as to what motivates their consumption.

One limitation of our study, due to considerable time constraints, was to not ask participants to judge the food groups within specific eating situations (e.g., sweets for breakfast). Although our previous work suggested that eating motives remain remarkably stable across eating situations (Werner et al., 2022), other research has shown differences in motives across situations (Cadario & Morewedge, 2022). In future studies it would be useful to include diverse eating situations and assess their time-stability.

A further limitation might have been the use of the broad categories of food groups. Although the sixteen chosen food groups appeared to capture individuals' diets well and generated large individual differences in judgments of consumption motivation, in the future, it would be useful to additionally record the specific foods participants consumed within these food groups. Similarly, while our six predictors explaining consumption well for most participants, there were some participants whose consumption our motives appeared to not explain well. In future studies, it would therefore be useful to use a multi-method approach that includes qualitative interviews to help identify which additional motives might be relevant for some participants, for example, by asking participants to first complete the SAM^2 measure and, in a separate qualitative interview, ask them to elaborate how different motives influence the consumption of different food groups and what other motives and factors they think additionally influence their consumption (e.g., other people, sustainability). Another option might be to use a feature listing task (for an example see Papies et al., 2020), asking participants to freely list features of the food groups, then identify underlying motives via text analysis, additionally record consumption of the food groups and finally assess the association of the identified motives with consumption and compare these results to SAM^2.

The greatest limitation of our study was our reliance on self-reported, retroactively collected data, as, due to practicalities, it had not been possible to measure participants right before, during or after the eating occasion, for instance via mobile phone apps. Consequently our measures are purely based on participants memory of their consumption and their consumption motives during the past two days and therefore vulnerable to biases (e.g., recency, post-hoc feelings of guilt (Steenhuis, 2009) etc.). The aim in this study was to ensure that

participants would only take into account their experiences in the past two days and to measure how they experience the food groups, though admittedly this might have meant that the judgments were more representative of how participants felt retroactively about the food groups instead of how they felt before, during or after consumption. For instance, in hindsight some participants might have over (to justify having eaten unhealthy sweets) or under (due to feelings of guilt (Steenhuis, 2009)) reported how emotionally satisfying sweets were for them the past two days. The collected SAM^2 value therefore might not reflect either anticipated emotional satisfaction nor experienced satisfaction. In summary as judgments were taken post-hoc, they were vulnerable to various kind of complex biases (e.g., recency effects, food guilt etc.). Additionally, these judgments might potentially tap into more general judgments about consumption and motives instead of actual judgments at specific timepoints. An account along these lines might offer an alternative explanation of why we found little variation across timepoints. In the future it would be beneficial to use ecologic momentary assessment methods to assess consumption motivation before (anticipated value) and/or straight after (experienced value) eating occurs, thereby gaining more accurate measures and being able to further assess how both values are associated with consumption frequency and desire.

Furthermore, even though we provided participants with brief explanations for each predictor, it would be beneficial in future studies to assess, especially for the more complex predictors such as self-identity and automaticity, how exactly participants made their judgments. A possible method might be to include qualitative interviews in addition to our quantitative approach, asking participants to verbalise their thought and judgment processes when completing SAM^2 as well as asking participants to provide and explain their own definition of what each predictor means. This would enable us to compare participant's definitions with our own as well as compare between participants and help with judging the validity of our motives.

Lastly, we collected our data in early 2021 while the UK was in a nationwide lockdown due to the COVID pandemic. A replication of the study in the future

would allow to assess whether consumption motivation had been affected by the pandemic e.g., by participants spending more time in their homes.

4.4.4 Conclusion

In summary we observed evidence for implicit learning effects across timepoints, potentially indicating an increase in reliability of measures across time. Furthermore, we found consumption motivation across participants to be remarkably stable across time. Our six predictors were able to explain large amounts of variance on the individual participant level for the majority of participants. We found large individual differences between what predicts consumption in individuals, although automaticity emerged as a strong predictor across participants. Lastly, we found that most participants had little insight into the motives associated with their consumption.

4.5 Declarations

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Conflicts of interest / competing interests

The authors declare no conflict of interests/competing interests.

Availability of data and material

Please find the data and all analysis scripts on the Open Science Framework (OSF https://osf.io/4fcw7/).

Ethics

This project was approved by the University of Glasgow College of Science & Engineering Ethics Committee (Date: 07/01/2021, no: 300200092).

Chapter 5 General discussion

The overarching objective of this thesis was to gain a better understanding of individual differences in consumption motivation by using a situated assessment method. This included firstly identifying diverse motives for food and drink consumption (Chapter 2 and 3) and their importance (Chapter 2, 3 and 4) before, secondly specifically assessing their stability in the domains of drink types (Chapter 2), across eating situations (Chapter 3) and across time (Chapter 4). Additionally, I assessed the occurrence of implicit learning effects (Chapter 4) and how much insight participants have into what motivates their consumption (Chapter 3 and 4). In the following, I will first summarise the key findings of each empirical chapter and explain the overall contribution of this work, by discussing the theoretical and practical implications deriving from the results. Lastly, I will describe the strengths, and limitations of the presented work and end with a discussion of future research directions.

5.1 Summary of findings

Chapter 2 focused on developing a framework to explain consumption frequency of alcoholic as well as non-alcoholic beverages. I identified and assessed seven consumption motivations, regulation, bitterness, habit, health/ functionality, negative consequences, positive taste and socialising/positive consequences, which predicted consumption frequency well for all eleven beverages. Notably, the patterns of prediction were remarkably similar across the beverages, e.g., habit showed a consistently strong influence on consumption frequency across all beverages with only minor variations.

Individual participants on the other hand, exhibited a remarkable variability in their perception and consumption frequency of the eleven beverages. Indeed, in contrast to the individual drinks, participants' motivation patterns showed large individual differences in how much influence each of the seven factors yielded for consumption frequency. Though overall and in line with the individual drinks' results, the seven factors predicted consumption frequency well across participants, with habit consistently as one of the most important factors. The

results suggest that consumption frequency of alcoholic as well as non-alcoholic beverages is influenced by generalised motivations for drinking instead of drink specific motivations.

Chapter 3 presented a series of three studies with the overarching goal to establish individual differences in motivations for consumption frequency and desire of food and drinks as well as their stability across eating situations. Study 1 established extensive food norms, which captured the diversity of the UKs diet and informed which foods to include in Study 2 and 3. Next, Study 2 established and five factors that underlie a diverse range of previously identified consumption motives, namely, habitualness, unhealthiness / healthiness, savouriness / sweetness, fullfillingness, and bitterness/sourness.

The final Study 3 in Chapter 3 subsequently assessed individual differences in consumption motivation patterns across participants and examined their stability across eating situations as well as investigated participants insight into their own consumption motivations. I assessed participants consumption frequency, desire and ratings on ten diverse predictors (healthiness, fillingness, sweetness, bitterness, affordability, automaticity, self-identity, social connectedness, emotional satisfaction, situational transport) of 177 foods, each situated in one of four eating situations (usual breakfast, usual lunch, usual dinner, daytime snack). Additionally, I asked participants to judge the importance of each of the ten predictors for their consumption frequency and desire. As in Chapter 2, I observed large individual differences in how participants perceived the individual foods as well as how much influence each of the ten predictors yielded for consumption frequency and desire. Furthermore, again in line with Chapter 2, habit emerged consistently as greatly important for consumption frequency as well as desire across participants. Again, I found that the ten predictors consistently explained consumption frequency and desire well across the large majority of participants. Remarkably, the individual predictive patterns did not vary across eating situations. Lastly, little agreement emerged between what SAM^2 found to predict consumption and desire and participants' self-assessment.

Chapter 4 built on and extended the findings from Chapter 3, focusing on assessing implicit learning effects as well as individual differences in consumption motivations (automaticity, healthiness, enjoyment of taste, self-identity, fillingness and emotional satisfaction) for 16 diverse food groups and their stability across a two-week period, as well as participants insight into their own consumption motivations. I observed small but significant implicit learning effects for the association between consumption and healthiness, self-identity and fillingness. This was reflected in an increase of their associative strength from the first to the final timepoint even though participants were not instructed to become more aware of their consumption motivation nor were provided with any kind of feedback. While participants differed greatly from each other in their consumption and perception of the sixteen food groups, their judgments and consumption remained remarkably stable across the five timepoints. This was also reflected in the stability of how important participants themselves judged the six predictors for their consumption. As in Chapter 2 and 3, large individual differences emerged in predictive patterns, again illustrating the importance of automaticity across participants. Furthermore, the six predictors were able to predict consumption well across participants. Finally, as previously found in Chapter 3, there was little agreement between participants self-assessment and what SAM2 found to predict participants consumption.

In summary, across the three empirical chapters I found large individual differences in participant's perception of beverages, foods, and food groups. Furthermore, I observed large individual differences in which motives most strongly correlated with consumption across participants, though automaticity emerged consistently as an important motivation across participants in all three empirical studies. Remarkably, the individual patterns emerged as stable across eating situations. Similarly, judgements of the food groups appeared stable across time. Lastly, I found little agreement between participants self-assessment of what predicts their consumption and what SAM^2 found to predict consumption.

5.2 Thesis contribution and implications

The main contribution of the present work was to add knowledge about individual and intra-individual differences of consumption motivations to the existing literature, namely I found large interindividual difference though a lack of intra-individual variability. Secondly, the thesis illustrated the value of researching complex behaviours such as eating and drinking in a situated manner, first by situating participants' judgments in specific beverage type (Chapter 2), second by situating foods in specific eating situations (Chapter 3) and fourth by situating in specific food groups in a limited timeframe (Chapter 4). The presented results show the benefit of preserving relevant intra-individual as well inter-individual differences and furthered the understanding of individual difference in consumption motivations.

For beverages, I also showed the benefits of including a range of different beverages instead of focusing on one specific beverage type such as sugar sweetened beverages, which allowed me to assess drinking behaviour more comprehensively. The situated approach offers an alternative to traditional unsituated measures for researchers interested in assessing specific individual differences in consumption motivations. The observed lack of agreement between participants own judgment and SAM^2 predictions, presented in Chapter 3 and 4, raises important questions whether traditional unsituated eating motivation tools measure actual consumption motivations or might potentially be more reflective of participants' self-image and social norms. In the following I will discuss some of results theoretical and practical implications in more detail.

5.2.1 Large individual differences in predictive patterns

In contrast to the typical focus of eating motivation research, e.g., broad group level results (the general population) or group comparisons (e.g., overweight vs normal weight), this thesis examined individual and intra-individual differences of consumption and consumption motivation for eating and drinking behaviour. Across all three empirical chapters, SAM^2 captured large individual differences, showing the uniqueness of each individual's prediction patterns.

While my focus in the empirical chapters was largely on capturing and exploring these differences, and not addressing their origin, grounded cognition theory does provide the theoretical framework to explain them. Based on the grounded cognition theory previous learning experiences are stored in a multi modal fashion (including taste, situational context, social), being combined into situated conceptualisations (Barsalou, 2008). These conceptualisations remain dynamic, flexible and are continuously updated. In relevant situations, the best fitting situated conceptualisation is being activated and may lead to desire, which can consequently motivate consumption (Papies & Barsalou, 2015). Therefore, to understand consumption behaviour it is necessary to measure and understand these situated conceptualisations. By situating its measures, SAM^2 activates and captures these individual situated conceptualisations. As individual's learning experiences with different foods and drinks differ greatly (e.g., due to socioeconomic or environmental differences (e.g., Pechey et al., 2015; Thompson et al., 2013)) from one another, the resulting situated conceptualisations are therefore unique for each individual.

Consequently, when measuring these situated conceptualisations with SAM^2, large individual differences emerge, as individuals differ in how much a food in a specific situation is represented by for instance feelings of social connectedness, positive taste, other internal states, e.g., long-term goals such as health, sustainability or their relevance for their self-identity etc. These different situated conceptualisations then result in differences in consumption frequency of different foods. In summary the individual differences captured with SAM^2, and presented across the empirical chapters, provide further empirical evidence for the, by grounded cognition theory proposed, individualised situated conceptualisations and illustrate the large individual differences in activated situated conceptualisations.

5.2.2 Lack of intra-individual differences in predictive patterns

As previously discussed, across studies the expected large inter-individual differences emerged, though this was not mirrored within participants and instead participants showed little variability in their eating motive patterns across the four eating situations in Chapter 3 (Study 3) as well as across time (Chapter 4). These results are in contrast to grounded cognition theory's

prediction of the importance of situation and instead point towards generalised, decontextualised eating motives, meaning eating motives are the same across eating occasions. In other words, across studies, it appears that the used food and/or beverage cues activated situated conceptualisations for specific foods though these appear not to differ across eating contexts. These results are in contrast with other studies that observed differences in anticipated liking of food depending on whether the provided situational context was congruent or incongruent to typical eating situations, indicating that the perception of food is dependent on the context (van Bergen et al., 2021) as well as other research observing differences in eating motives across different eating occasions on the group level (Cadario & Morewedge, 2022; Phan & Chambers, 2018).

One possible explanation for the observed lack of differences could have been that the cues used in Chapter 3 ("usual breakfast" in Chapter 3 Study 3) were not specific enough to activate situation specific situated conceptualisations and more situational cues are needed, e.g., people present, specific location, to activate situation specific situated conceptualisations. This would furthermore explain why Phan and Chambers (2018) found differences, as they assessed the motives for participants most recent eating occasion. To further assess situated conceptualisations, it would be therefore important to repeat the study with the addition of more context specific eating situations ("pancakes for breakfast on a Sunday with your family") to test whether greater intra-individual differences would be observed in the eating motive patterns. This would additionally further our understanding of the nature of situated conceptualisations.

Another possible explanation might be that although participants were being specifically instructed to really immerse themselves into the eating situation, we did not check how faithfully participants followed the instructions, e.g., by recording immersion level. Consequently, when being presented with a food cue it might have activated the most relevant situated conceptualisation for the food and not for the food in the presented eating situation or activated decontextualised eating motive patterns and consequently no situation specific differences emerged. To further assess the importance of eating situation it would be necessary to have manipulation checks by asking participants to report their level of immersion or use alternative methods such as pictures of the

situation (e.g., the typical place they have their breakfast), sensory or experience rooms (for an example see van Bergen et al. (2021) or even VRC (for a review see Xu et al. (2021) to ensure strong immersion into the situation. In summary the lack of intra-individual variability is in contrast to the grounded cognition theory and more research is needed to better understand situated conceptualisations and assess the relationship between situated conceptualisations and their uniqueness across eating situations further.

5.2.3 Difference between SAM^2 prediction and participants self-assessment

Both Chapter 3 and 4 showed considerable differences between the factors that according to SAM^2 would predict participant's consumption and participants own self-assessments. These self-assessment questions were similar, though not as in depth, to typically used unsituated eating motive questionnaires (e.g., FCMs (Steptoe et al., 1995)). One possible explanation of these results might be that participants have little insight into what predicts their actual consumption and consequently the lack of agreement might suggest more generally that the situated vs unsituated assessment methods assess different research questions, namely what motivates someone's consumption vs what someone believes to motivate their consumption.

As previously described, SAM^2 is based on the grounded cognition theory (Barsalou, 2008, 2020) and measures situated conceptualisations. By situating all questions (e.g., in specific beverage types or the situation they occur in), SAM^2 measures these situated conceptualisations, e.g., in Chapter 3 by asking participants to immerse themselves in the situation, e.g., "usual breakfast". Presumably, these situated questions act as cues and automatically activate the relevant situated conceptualisation. The ability for cues such as food pictures to activate situational conceptualisations has previously been demonstrated by Papies (2013) showing that especially tempting foods were described by participants with features related to eating simulations and contextual and hedonic features. Further evidence for these activations comes from neuroimaging studies, showing that exposure to food cues appeared to induce eating simulations, again likely related to the situational conceptualisation (Chen et al., 2016).

In contrast to SAM^2, during their self-assessment ratings participants were only asked to judge how much their eating is influenced by the previously assessed predictors, e.g., healthiness. This method is unlikely to activate any specific situated conceptualisation and instead participants have to use their intuition and heuristics to generalise across diverse foods and eating situations. The resulting judgements might therefore be less driven by empirical data and more reflective of for instance their own self-image ("I am a health-conscious person), social norms (everyone eats because something tastes good), long-term goals ("I want to be healthy") (Dutriaux et al., 2021) or based only on their most recent experiences. Wahl et al., (2020) for instance found that individuals appear to overestimate the importance of most eating motives when assessing eating motives unsituated, compared to using a situated eating motive assessment. A further limitation of these explicit approach is the underlying assumption that participants understand themselves and what predicts their behaviour which is in contrast to previous research showing that individuals have a lack of understanding of how situational cues influence their eating behaviour (Cohen & Babey, 2012).

While the unsituated explicit approach still captures important individual differences of participants' self-beliefs and self-image, it appears less likely to accurately capture what predicts actual consumption than the more implicit situated approach used throughout the three empirical chapters. Though, as previously discussed, it is important not to overinterpret the observed lack of agreement as the two measures differ in their aggregation levels. SAM^2 is aggregated across foods (chapter 3) and foods and time (chapter 4) whereas the self-assessment data, was either a single value for each motive (chapter 3) or only aggregated across time (chapter 4) (Ostroff, 1993). To further assess the relationship between SAM2 and traditional instruments, such as the TEMS (which aggregates its motives across multiple items), it is important to collect both measures in a future study to conclusively compare their results.

In summary more research is needed to assess both approaches' exact underlying processes, e.g., neuroimaging studies could further assess whether the theorised activations emerge when using a situated assessment approach in contrast to traditional instruments. It would be expected that if situated conceptualisation

are activated while completing the SAM[2] assessment, various areas across the brain (visual, olfactory, tactile, emotional, memory, cognitive etc. (for a review see Chen et al. (2016)) should be activated. In contrast while completing the traditional instruments it would be expected to mainly observe activations in areas associated with higher cognitive functions. Similarly, qualitative methods such as semi-structured interviews should be used to assess how participants approach each of the two methods, e.g., by asking participants to verbalise their thought and judgment process while completing each method. Lastly both methods should be assessed in connection to real life behavioural outcomes such as the consumption of healthy vs unhealthy foods, weight maintenance, blood pressure, diabetes risk etc.

5.2.4 Consistent importance of habit and the role of other motives

The importance of habit on eating behaviour has been well established (Gardner et al., 2011; Riet et al., 2011) and unsurprisingly emerged as a recurring theme across all the three empirical chapters of this thesis. Specifically, automaticity and habit appeared consistently as highly positively associated with consumption on the individual beverage level (Chapter 2), as well as on the participant group level for consumption frequency as well as desire (Chapter 3) and the individual participant level (Chapter 2,3 and 4). The presented results add further support to the growing evidence of how eating and drinking behaviour are driven substantially by habit (e.g., Albery et al., 2015; Brug et al., 2006; Riet et al., 2011). As habit can be defined as automatic behaviour triggered by relevant situational cues (Gardner, 2015), it is therefore unsurprising that using a situated measuring approach would be successful in capturing the importance of habit on consumption in specific situations. In contrast, participants might be unaware of how much their behaviour is driven by (unconscious) habits (Cohen & Babey, 2012), which is reflected in participant's self-assessments generally judging enjoyment of taste to be most influential for their consumption. This furthermore fits with results from Phan and Chambers (2016), that liking as food motive was chosen by participants most consistently across eating occasions. The overestimation of taste as a an important influence of eating behaviour

compared to, for instance habit, furthermore emphasizes the need of more implicit approaches when measuring and assessing eating motives.

The evident importance of habit might furthermore explain why eating motivations were stable across the four different eating situations (Chapter 3) which was in contrast to Phan and Chambers' (2016) findings that daytime snacking was more motivated by health and weight related motivations while night time snacks were more driven by pleasure. A possible explanation might be that Phan et al. (2016) measured the motivations of the participant's last eating occurrence, whereas here participants were asked to situate their ratings in "usual" eating situations (usual breakfast, usual lunch, usual dinner, daytime snack) – those "usual" situations are more likely to occur often and repeatedly in the same location (e.g., breakfast at home) and are therefore likely to create situational conceptualisations including a strong automatic (habitual) response which was captured by SAM^2. To further investigate this, it would be important to use a range of diverse eating situations, e.g., going to a new restaurant, ordering food etc., to assess whether situations without ingrained habitual responses would show a greater importance of other motivations, e.g., taste, healthiness as compared to habit.

Similarly, the stability observed in Chapter 4 might also have been driven by the eating situations covered during the measuring timepoints, as the data was collected during a Covid lockdown. It is therefore likely that people had spent most of their time during the two-week study duration at home. Consequently, the eating occurrences captured during the study would not have differed greatly from each other (e.g., including going to a restaurant, going to a friend's house for dinner), and due to their specific nature (continuously repeated behaviour in the same situation) would have been greatly driven by automaticity. Again, here it would be important to further assess whether the same stability could be found without lockdown or if people would have differed more under normal circumstance, e.g., going back to work, going out during the weekend and eating out. An alternative explanation in this context might be that thinking back over the eating occasions during the past two days would have activated various different situational conceptualisation. Consequently, to condense all of them into a single judgment participants would have had to generalise across all

of them, potentially leading to the loss of vital information related to specific eating occasions.

Even though habit emerged consistently as important, most other motives showed strong associations with consumption for at least some of the participants, e.g., healthiness, taste, self-identity etc. indicating that habit does not explain consumption behaviour alone and fit in with previous research, e.g., the importance of self-identity for consumption (Carfora et al., 2016; Strachan & Brawley, 2009), the importance of taste e.g., for consuming non-alcoholic beverages (Block et al., 2013) and the importance of social factors e.g., for alcohol consumption (Halim et al., 2012). These findings can also be explained with the dual processing theory (Cohen & Babey, 2012), proposing that behaviour can arise either through unconscious (habitual) process or conscious (controlled) processes. In other words, while habit is important, other motives related to short or long-term goals such as healthiness or emotional satisfaction can affect behaviour especially in "weak" situations (e.g., going on holiday). This furthermore fits into findings that intentions can override habit (Gardner et al., 2020). Again, studying less habit driven situations would provide more insight into the specific role of the other predictors.

In summary results presented in this thesis fit into the broader research context of behaviour regulation, providing further evidence for the important role habit plays in eating but extend them by providing evidence for the varying role other diverse eating motivations possess across individual participants.

5.2.5 Practical implications

A first practical implication of the presented results involves choosing eating stimuli for future studies. A recurring theme across all three empirical chapters was the observed large individual differences in participants' judgments of beverages (Chapter 2), specific foods (Chapter 3) and food groups (Chapter 4), not only for "subjective" measures such as tastiness or how relevant they are to participants' self-identity but also for more "objective measures" such as healthiness or caloric content. These results have important implications for eating research in general. Currently, when choosing food stimuli for psychological studies researchers mostly depend on their own intuition and

experience in what foods to include, often choosing relatively randomly, relying on stereotypical thoughts of what constitutes a tasty and unhealthy food etc. and only present participants with a limited range of different foods in a unsituated manner, e.g., a food picture with a white background (Smeets et al., 2019)., Based on this work, an approach with a possibly better ecological validity would be to include a large number of diverse foods, situate them in various, specific eating situations and collect participants' perception of those foods to control for individual differences in the latter analysis. An alternative to this approach would be to either use relatively broad categories such as food groups and ask participants to imagine foods that are relevant for them or individualise stimuli by specifically asking participants beforehand which foods they deem tasty, healthy, consume often etc. However, systematic research will be required to assess the utility of those suggestions.

Another overarching theme arising across all three chapters was a lack of distinct groups or clusters of participants emerging from their predictive profiles. Instead, it appeared that participants' predictive patterns for consumption varied so strongly from one participant to another that grouping them would have been superficial and would have led to the loss of crucial information. As previously discussed this observation can be explained by the uniqueness of individuals situated conceptualisations (Papies et al., 2020). These results put into question how informative it is for researchers to assess and rely on broad group comparisons, e.g., between different BMI brackets, gender or age (e.g., Rosenfeld, 2020) instead of focusing on intra-and individual differences. While significant differences in motivation have been shown to arise across groups (Renner et al., 2012), based on the presented results it would be expected that also people within each group would differ greatly from one another on the researched domain as well as various other potentially relevant motivations. Therefore, it is questionable how much insight and ecological validity group comparisons have when assessing consumption motivations.

Lastly, the presented results have practical implications for the development of eating interventions and public policies, aimed to decrease or increase consumption of specific drinks or food, or aid people eat healthier in general, lose weight or adapt a more sustainable diet. Despite a large number of

different available behaviour change methods, ranging from health education to surgical solutions, individuals appear to struggle to change their diet long-term (Greaves et al., 2017). Based on the presented results, a potential explanation for these difficulties might lie in their reliance on so called “one-size-fits-all” approaches, which furthermore rarely tackle habitual behaviour (Vainio et al., 2016b) and which are therefore unlikely to be in line with an individual’s specific eating motivations. This approach is especially apparent in public health policies which often either build on educational advertisements or use of financial incentives, e.g., “sugar tax” to nudge people towards the desired behavioural change (Allcott et al., 2019; Block et al., 2010). Another reason for the difficulty people face when trying to change their diet might be their lack of insight into what motivates their consumption. This is further supported by promising evidence that increasing people’s self-insight might aid in behaviour regulation (Kersten-van Dijk et al., 2017). A potential reason for this effect might be that a lack of insight causes people to choose behaviour-change interventions that are not beneficial for them personally, e.g., an individual educating themselves on the health benefits of a plant-based diet when their consumption is mainly driven by taste. As a solution to those problems, the previously presented results point towards the development of personalised interventions that specifically target an individual’s consumption motivations in a holistic manner by first using a situated assessment to establish the implicit motivations of an individual and then suggesting and tailoring interventions based on these results. Here again it is important to first fully understand the role eating motives seem to play in behaviour change (Vainio et al., 2016).

5.3 Strength and limitations

A key strength across all empirical chapters is the novel, situated approach used to assess consumption motivations, namely SAM$^{2.}$ Eating and drinking are both very complex, multifaceted behaviours, presenting a challenge for researchers to capture in a meaningful way while preserving occurring individual differences. Instead of relying on explicitly asking participants to generalise their eating behaviour across all foods and eating situations into one single value representing for instance how important health is for their consumption, SAM^2 captures behaviour in a situated manner. Across the empirical chapters multiple

different domains of situatedness were assessed, e.g., beverage type, individual foods in specific eating situations and food groups within a specific time frame.

Each of the empirical chapters furthermore had its own particular strength. A key strength of Chapter 2 was to assess drinking behaviour for both alcoholic as well as non-alcoholic beverages in a single study, allowing the observation of differences and similarities in what predicts both their consumption. Chapter 3 greatly benefitted from the inclusion of Study 1, the creation of extensive food norms instead of relying on the researcher's own intuition and secondly Study 2, which assessed a large number of potential consumption motives and established their underlying structure, making it possible to choose the most relevant motives for Study 3. A strength of Study 3 was the use of a within-participant design to explore intra-as well as individual differences in consumption motivation. Lastly, Chapter 4's key strength was the adoption of a longitudinal design, allowing for exploring potential learning and time effects.

A further strength was the inclusion of the self-assessment of the included predictors in Chapter 3 and 4. This allowed to compare the implicit SAM^2 results with participants' own explicit beliefs of what motivates their consumption and allowed to assess of how much insights participants have into their motivations.

Lastly, by using the online prolific platform for all presented studies, instead of relying on the internal university subject pool, it was possible to include a more diverse sample of the UK population, with larger diversity in age, education level, BMI etc. making the results applicable to the wider population.

The presented studies also have various recurrent limitations. Firstly, all three empirical chapters relied purely on self-report measures, vulnerable to various potential biases e.g., recency effects, social desirability etc. Furthermore, across and within studies' motives differed in whether they aimed to capture pre-consumption perceptions (e.g., anticipated taste in Study 3) or capturing post-consumption perception (e.g., the multi-timepoint Study in Chapter 4 which exclusively relied on post-hoc judgments - participants' experience of the food groups during the past two days). While both approaches are very informative, more research is needed to fully understand how either affects

consumption and whether SAM^2 should continue to include both question types or would benefit from exclusively focusing on, for instance, the anticipated experience. For example, is the anticipated emotional satisfaction more important for consumption frequency or the actual experienced emotional satisfaction right after consumption or the, at a later stage, re-called emotional satisfaction (which might be affected at least for some individuals based on various complex factors such as feeling guilt for consuming specific foods (e.g., Steenhuis, 2009)). Here it would be important to systematically compare how the phrasing of the questions, as well as the measurement timepoint (retroactive, pre-consumption, post-consumption) affect the judgments, e.g., comparing anticipated (before consumption), experienced (after consumption) and retroactive judgmement (independent of the esting occasion) taste, fillingness or emotional satisfaction and assessing whether and how they differ and each of them individually influences consumption frequency and amount. This would enable us to further refine and improve SAM^2. Additionally, despite the data being collected anonymously and online it still might not have captured participants diet and drinking behaviour hundred percent reliably. For instance certain populations, e.g. middle aged females, have been previously found to underreport their alcohol consumption (Livingston & Callinan, 2015). Similarly food consumption has been shown to suffer from underreporting (Gibson et al., 2017; Lafay et al., 2000). Furthermore, the data was not collected right before or after the foods or beverages were actually consumed, instead participants were asked to immerse themselves into the situation and rate the foods accordingly (Chapter 3). Additionally, in Chapter 2 and 3 the timeframe participants should base their judgments on was not specified, meaning it is unclear whether their scores reflect a general opinion across many timepoints or their most recent consumption experience. Furthermore, while there was some explanation given as to what each predictor was meant to represent, especially in Chapter 3, I still relied on participants own understanding and heuristics of how to respond to each rating questions, e.g., what does self-identity in the context of food mean for each participant? Overall, the limitations reflect the complexity of researching consumption behaviour and consumption motives and show the limitation SAM^2 approach has, e.g., not taking into account other facets that might influence the motives (e.g., guilt, self-control, etc.).

As previously discussed, a specific limitation to Chapter 2 was the use of a continuous rating scale ranging from not at all to very much instead of the typical more concrete measuring approach of numbers of occasions withing a specific timeframe (e.g., twice a month). While our measure does offer some benefits (higher precision, interval data) and correlated highly with consumption in the past month, it does need further validation. Additionally, Chapter 2 focuses exclusively on consumption frequency while disregarding consumption amount. An additional limitation specific to Chapter 3 was the use of only four different situations capturing "usual" eating situations instead of a broader range of more diverse situations. The lack of observed differences in consumption motivation pattern across eating situations might have reflected a generalised pattern active in those "usual" situations, mainly driven by habit, while in more diverse eating situations other motivations (e.g., healthiness, social norms etc.) might play a more prominent rule for the prediction of consumption.

Lastly, data for all three empirical chapters were exclusively collected from UK participants, therefore not allowing generalising across other populations.

5.4 Future research directions

The results of the present thesis point towards multiple avenues for future research. While consumption motivations emerged as remarkably stable across different types of drinks, eating situations and time, a question I was unable to address in this thesis is how exactly those motivations develop, and how flexible those motives are, e.g., are they developed during childhood, are they stable or do they change slowly over time and do they change when circumstances change, e.g., a person moving to a new country. To address this, it would be important to use large scale longitudinal studies, ideally starting to assess a group of individuals during childhood and measure their own as well as their parents' consumption motives to assess how similar they are and continue to repeatedly measure them as they grow older over the following years/decades. This kind of study would provide information about how much influence parental consumption motives have on their offspring's as well as how stable consumption motives are overtime. An alternative design would be to assess people before

and after great changes in life circumstance, e.g., moving out of their guardians home or to a different city or country (e.g., first year university students) and compare if and how their predictive patterns change overtime. Another important question to address would how, if at all, it might be possible to actively change consumption motive patterns long-term. In other words, can a person whose consumption is greatly motivated by taste, actively "re-invent" themselves and change towards their consumption being greatly motivated by for instance health reasons. Results from Vainio et al. (2016) potentially indicate that eating motivations change when actively changing diets though to address this in the future, longitudinal designs, e.g., observing the same cohort of participants before, during and after actively changing their diets (e.g., becoming vegetarians or vegans or losing weight) are needed to gain further insights into the long-term changeability of consumption motives and their role in behaviour change. Answers to those questions would furthermore have crucial implications for behaviour change programs, indicating whether interventions should aim to change eating motivations or work within the constraints of an individual's eating motivation pattern, e.g., nudge towards a greater importance of healthiness for consumption vs. finding healthy foods that the participant enjoys the taste of.

Across empirical Chapter 3 and 4, I found little agreement between what people thought predicted their consumption and what SAM^2 predicted. As previously discussed, this might be due to the differences in what SAM^2 measures compared to the purely self-assessment approach. In the future it would be beneficial to add qualitative interviews to the existing quantitative approach to address the observed differences between participants' assessment and the SAM^2 predictions further, e.g., by presenting participants with the results of both assessments and asking them to evaluate and elaborate on their SAM^2 results. Here it would be interesting whether participants feel SAM^2 provides them with further insight into their eating motives and increases their understanding of themselves. This would furthermore provide researchers with the opportunity to assess which motives participants feel are still missing (e.g., sustainability) and should potentially be added when assessing eating motives with SAM^2 in the future. Furthermore, instead of exclusively asking participants to complete SAM^2 and/or traditional measurement online, it would be informative to instead modify the

measures and conduct them via a face to face or online qualitative interviews allowing to additionally ask participants to verbalise their judgment process to better understand how participants make their judgments on each measure.

Furthermore, future research should assess whether increasing participants' understanding of their consumption motivations can have an impact on their actual behaviour for instance by increasing their own self-control, e.g., if a person understand that they eat chocolate for emotional satisfaction would they be able to stop said consumption and substitute it with a less mal-adaptive behaviour such as exercise to achieve the same emotional effect. A future intervention study could provide SAM^2's predictive profile as feedback to participants and assess whether having this information changes individual's consumption in the following days/weeks. This leads to a further un-addressed question, namely whether the SAM^2 method itself could potentially be used as an intervention tool. In Chapter 4 participants reported to have learnt about their eating behaviour and how to regulate it and while I did find implicit learning effects, the learning was not reflected in changes to their self-assessment, which remained remarkably stable. A mix of qualitative and quantitative methods could be used in the future to assess this further by using qualitative interviews to ask participants whether and, if at all, what exactly they think they learnt and how they think this might affect their behaviour. Potentially repeatedly completing SAM^2 (for example weekly) and receiving feedback about which factors predicted their consumption might help individuals to better understand themselves, choose behaviour interventions that fit with their motivations and empower them to change their behaviour.

Another limitation across all empirical chapters was a lack of knowledge and control of how exactly participants understand the different predictors and what timespan and experiences they based their judgments on. In the future the use of a multi-method approach, including quantitative as well as qualitative measures might allow for assessing how people understand and rate the predictors by asking them to provide their own definitions of the predictors. This would especially be beneficial for complex predictors such as self-identity and would allow us to assess whether participants base ratings on fixed identities, such as being a vegan, following a healthy lifestyle, coming from a

specific culture, or on previous experiences, e.g., a food eaten in childhood, with family, very frequently consumed etc. The rich information captured by such an approach has previously been shown by Bisogni et al., (2002) when assessing eating identities. This would furthermore allow to compare between participants and assess whether some identities have comparatively stronger/ weaker associations with consumption as well as comparing whether food identities change depending on the eating situation, as would be expected based on Bisogni et al. (2002). Qualitative approaches would furthermore allow to assess which eating motivations (e.g., sustainability) and relevant situational factors (e.g., with friends vs family, outside the home vs at home) I was missing in the studies. This might be especially relevant for factors such as ethical, environmental and sustainability concerns, which were not included in any of the empirical chapters discussed here but have been shown to be of special importance for people who follow vegetarian and vegan diets (Gallenti et al., 2019; Hopwood et al., 2021).

Furthermore, as mentioned above, a key limitation was the reliance on self-report measures across all three empirical chapters, which were collected outside of the context the behaviour had occurred in (the eating situation). In the future the use of ecological momentary assessments, for instance mobile phone apps, to measure consumption motives right before or after food consumption would allow to assess how eating motivations differ when collected in the moment compared to retroactively. Using EMA approaches would furthermore, as previously discussed, allow to compare anticipated food properties (such as taste, emotional satisfaction) and actual experienced food properties (how did the food taste, how emotional satisfying was it) and how each influences later food choices, e.g., if chocolate was anticipated as highly rewarding but the actual eating experience is only rated as low to moderately rewarding (e.g. because of feelings of guilt) does this experienced difference reduce anticipated emotional satisfaction of chocolate and/or consumption frequency the next day/week. Additionally, this approach would allow to more comprehensively investigate the variability of consumption motives across eating situations as well as across time. Finally, EMAs would potentially increase the reliability of the consumption measure as participants could be asked to provide

visual evidence of what they consumed instead of being dependent on participants memories and their retroactive judgment of the amount consumed.

Lastly, future research is needed to establish the ecological validity of the SAM^2 measure, for instance by connecting it to long-term health. In other words, do people whose consumption emerged as highly predicted by healthiness also follow a healthier diet and have better long-term health outcomes such as low blood pressure, reduced risk of developing diabetes etc. Similarly, based on the previously established connection between consumption motives and personality (e.g., Anderson et al., 2013; Hopwood et al., 2021; Keller & Siegrist, 2015; Pfeiler & Egloff, 2020), e.g., personality and meat consumption rationalisation (Hopwood et al., 2021), the association between SAM^2 and other individual differences such as self-control or the Big 5 should be investigated.

5.5 Conclusions

This thesis provided an extensive account of individual differences in consumption motivations, by establishing diverse individual motives for food and drink consumption, their importance and stability across multiple dimensions, e.g., different beverages, eating situations and time and added to the understanding of what predicts individuals' consumption. Using a novel situated measuring approach allowed to capture large individual differences in food and beverage consumption motivation illustrating the great variability across individuals in what motivates their consumption. Within participants, consumption motivations emerged as remarkably stable across both eating situations and time. In line with previous research, habit emerged consistently as important for consumption. The results furthermore possibly indicate that participants lack insight into what motivates their consumption. Lastly, the presented results further highlighted the importance to assess complex behaviour such as eating and drinking in a situated manner and to focus on the individual participant level instead of the typically reported condensed group results.

Appendix A Supplementary materials for Chapter 2

Supplementary material 1: Data exclusion

All participants' data quality was checked on six pre-decided measures to ensure that participants had not responded randomly to the questions. Participants were only excluded if they showed problematic results on at least three of the six measures. First survey duration length was reviewed, and participants flagged as potentially problematic if they took less than 25 minutes. Next, flatlines were assessed by calculating the standard deviation of each measure and comparing it to zero. A standard deviation of zero in a measure was seen as problematic as it indicates that the participants rated all drinks as exactly the same on this measure. Participants were flagged for further review when showing more than three flatlines and excluded if they had six or more flatlines. Next, two diagnostic correlations were calculated for each participant, first between healthiness and calorie, which was expected to be negative, and second between general consumption frequency and frequency during the last month, which was expected to be positive. Additionally average standard deviation across all ratings and average correlation to other participants were calculated. A participant's data was flagged as potentially low quality for any of the four measures if their value fell below the lower bound threshold. After computing all six quality control measures, a total of 39 participants who were either flagged as problematic on three or more measures and/or had six or more flatlines were excluded from further analysis.

Supplementary material 2: Additional measures and demographic Information collected

The following measures were collected in this study but will be reported elsewhere:

- Desire for alcohol questionnaire (DAQ)
- Drinking motive
- Obsessive compulsive drinking scale (OCDS)
- Alcohol expectancies
- Uncontrollability thought action scale (UTAS)
- Temptation restraint
- Adult use disorder Identification test (AUDIT)
- Timeline alcohol consumption last month
- Attitude to being drunk
- Current restriction alcohol consumption
- Age first alcohol consumption

Supplementary material 3: Detailed descriptions of the inter-rater agreement for the 35 measures

The highest inter-rater agreements were for Calories (.69), Healthiness (.62) and Sweetness (.61), demonstrating moderate levels of agreement for the calorie content, healthiness, and sweetness of drinks. There appeared to be only poor agreement for Thirst (.43) and Affordability (.42). Virtually no agreement existed for ResistingTemption, EaseToStop (once consuming how easy is it to stop), and SituationalTransport (how easy is it to feel transported into the consumption situation) (all .04), or for SelfIdentity and LikeTexture (both .05), or for LikeTaste, Conflict, and PositiveBodilyConsequences (immediately after consumption experienced short-term positive bodily consequences) (all .06), demonstrating considerable individual differences in these measures. Interestingly while the agreement for Sweetness was high, Bitterness was considerably lower (.31) indicating that sweetness was experienced more similarly across participants than bitterness. Similarly, while agreement for the two questions about the experience of immediate bodily consequences was relatively low, the agreement for short term negative bodily consequences was considerably higher (.21) than agreement for short term positive bodily consequences (.06). Interestingly, agreement for whether other people approve of consumption was also poor (.27), with agreement for participants approval of others' consumption being even lower (.16).

Supplementary material 4: Detailed description of the judgment means and variability

The greatest variability (implying large individual differences) occurred for tap water, bottled water and diet soft drinks within the question of Prevent Weight Gain, with SDs ranging from 37.84 to 41.23. The lowest variability (implying small inter-individual differences) was observed for the Affordability of tap water (10.41), along with the Calories of tap water (13.00) and bottled water (13.31). Perhaps unsurprisingly, all four alcoholic beverages were rated higher than the seven non-alcoholic drinks on the socially relevant factors, including SocialConnectedness (experience of feeling socially connected to others during consumption), EaseSocialising (extent to which drink is consumed to make socialising easier), PeoplePresent (how often are other people present during consumption), Celebration (extent consumption to celebrate happy events and occasions), and DescriptiveNorms. Interestingly, when asked to what extent a drink is consumed during the experience of NegativeEmotions, tea and coffee emerged as highly rated, together with the alcoholic drinks. A similar pattern was observed for Relaxation. Both types of water were rated as highest for Healthiness, Thirst, and Prevention of Weight Gain (extent consumption to prevent weight gain), while being rated lowest for Calories, Bitterness, Sweetness, and Regret/Guilt. Across all socially relevant judgments, both types of water were rated consistently low. Tap water was furthermore rated highest for affordability, consistency of consumption location lowest for effort to obtain at home (how effortful to physically obtain when at home). Sugar-sweetened beverages were rated, together with cocktails, as highest in Sweetness. tea, coffee and tap water emerged as highest rated for automaticity, Self-Identity, and frequency of seeing legal guardians consuming the drink, while being rated lowest for how easy it is to resist temptation.

Supplementary material 5: Detailed descriptions of correlations of frequency with the predictive measures for individual drinks

To explore the relationship between consumption frequency and the 34 predictive measures, correlations were calculated for each drink individually. Specifically, the correlation between the raw ratings for frequency and the raw ratings for each predictor was computed across the 900 participants. Each panel in Appendix Figure 5-1 presents the correlations for one of the 34 predictors across the 11 drinks. Due to the large sample size (n = 900) it can be assumed that these correlation are highly stable (Schönbrodt & Perugini, 2013).

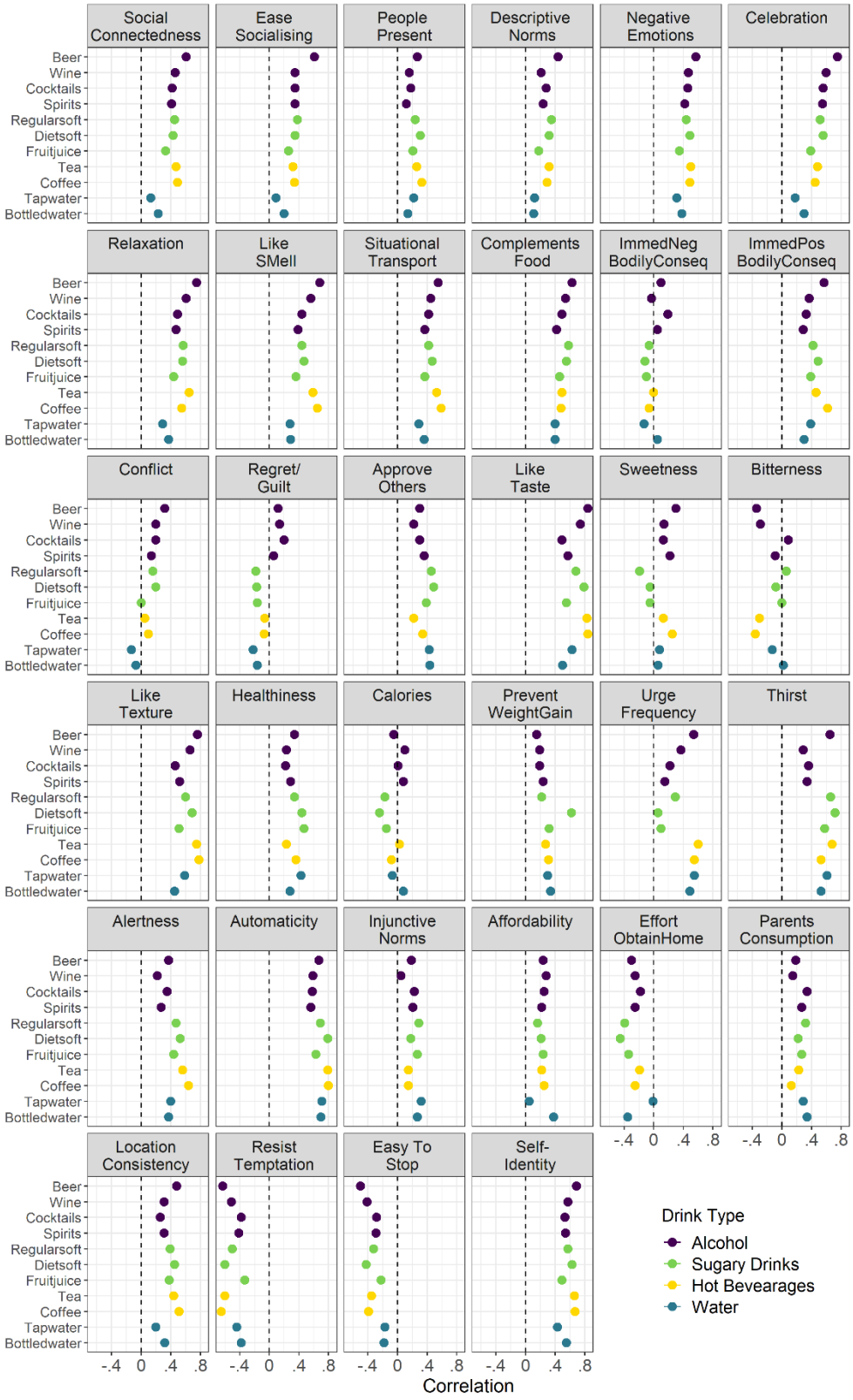
Three of the four alcoholic drinks were most strongly correlated with LikeTaste (beer = .84; wine = .74; spirits = .57), Additionally all four alcoholic drinks showed strong to moderate associations with Celebration (beer = .75, wine = .60, cocktails = .56, spirits = .55). For beer, LikeTexture (.76) and Relaxation (.75) also emerged as strongly correlated with frequency. Overall, within the alcoholic beverage group, beer showed the strongest correlations across all predictive measures, except for PreventWeightGain, ImmedNegBodyyConseq, RegretGuilt, InjuncitiveNorms, Affordabiltiy, and ParentConsume, which predicted either wine, cocktails or spirits higher than beer.

Both types of water exhibited similar patterns, having strong correlations of Frequency with Automaticity (tap water = .71 and bottled water = .70), together with moderate correlations with Thirst (tap water = .61, bottled water = .53) and LikeTaste (tap water = .61, bottled water = .50). The two hot beverages group also emerged as similar in their predictive patterns. Both showed strong correlations with LikeTaste (coffee = .84, tea = .83), Automaticity (coffee = .80, tea = .79) and LikeTexture (coffee = .78, tea = .75). Perhaps surprisingly, for the sugar sweetened beverage group, Automaticity emerged as strongest predictor of consumption frequency across all three sugar-sweetened beverages (diet soft drink = .79, regular soft drink = .69, fruit juice = .63), followed by LikeTaste (diet soft drink = .79, regular soft drink = .55, fruit juice = .68), Thirst (diet soft

drink = .72, regular soft drink = .66, fruit juice = .58), and LikeTexture (diet soft drink = .69, regular soft drink = .60, fruit juice = .51).

Assessing the similarity of the predictive patterns for the 11 drinks

As can be seen from examining the individual panels of Appendix Figure 5-1, most predictors exhibited a relatively stable pattern of prediction across drinks. The ICC2 was used to assess this stability. In this analysis, each drink's 34 correlations between the 34 predictors and frequency was treated as a vector that constitutes the drink's prediction profile (i.e., the pattern of prediction for drink consumption across the 34 predictors). The ICC2 was then used to establish the similarity of the prediction profiles for the 11 drinks. In other words, we tried to answer the question how similar the pattern of prediction was across drinks. For this analysis, the ICC2 was .85, indicating that the detailed pattern of prediction for the 34 predictors across the 11 drinks was very similar. Following a common interpretation of the ICC2 (Shrout & Fleiss, 1979), the average correlation in the predictive profiles between individual pairs of drinks was .85, indicating a highly stable pattern of prediction.



Appendix Figure 5-1 – Correlation results of the 34 predictive measures with consumption frequency

Forest plots that visualise the correlation results of the 34 predictive measures with the dependent variable, consumption frequency. Each of the 34 plots shows one predictive measure's results for each of the 11 drinks. Colours correspond to each drink's typical association beverage category (alcohol, hot beverages, sugary drinks, water)

Appendix Table 5-1 – Bootstrapping Results

Results of the bootstrapping analysis to test the stability of the factor analysis loadings. For each of the 10.000 analysis 900 participants were randomly selected with replacement, meaning one participant could be included multiple times in the analysis. The in this way created data set was used to compute a seven-factor factor analysis with a oblimin rotation (based on the original factor analysis). The table shows the aggregated results for each rating and each of the seven factors.“ _orig” presents each original Factor analysis factor loadings.” _CI_lower” and “_CI_upper” present the lower and upper limit of the 95% confident interval of the bootstrapped mean. _bootstrapping shows the mean of each factor across the 10.000 bootstrapped factor analysis.

	F1_orig_loading	F1_CI_lower	F1_CI_upper	F1_bootstrap_mean	F2_orig_loading	F2_CI_lower	F2_CI_upper	F2_bootstrap_mean	F3_orig_loading	F3_CI_lower	F3_CI_upper	F3_bootstrap_mean	F4_orig_loading	F4_CI_lower	F4_CI_upper	F4_bootstrap_mean	F5_orig_loading	F5_CI_lower	F5_CI_upper	F5_bootstrap_mean	F6_orig_loading	F6_CI_lower	F6_CI_upper	F6_bootstrap_mean	F7_orig_loading	F7_CI_lower	F7_CI_upper	F7_bootstrap_mean
Affordability	-.12	-.19	-.07	-.12	-.02	-.05	.04	-.01	.11	.07	.17	.12	.63	.53	.69	.61	.11	.07	.14	.11	-.05	-.12	-.01	-.06	-.08	-.12	-.01	-.07
Alertness	-.11	-.14	-.06	-.1	.26	.19	.29	.24	.37	.33	.41	.37	.17	.12	.24	.18	-.15	-.19	-.1	-.15	.14	.1	.17	.13	.16	.08	.24	.16
ApproveOthers	.17	.12	.22	.17	.18	.13	.24	.18	.11	.07	.15	.11	.23	.17	.28	.23	0	-.04	.05	0	-.35	-.4	-.3	-.35	.06	0	.12	.06
Automaticity	.06	.01	.09	.05	.22	.18	.27	.22	.24	.2	.28	.24	.34	.29	.39	.34	-.26	-.3	-.22	-.26	.01	-.03	.04	0	-.03	-.09	.03	-.03
Bitterness	.17	.08	.3	.18	-.2	-.32	-.14	-.22	-.06	-.12	-.02	-.06	0	-.06	.13	.01	.04	-.02	.08	.03	.06	.02	.14	.07	.47	.31	.56	.44
Calories	.1	.06	.13	.1	.16	.12	.2	.16	-.64	-.69	-.6	-.64	0	-.04	.04	0	.07	.02	.11	.07	.24	.18	.28	.23	.01	-.06	.06	0
Celebration	.68	.61	.72	.67	.09	.05	.16	.1	-.18	-.21	-.15	-.18	.01	-.05	.04	0	-.1	-.14	-.05	-.1	.05	0	.08	.04	-.08	-.17	0	-.08
ComplementsFood	.3	.23	.34	.29	.2	.15	.26	.21	.11	.07	.15	.11	.28	.22	.32	.27	-.03	-.08	.01	-.03	.11	.06	.15	.11	-.09	-.2	-.01	-.09
Conflict	.07	.02	.12	.07	.04	0	.09	.04	.05	.01	.08	.05	-.03	-.08	.03	-.03	-.12	-.18	-.07	-.12	.52	.46	.58	.52	-.01	-.09	.04	-.01
DescriptiveNorms	.71	.67	.75	.71	-.05	-.08	0	-.04	.1	.07	.13	.1	-.02	-.06	.02	-.02	.04	0	.08	.04	.1	.07	.14	.11	-.01	-.06	.03	-.02
EaseSocialising	.77	.73	.8	.77	-.08	-.11	-.05	-.08	.03	0	.05	.03	-.02	-.05	.01	-.02	-.09	-.12	-.05	-.09	.04	.02	.07	.04	.07	.03	.1	.07
EasyToStop	-.12	-.16	-.08	-.12	-.01	-.06	.02	-.02	.06	.03	.08	.06	.13	.09	.16	.12	.62	.57	.66	.61	-.08	-.11	-.05	-.08	.01	-.02	.04	.01
EffortObtainHome	0	-.03	.06	.01	.05	-.01	.1	.04	.07	.01	.1	.06	-.48	-.56	-.39	-.47	.13	.06	.18	.12	.26	.18	.33	.26	.01	-.05	.07	.01
Healthiness	-.07	-.1	-.04	-.07	.15	.11	.18	.15	.67	.64	.71	.67	.07	.04	.1	.07	.06	.03	.08	.06	-.14	-.17	-.11	-.14	0	-.03	.04	0
ImmedNegBodilyConseq	.16	.1	.24	.17	-.03	-.09	.01	-.04	-.07	-.11	-.03	-.07	-.09	-.13	-.02	-.08	.02	-.02	.06	.02	.47	.42	.54	.48	.2	.11	.26	.19
ImmedPosBodilyConseq	.19	.11	.27	.19	.31	.24	.36	.3	.29	.25	.33	.29	-.06	-.11	.01	-.05	-.11	-.17	-.06	-.11	.02	-.02	.08	.03	.14	.06	.24	.14
LikeSmell	-.02	-.04	.03	-.01	.74	.66	.78	.73	-.09	-.13	-.06	-.1	.01	-.02	.09	.02	.01	-.03	.04	.01	.02	-.01	.06	.02	.16	.1	.2	.15
LikeTaste	.04	.01	.06	.03	.81	.76	.85	.81	0	-.02	.02	0	0	-.02	.02	0	-.1	-.12	-.07	-.1	-.03	-.05	-.01	-.03	-.1	-.13	-.05	-.09
LikeTexture	.06	.02	.09	.05	.74	.69	.78	.74	.08	.06	.1	.08	.03	0	.06	.03	-.05	-.08	-.02	-.05	-.03	-.05	0	-.02	-.1	-.14	-.04	-.09
LocationConsistency	.09	.03	.13	.08	.22	.16	.28	.22	.04	.01	.08	.04	.33	.27	.39	.33	.03	-.02	.08	.03	.01	-.03	.06	.01	.04	-.03	.11	.04
NegativeEmotions	.32	.25	.38	.32	.06	.01	.11	.06	.07	.03	.1	.07	.14	.08	.19	.14	-.29	-.34	-.23	-.29	.15	.1	.19	.15	.1	0	.17	.1
ParentsConsume	.01	-.03	.05	.01	.01	-.04	.05	0	0	-.03	.03	0	.5	.44	.56	.5	-.02	-.06	.01	-.02	0	-.04	.03	0	.22	.13	.28	.21
PeoplePresent	.6	.53	.65	.59	.16	.1	.22	.16	-.03	-.06	0	-.03	-.13	-.19	-.08	-.13	.23	.18	.26	.22	-.02	-.05	.03	-.01	-.05	-.12	.05	-.04
PreventWeightGain	.06	.03	.1	.06	-.05	-.08	-.01	-.04	.66	.62	.71	.67	.06	.01	.1	.06	-.03	-.08	.01	-.03	.12	.08	.15	.12	-.07	-.13	-.02	-.07
RegretGuilt	-.01	-.04	.01	-.02	-.03	-.06	0	-.03	-.07	-.1	-.04	-.07	-.01	-.03	.01	-.01	.01	-.02	.03	.01	.77	.72	.82	.77	0	-.03	.03	0
Relaxation	.48	.42	.54	.48	.13	.08	.19	.13	.01	-.02	.04	.01	.15	.1	.2	.15	-.22	-.27	-.18	-.22	.01	-.02	.05	.01	.04	-.05	.12	.04
ResistTemptation	.03	.01	.06	.03	-.09	-.14	-.06	-.1	-.03	-.07	-.01	-.04	-.03	-.06	0	-.03	.73	.67	.77	.72	.04	.01	.05	.03	0	-.03	.02	0
SelfIdentity	.19	.14	.23	.19	.16	.12	.21	.17	.16	.12	.19	.16	.23	.18	.27	.23	-.33	-.38	-.27	-.33	.07	.03	.11	.07	.05	-.03	.11	.04
SituationalTransport	.34	.27	.38	.33	.29	.23	.37	.3	.03	-.01	.07	.03	.15	.09	.21	.15	.01	-.04	.06	.01	-.02	-.06	.02	-.02	-.01	-.08	.08	0
SocialConnectedness	.76	.73	.8	.76	.06	.03	.09	.06	-.07	-.1	-.05	-.07	-.01	-.03	.02	0	-.04	-.07	-.01	-.04	-.04	-.07	-.01	-.04	.12	.08	.14	.11

Appendix B Supplementary materials for Chapter 3

Supplementary material 1: Remaining Coding description and description of the resulting Norms

Specifically, the latter frequencies are labelled: '%TF' (Tasty, but not so healthy, consumed frequently), '%TO' (Tasty, but not so healthy, consumed only occasionally), '%HF' (Relatively healthy, consumed frequently) and '%HO' (Relatively healthy, consumed only occasionally). These percentage were furthermore condensed to show the percentage a food was generated as tasty ('%tasty) and to what percentage it was generated as healthy (%healthy). Lastly, to enable other researchers to rebuild an individual participant's full food profiles, the norms show which participant generated each individual food response, such that responses can be aggregated by individuals across categories and situations.

To make the food norms as informative as possible and to support a wide variety of research needs, we organised them in four different ways, differing in their level of detail and in the order of foods (for the full norms see Appendix B (SM 4)). All norms are available online (https://osf.io/anpmx/). SM Table 1 includes all original responses, including the information necessary to recreate individual participant's complete response set. SM Table 2 shows the same results as SM Table 1 but without the participant specific information, thereby simplifying them significantly. Table SM 3 and Table SM 4 present the results in still more condensed ways, only including the eating situation, basic food category, overall consumption frequency of the basic food, and whether the food was listed as healthy/unhealthy and consumed frequently/occasionally. SM Table 3 shows the foods in the same order as table SM 1 and SM 2, whereas table SM 4 reordered the foods within each eating situation based on their overall consumption frequency (starting with foods having the highest consumption frequency). Together, these four tables allow researchers and clinicians to obtain a variety of perspectives on the foods generated in this study.

Supplementary material 2: Study 3 Dropout rate

Data Collection 1 samples and drop-out rates

- Session 1 contained 200 complete participants
- Session 2 completed 191 of these participants (9 dropped out)
- Session 3 completed 183 of these participants (another 8 dropped out for a total of 17)

Data Collection 2 samples and drop-out rates

- Session 1 contained 30 complete participants
- Session 2 completed 29 of these participants (1 dropped out)
- Session 3 completed 29 of these participants (another 0 dropped out for a total of 1)

Supplementary material 3: Data quality control

Participants' data quality was checked on six pre-decided measures to assess whether participants followed the task instructions or replied randomly. Showing problematic results on three of the six measures indicated low quality data and therefore resulted in exclusion from the study. Criteria were firstly study duration. Second and thirdly two diagnostic correlations (expected positive correlation: Frequency and Automaticity; expected negative correlation: Healthiness and Filligness). Fourthly the number of flatlines was determined by computing the standard deviation of each measure across the 177 foods and testing whether it differed from zero. Fifthly the average correlation to other participants.

Supplementary material 4: Study 1 Norms

all order	eating situation	eating situation order	general food category	basic food	types	type frequency	main ingredient type (meat, fish, vegetarian)	main ingredient subtype (chicken, prawns, tomatoes, curry)	accompaniments	accompaniments frequency	overall frequency (basic food)	% TF	% TO	% HF	% HO	% tasty	% healthy
1	usual breakfast	1	flour-based baked food	bread	(bread)/15 (white_bread)/7 (wholemeal_bread)/7 (brown_seeded_toast)/1 (multi_seeded_bread)/1 (toast)/87 (white_toast)/3 (seeded_toast)/1 (wholegrain_toast)/3 (bread_roll)/1 (roll)/2 (white_roll)/1 (wholemeal_roll)/1 (bagel)/5 (bread_muffin)/1 (brioche_roll)/2 (fried_bread)/1 (rye_bread)/1	146			(nutella)/10 (plant_based_butter)/1 (butter)/45 (almond_butter)/1 (sugar)/1 (peanut_butter)/6 (strawberry_jam)/1 (jam)/13 (raspberry_jam)/1 (apricot_jam)/1 (honey)/4 (chocolate_spread)/2 (olive_oil)/1 (oil_salt)/1 (low_fat_spread)/1 (marmite)/2	91	83	43,88	25,20	20,18	10,74	69,08	30,92
2	usual breakfast	2	flour-based baked food	crumpet	(crumpets)/8	8			(butter)/5 (peanut_butter)/1	6	8	37,50	50,00	0,00	12,50	87,50	12,50
3	usual breakfast	3	flour-based baked food	scone	(scone)/3 (fruit_scone)/1 (cinnamon_scone)/1	5			(butter)/2	2	5	0,00	60,00	20,00	20,00	60,00	40,00
4	usual breakfast	4	flour-based baked food	oatcake	(oatcakes)/3 (self_made_oatcakes)/1	4					4	0,00	0,00	75,00	25,00	0,00	100,00
5	usual breakfast	5	flour-based baked food	fruit bread	(cinnamon_sultana_toast)/1 (cinnamon_raisin_bagel)/1	2			(peanut_butter)/1 (crunchy_peanut_butter)/1 (raspberry_jam)/1	3	2	50,00	50,00	0,00	0,00	100,00	0,00
6	usual breakfast	6	flour-based baked food	hot cross bun	(toffe_hot_cross_bun)/1 (toasted_hot_cross_bun)/1	2			(butter)/1	1	2	100,00	0,00	0,00	0,00	100,00	0,00
7	usual breakfast	7	flour-based baked food	cracker	(carrs_crackers)/1	1			(hazelnut_chocolate_spread)/1	1	1	100,00	0,00	0,00	0,00	100,00	0,00
8	usual breakfast	8	flour-based baked food	rusk	(rusks)/1	1			(honey)/1	1	1	0,00	0,00	0,00	100,00	0,00	100,00
9	usual breakfast	9	flour-based fried food	sweet pancake	(pancakes)/18 (banana_egg_pancake)/3 (american_style_pancake)/1	22			(butter)/1 (maple_syrup)/5 (peanut_butter)/2 (jam)/4 (sugar)/2 (lemon)/1 (nutella)/1 (honey)/1 (fruits)/1	18	18	16,67	61,11	16,67	5,56	77,78	22,22
10	usual breakfast	10	grain	side rice	(steamed_rice)/1 (brown_rice_porridge_style)/1	2					2	0,00	50,00	0,00	50,00	50,00	50,00
11	usual breakfast	11	grain	quinoa flakes	(quinoa_flakes)/1	1			(almond_milk)/1	1	1	0,00	0,00	0,00	100,00	0,00	100,00
12	usual breakfast	12	grain	side buckwheat	(buckwheat)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
13	usual breakfast	13	grain	side couscous	(cous_cous)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
14	usual breakfast	14	cereal	breakfast cereal	(cereal)/28 (sugary_cereals)/2 (cruncy_nut_cereal)/1 (fruit_nut_cereal)/1 (frosties_ceral)/4 (frosted_flakes)/1 (cornflakes)/10 (chocolate_cereal)/1 (Coco_Pops)/6 (rice_krispies)/8 (puffed_rice)/1 (Cheerios)/6 (Honey_Nut_Cheerios)/1 (Special_K)/3 (all_bran_cereal)/1 (bran_flakes)/7 (Mightly_Malties_Ceral)/1 (puffed_rice)/1 (Shreddies)/3 (frosted_Shreddies)/1 (shreddied_cereal)/1 (shredded_wheat)/1 (milk_chocolate_curl_cereal)/1 (Wheetos)/1 (cruncy_nut)/1 (Weetabix)/15	107			(butter)/1 (honey)/1 (sugar)/6 (runny_honey)/1 (banana)/3 (muesli)/1 (milk)/32 (soy_milk)/7 (almond_milk)/2 (semi_skimmed_milk)/2 (full_fat_natural_yogurt)/1	57	69	19,42	14,73	52,85	13,00	34,15	65,85
15	usual breakfast	15	cereal	oats	(oats)/4 (overnight_oats)/2 (porridge)/32 (porridge_oats)/1 (oatmeal)/6	45			(honey)/5 (sugar)/1 (cocoa_powder)/1 (maple_syrup)/1 (cinnamon)/2 (peanut_butter)/1 (protein_powder)/1 (blackberry_jam)/1 (milk)/6 (skimmed_milk)/1 (semi_skimmed_milk)/1 (almond_milk)/1 (fruits)/1 (banana)/1 (berries)/1 (raisins)/1 (dates)/1 (nuts)/1 (rice_crispies)/1 (water)/1	30	39	0,00	6,84	52,14	41,03	6,84	93,16
16	usual breakfast	16	cereal	muesli	(muesli)/14 (swiss_style_muesli)/1 (crunchy_muesli)/1 (sugar_free_muesli)/1 (no_added_sugar_muesli)/1 (sugary_muesli)/1	19			(milk)/2 (whole_milk)/1 (soy_milk)/2 (yoghurt)/1 (banana)/1	7	17	5,88	11,76	64,71	17,65	17,65	82,35
17	usual breakfast	17	cereal	granola	(granola)/15 (Liat's_granola)/1 (sugary_granola)/1 (home_made_nut_granola)/1	18			(blueberries)/1 (yoghurt)/3 (fat_free_yogurt)/1 (milk)/3 (whole_milk)/1 (strawberry)/1	9	15	6,67	6,67	60,00	26,67	13,33	86,67
18	usual breakfast	18	starchy vegetable	potato scone	(potato_scone)/8 (fried_potato_scone)/1	9					9	33,33	66,67	0,00	0,00	100,00	0,00
19	usual breakfast	19	starchy vegetable	hash brown	(hash_browns)/4 (fries)/1	4					4	0,00	100,00	0,00	0,00	100,00	0,00
20	usual breakfast	20	starchy vegetable	fries/chips	(french_fries)/1 (chips)/1	3					3	33,33	66,67	0,00	0,00	100,00	0,00
21	usual breakfast	21	starchy vegetable	crisps	(crisps)/2	2					2	0,00	100,00	0,00	0,00	100,00	0,00
22	usual breakfast	22	starchy vegetable	potatoes	(wedges)/1	1			(cheese)/1		1	0,00	100,00	0,00	0,00	100,00	0,00
23	usual breakfast	23	starchy vegetable	potato pancake	(potato_pancake)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
24	usual breakfast	24	meat protein	bacon	(bacon)/30 (american_style_bacon)/1	31			(ketchup)/1	1	31	38,71	61,29	0,00	0,00	100,00	0,00

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25	usual breakfast	25	meat protein	sausage	(sausage)/21 (lorne_sausage)/1 (square_sausage)/5 (link_sausage)/2 (pork_sausages)/1 (richmond_sausages)/1 (steak_lorne)/1	32			(ketchup)/2	2	28	21,43	75,00	0,00	3,57	96,43	3,57
26	usual breakfast	26	meat protein	ham	(ham)/9	9					8	25,00	25,00	37,50	12,50	50,00	50,00
27	usual breakfast	27	meat protein	black pudding	(black_pudding)/6	6					6	0,00	66,67	16,67	16,67	66,67	33,33
28	usual breakfast	28	meat protein	salami	(salami)/3	3					3	66,67	0,00	0,00	33,33	66,67	33,33
29	usual breakfast	29	meat protein	pastrami	(pastrami)/1	1					2	100,00	0,00	0,00	0,00	100,00	0,00
30	usual breakfast	30	meat protein	chicken	(chicken)/1 (fried_chicken)/1	2					2	50,00	50,00	0,00	0,00	100,00	0,00
31	usual breakfast	31	meat protein	general meat	(tinned_sandwich_meat)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
32	usual breakfast	32	meat protein	hotdog	(tinned_hotdogs)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
33	usual breakfast	33	meat protein	beef	(roast_beef)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
34	usual breakfast	34	meat protein	mortadella	(mortadella)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
35	usual breakfast	35	meat protein	sheep	(haggis)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
36	usual breakfast	36	fish protein	tuna	(tuna)/2	2					2	0,00	0,00	50,00	50,00	0,00	100,00
37	usual breakfast	37	fish protein	fish finger	(fish_fingers)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
38	usual breakfast	38	fish protein	mackerel	(grilled_mackerel)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
39	usual breakfast	39	fish protein	kipper	(grilled_kippers)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
40	usual breakfast	40	vegetarian protein	simple egg (no other ingredients)	(eggs)/16 (boiled_eggs)/14 (hard_boiled_egg)/1 (soft_boiled_eggs)/1 (fried_eggs)/18 (scrambled_eggs)/17 (poached_eggs)/14 (sunny_side_up_eggs)/1	82			(tomato_ketchup)/1 (butter)/1 (salt)/1 (pepper)/1 (milk)/1	5	55	9,70	19,85	44,85	25,61	29,55	70,45
41	usual breakfast	41	vegetarian protein	beans	(beans)/6 (baked_beans)/7	13					13	15,38	46,15	7,69	30,77	61,54	38,46
42	usual breakfast	42	vegetarian protein	nuts	(nuts)/2 (hazelnuts)/1 (cashews)/1 (almonds)/2	6					6	0,00	0,00	50,00	50,00	0,00	100,00
43	usual breakfast	43	vegetarian protein	seeds	(sunflower_seeds)/2 (chia_seeds)/1 (pumpkin_seeds)/2	5					3	0,00	0,00	100,00	0,00	0,00	100,00
44	usual breakfast	44	vegetarian protein	vegetarian sausage	(Linda_Mccartney_sausage)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
45	usual breakfast	45	dairy protein/alternative	yogurt	(yogurt)/17 (plain_yogurt)/2 (live_yogurt)/1 (full_fat_yogurt)/2 (low_fat_yogurt)/1 (0%_fat_yogurt)/1 (fruit_yogurt)/3 (greek_yogurt)/5 (low_fat_greek_yogurt)/1 (yogurt_drink)/1 (actimel)/2 (yakult)/1	37			(st_dalfour_fruit_jam)/1 (honey)/2 (fruits)/1 (berries)/1	5	33	0,00	1,52	69,70	28,79	1,52	98,48
46	usual breakfast	46	dairy protein/alternative	cheese	(cheese)/13 (cheese_spread)/2 (feta_cheese)/2 (cottage_cheese)/1 (halloumi_cheese)/2 (yellow_cheese)/1 (cream_cheese)/1 (cheddar_cheese)/1 (mature_cheddar_cheese)/1 (edam_cheese)/1	25					20	39,17	7,50	28,33	25,00	46,67	53,33
47	usual breakfast	47	dairy protein/alternative	plant based yogurt	(alpro_yogurt)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
48	usual breakfast	48	general vegetable	side salad	(salad)/3	3					3	0,00	0,00	33,33	66,67	0,00	100,00
49	usual breakfast	49	general vegetable	vegetable	(vegetables_from_night_before)/1 (leafy_green_vegetables)/1 (tomato)/7	2					2	0,00	0,00	50,00	50,00	0,00	100,00
50	usual breakfast	50	aboveground vegetable	tomatoes	(raw_tomato)/1 (fried_tomato)/2	10					10	0,00	10,00	60,00	30,00	10,00	90,00
51	usual breakfast	51	aboveground vegetable	mushroom	(mushrooms)/5 (fried_mushrooms)/2	7					7	14,29	14,29	57,14	14,29	28,57	71,43
52	usual breakfast	52	aboveground vegetable	avocado	(avocado)/6	6					6	0,00	0,00	50,00	50,00	0,00	100,00
53	usual breakfast	53	aboveground vegetable	cucumber	(cucumber)/3 (raw_cucumber)/1	4					4	0,00	0,00	75,00	25,00	0,00	100,00
54	usual breakfast	54	aboveground vegetable	spinach	(spinach)/2 (wilted_spinach)/1	3					3	0,00	0,00	100,00	0,00	0,00	100,00
55	usual breakfast	55	aboveground vegetable	lettuce	(lettuce)/2	2					2	0,00	0,00	0,00	100,00	0,00	100,00
56	usual breakfast	56	aboveground vegetable	olive	(olives)/2	2					2	0,00	0,00	0,00	100,00	0,00	100,00
57	usual breakfast	57	aboveground vegetable	courgette	(courgettes)/1 (fried_courgette)/1	2			(onion)/1	1	2	0,00	50,00	0,00	50,00	50,00	50,00
58	usual breakfast	58	aboveground vegetable	sweet corn	(corn)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
59	usual breakfast	59	aboveground vegetable	pepper	(bell_pepper)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
60	usual breakfast	60	below ground vegetable	spring onion	(spring_onion)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
61	usual breakfast	61	below ground vegetable	carrot	(carrot)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
62	usual breakfast	62	general fruit	fruit/piece of fruit	(fruit)/7 (fresh_fruits)/1 (frozen_fruit)/1	9					9	0,00	0,00	77,78	22,22	0,00	100,00
63	usual breakfast	63	general fruit	fruit salad	(fruit_salad)/6	6					6	0,00	0,00	33,33	66,67	0,00	100,00
64	usual breakfast	64	berry fruit	strawberry	(strawberries)/12 (fresh_strawberries)/1	13					13	0,00	7,69	15,38	76,92	7,69	92,31
65	usual breakfast	65	berry fruit	blueberry	(blueberries)/11	11					11	0,00	9,09	36,36	54,55	9,09	90,91
66	usual breakfast	66	berry fruit	raspberry	(raspberries)/6	6					6	0,00	33,33	16,67	50,00	33,33	66,67
67	usual breakfast	67	berry fruit	berry	(berries)/2 (mixed_berries)/2	4					4	0,00	0,00	50,00	50,00	0,00	100,00
68	usual breakfast	68	pit/core fruit	apple	(apple)/17 (pink_lady_apple)/1	18					18	0,00	5,56	50,00	44,44	5,56	94,44
69	usual breakfast	69	pit/core fruit	pear	(pear)/4	4					4	0,00	0,00	50,00	50,00	0,00	100,00
70	usual breakfast	70	pit/core fruit	plum	(plum)/3	3					3	0,00	0,00	33,33	66,67	0,00	100,00
71	usual breakfast	71	pit/core fruit	peach	(peach)/2 (donut_peach)/1	3					3	0,00	0,00	0,00	100,00	0,00	100,00
72	usual breakfast	72	pit/core fruit	cherry	(cherries)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
73	usual breakfast	73	melon fruit	melon	(melon)/3	3					3	0,00	0,00	0,00	100,00	0,00	100,00
74	usual breakfast	74	melon fruit	watermelon	(watermelon)/3	3					3	0,00	0,00	0,00	100,00	0,00	100,00
75	usual breakfast	75	citrus fruit	grapes	(grapes)/10 (pink_grapefruit)/1	11					11	0,00	0,00	45,45	54,55	0,00	100,00
76	usual breakfast	76	citrus fruit	small orange	(clementines)/4 (satsuma)/2 (satsuma_orange)/1	7					7	0,00	0,00	71,43	28,57	0,00	100,00
77	usual breakfast	77	citrus fruit	orange	(orange)/3	3					3	0,00	0,00	66,67	33,33	0,00	100,00
78	usual breakfast	78	citrus fruit	lemon	(lemon)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
79	usual breakfast	79	tropical fruit	banana	(banana)/43 (banana_chips)/1 (fried_bananas)/1	45					43	1,16	11,63	54,65	32,56	12,79	87,21
80	usual breakfast	80	tropical fruit	mango	(mango)/3 (dried_mango)/1	4					4	0,00	0,00	50,00	50,00	0,00	100,00
81	usual breakfast	81	tropical fruit	pineapple	(pineapple)/4	4					4	0,00	25,00	25,00	50,00	25,00	75,00

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82	usual breakfast	82	tropical fruit	kiwi	(kiwi)/4	4					4	0,00	25,00	25,00	50,00	25,00	75,00
83	usual breakfast	83	tropical fruit	fig	(fig)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
84	usual breakfast	84	tropical fruit	lychee	(lychee)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
85	usual breakfast	85	dried fruit	date	(dates)/3	3					3	0,00	0,00	33,33	66,67	0,00	100,00
86	usual breakfast	86	dried fruit	raisin	(raisins)/2	2					2	0,00	0,00	50,00	50,00	0,00	100,00
87	usual breakfast	87	baked dessert	croissant	(croissant)/18 (chocolate_croissant)/5 (almond_croissant)/1 (all_butter_croissant)/1 (pain_au_chocolat)/8 (pain_au_raisin)/1	34			(butter)/2 (jam)/1		23	36,96	63,04	0,00	0,00	100,00	0,00
88	usual breakfast	88	baked dessert	biscuit	(biscuits)/4 (oaties_biscuits)/1 (palm_oil_free_biscuits)/1 (breakfast_biscuits)/1 (chocolate_biscuits)/2 (custard_creams)/1 (milk_chocolate_digestives)/1 (dark_chocolate_digestives)/1 (cantuccini)/1 (belvita_breakfast_biscuits)/1	14					13	34,62	53,85	7,69	3,85	88,46	11,54
89	usual breakfast	89	baked dessert	cake	(cake)/6 (fruit_cake)/2 (apple_cake)/1 (chocolate_cake)/1	10					8	0,00	100,00	0,00	0,00	100,00	0,00
90	usual breakfast	90	baked dessert	sweet pastry	(pastries)/2 (sweet_pastries)/2 (chocolate_pastry)/2 (danish_pastry)/1	7					7	28,57	71,43	0,00	0,00	100,00	0,00
91	usual breakfast	91	baked dessert	cookie	(cookies)/3 (chocolate_dip_cookie)/1 (white_chocolate_cookies)/1	5					5	80,00	20,00	0,00	0,00	100,00	0,00
92	usual breakfast	92	baked dessert	sweet waffle	(waffle)/3 (chocolate_chip_waffles)/1	4			(syrup)/1		4	0,00	100,00	0,00	0,00	100,00	0,00
93	usual breakfast	93	baked dessert	muffin	(muffin)/1 (store_muffin)/1 (self_made_muffin)/1 (homemade_breakfast_muffin)/1	4					3	0,00	83,33	16,67	0,00	83,33	16,67
94	usual breakfast	94	baked dessert	doughnut	(doughnut)/1 (custard_filled_donought)/1	2					2	50,00	50,00	0,00	0,00	100,00	0,00
95	usual breakfast	95	baked dessert	brioche	(brioche)/1 (chocolate_dip_brioche)/1	2					2	50,00	50,00	0,00	0,00	100,00	0,00
96	usual breakfast	96	baked dessert	sweet pie	(pie)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
97	usual breakfast	97	chilled dessert	pudding	(overnight_chia_pudding)/1 (organic_chocolate_pudding)/1	2					2	0,00	0,00	50,00	50,00	0,00	100,00
98	usual breakfast	98	chilled dessert	mousse	(chocolate_mousse)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
99	usual breakfast	99	confectionery	chocolate	(chocolate)/8 (dark_chocolate)/1 (chocolate_swirl)/1 (dark_chocolate_bar)/1 (Reese's_pieces_chocolate_bar)/1	12					12	25,00	58,33	8,33	8,33	83,33	16,67
100	usual breakfast	100	confectionery	snack bar	(alpen_bar)/1 (square_bar)/1 (belvita_cereal_bar)/1 (nutrigrain)/1 (nature_valley_ceral_bar)/1 (cocoa_orange_nakd_bar)/1 (breakfast_bar)/3 (raw_fruit_nut_bar)/1 (fruit_nut_cereal_bar)/1 (cereal_bar)/4 (nakd_bar)/1	16					12	8,33	14,58	18,75	58,33	22,92	77,08
101	usual breakfast	101	confectionery	fudge	(fudge)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
102	usual breakfast	102	carbs based dish	pasta dish	(pasta)/4	2	(vegetarian)/1 (meat)/1 (N/A)/2	(pesto_sauce_tomatoes_olives_mozzarella)/1 (tomato_sauce_onions_minced_meat_garlic)/1			3	0,00	33,33	66,67	0,00	33,33	66,67
103	usual breakfast	103	carbs based dish	pizza	(pizza)/2 (leftover_pizza)/1	3	(N/A)/3				3	33,33	66,67	0,00	0,00	100,00	0,00
104	usual breakfast	104	carbs based dish	pastry/bake/pasty	(pastries)/1 (pastry_roll)/2	3	(meat)/2 (vegetarian)/1	(sausage)/2 (cheese)/1			3	33,33	66,67	0,00	0,00	100,00	0,00
105	usual breakfast	105	carbs based dish	noodle dish	(noodles)/2	2	(N/A)/2				2	25,00	0,00	0,00	0,00	25,00	0,00
106	usual breakfast	106	carbs based dish	rice dish	(risotto)/1	1	(vegetarian)/1	(fruits)/1			1	0,00	0,00	0,00	100,00	0,00	100,00
107	usual breakfast	107	carbs based dish	cous cous dish	(cous_cous)/1	1	(vegetarian)/1	(tomatoes_garlic_onions_mint_parsley_lime)/1			1	0,00	0,00	0,00	100,00	0,00	100,00
108	usual breakfast	108	carbs based dish	dumpling	(dumpling)/1	1	(N/A)/1				1	0,00	100,00	0,00	0,00	100,00	0,00
109	usual breakfast	109	carbs based dish	savoury oats	(porridge)/1	1	(meat)/1	(ham)/1			1	0,00	0,00	100,00	0,00	0,00	100,00
110	usual breakfast	110	carbs based dish	samosa	(samosa)/1	1	(vegetarian)/1	(vegetables)/1			1	0,00	0,00	100,00	0,00	0,00	100,00
111	usual breakfast	111	protein based dish	egg dish	(scrambled_eggs)/5 (omelettes)/11 (spanish_omelettes)/2	18	(meat)/4 (vegetarian)/6 (N/A)/8	(ham_cheese)/1 (onion_courgette)/1 (bacon)/2 (cheese)/3 (cheese_bacon)/1 (potatoes)/2	(tomato_sauce)/1	1	15	20,00	33,33	10,00	36,67	53,33	46,67
112	usual breakfast	112	protein based dish	english breakfast	(full_english_breakfast)/1	1	(meat)/1				1	0,00	100,00	0,00	0,00	100,00	0,00
113	usual breakfast	113	complex dish (could be either carbs, proteins, vegetables, or a mix of these)	burger and bun	(plain_burger)/1	1	(meat)/1		(kethcup)/1	1	1	0,00	100,00	0,00	0,00	100,00	0,00
114	usual breakfast	114	complex dish (could be either carbs, proteins, vegetables, or a mix of these)	curry	(curry)/2	2	(vegetarian)/1 (N/A)/1	(lentil)/1			2	0,00	0,00	0,00	100,00	0,00	100,00
115	usual breakfast	115	complex dish (could be either carbs, proteins, vegetables, or a mix of these)	fritters	(fritters)/1	1	(vegetarian)/1	(vegetables)/1			1	0,00	100,00	0,00	0,00	100,00	0,00
116	usual breakfast	116	complex dish (could be either carbs, proteins, vegetables, or a mix of these)	sandwich	(bread)/3 (sandwich)/13 (toastie)/6 (toast)/10 (brown_toast)/1 (roll)/12 (Mc_muffin)/1 (bun)/1 (french_toast)/3 (bagel)/1	51	(meat)/25 (fish)/3 (vegetarian)/20 (N/A)/3	(ham_cheese)/5 (cheese)/4 (goat's_cheese)/1 (sausage)/3 (sausage_butter)/1 (bacon)/8 (fried_egg)/1 (tuna)/1 (bavarian_ham_gouda_cheese_butter)/1 (ham)/1- (black_pudding)/1 (square_sausage)/1 (turkey)/1 (cream_cheese)/2 (low_fat_cream_cheese)/1 (egg_sausage)/2 (pepperoni_cheese_lettuce)/1 (banana_butter)/1 (potato_scone)/1 (avocado)/4 (banana)/1 (baked_beans_cheese)/1 (mackerel)/1 (avocado_salmon_cream_cheese)/1	(ketchup)/3 (mayonnaise)/2 (HP_sauce)/1	5	36	19,44	56,94	18,98	4,63	76,39	23,61
117	usual breakfast	117	complex dish (could be either carbs, proteins, vegetables, or a mix of these)	soup	(soup)/1	1	(vegetarian)/1	(vegetables)/1			1	0,00	0,00	0,00	100,00	0,00	100,00

all order	eating situation	eating situation order	general food category	basic food	types	type frequency	main ingredient type (meat, fish, vegetarian)	main ingredient subtype (chicken, prawns, tomatoes, curry)	accompaniments	accompaniments frequency	overall frequency (basic food)	% TF	% TO	% HF	% HO	% tasty	% healthy
118	usual breakfast	118	complex dish (could be either carbs, proteins, vegetables, or a mix of these)	wrap	(tortilla_wrap)/1	1	(N/A)/1				1	0,00	0,00	0,00	100,00	0,00	100,00
119	usual breakfast	119	other	left over	(dinner_left_over)/1	1	(N/A)/1				1	100,00	0,00	0,00	0,00	100,00	0,00
120	usual breakfast	120	other	vitamin tablet	(vitamin_tablet)/1	1	(vegetarian)/1				1	0,00	0,00	100,00	0,00	0,00	100,00
121	usual breakfast	121	cold drink	soft drink	(Coca_Cola)/1 (Red_Bull)/1 (Soda)/1	3			(lemon)/1	1	3	66,67	0,00	0,00	33,33	66,67	33,33
122	usual breakfast	122	cold drink	energy drink	(energy_drink)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
123	usual breakfast	123	juice	fruit juice	(juice)/3 (fruit_juice)/9 (orange_juice)/33 (fresh_orange_juice)/4 (multivitamin_juice)/1 (pomegranate_juice)/1 (pineapple_juice)/2 (cranberry_juice)/1 (apple_juice)/1 (raspberry_juice)/1	56					51	5,88	20,59	32,35	41,18	26,47	73,53
124	usual breakfast	124	juice	squash/diluting juice	(diluting_juice)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
125	usual breakfast	125	juice	coconut water	(coconut_water)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
126	usual breakfast	126	blend	smoothie	(smoothie)/1 (fruit_smoothie)/4 (banana_smoothie)/1 (banana_spinach_smoothie)/1	7					7	0,00	14,29	42,86	42,86	14,29	85,71
127	usual breakfast	127	blend	shake	(whey_protein_banana_shake)/1 (protein_shake)/1	2					2	0,00	0,00	100,00	0,00	0,00	100,00
128	usual breakfast	128	water/hot drink	coffee	(coffee)/53 (black_coffee)/9 (cappuccino)/4 (latte)/4 (whole_milk_latte)/1 (Starbucks_latte)/1	72			(sugar)/8 (brown_sugar)/1 (milk)/23 (plant_based_milk)/1	33	66	42,42	16,67	32,58	8,33	59,09	40,91
129	usual breakfast	129	water/hot drink	tea	(tea)/40 (black_tea)/6 (green_tea)/8 (camomile_tea)/1 (herbal_tea)/2 (fruit_tea)/1 (english_breakfast)/1	59			(lemon)/1 (sugar)/9 (milk)/17 (cloves)/1	28	52	13,46	14,42	39,42	32,69	27,88	72,12
130	usual breakfast	130	water/hot drink	water	(water)/24 (tap_water)/2 (still_water)/3 (sparkling_water)/2	31			(vitamin_C_tab)/1 (lemon)/1	2	31	0,00	6,45	80,65	12,90	6,45	93,55
131	usual breakfast	131	water/hot drink	hot chocolate	(hot_chocolate)/3 (hot_cocoa_mix)/1	4					3	33,33	33,33	33,33	0,00	66,67	33,33
132	usual breakfast	132	dairy drink/alternative	milk	(milk)/25 (full_fat_milk)/3 (cow's_milk)/1 (chocolate_milk)/1 (semi_skimmed_milk)/2 (skimmed_milk)/1 (banana_milk)/1 (strawberry_milk)/1	35					31	3,76	17,74	70,43	8,06	21,51	78,49
133	usual breakfast	133	dairy drink/alternative	plant based milk	(coconut_milk)/2 (soy_milk)/6 (long_life_soy_milk)/1 (almond_milk)/5	14					9	0,00	22,22	48,15	29,63	22,22	77,78
134	usual breakfast	134	basic condiment	sugar	(sugar)/6 (sweetner)/1	7					7	57,14	42,86	0,00	0,00	100,00	0,00
135	usual breakfast	135	basic condiment	oil	(coconut_oil)/1 (cooking_oil)/1	2					3	33,33	33,33	33,33	0,00	66,67	33,33
136	usual breakfast	136	basic condiment	salt	(salt)/3	3					2	50,00	0,00	50,00	0,00	50,00	50,00
137	usual breakfast	137	sauce/dressing	brown sauce	(brown_sauce)/3	3					3	33,33	66,67	0,00	0,00	100,00	0,00
138	usual breakfast	138	sauce/dressing	hollandaise sauce	(hollandaise_sauce)/2	2					2	0,00	100,00	0,00	0,00	100,00	0,00
139	usual breakfast	139	sauce/dressing	red sauce	(red_sauce)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
140	usual breakfast	140	sauce/dressing	hot sauce	(hot_sauce)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
141	usual breakfast	141	sauce/dressing	tomato sauce	(tomato_sauce)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
142	usual breakfast	142	spread/dip/topping	jam	(jam)/9 (marmalade)/3 (lemon_marmalade)/1 (strawberry_jam)/3	16					14	35,71	57,14	7,14	0,00	92,86	7,14
143	usual breakfast	143	spread/dip/topping	butter	(butter)/10 (salted_butter)/1	11					10	80,00	20,00	0,00	0,00	100,00	0,00
144	usual breakfast	144	spread/dip/topping	peanut butter	(peanut_butter)/8	8					8	37,50	37,50	25,00	0,00	75,00	25,00
145	usual breakfast	145	spread/dip/topping	honey	(honey)/8	8					8	25,00	12,50	37,50	25,00	37,50	62,50
146	usual breakfast	146	spread/dip/topping	chocolate spread	(chocolate_spread)/1 (nutella)/3	4					4	50,00	50,00	0,00	0,00	100,00	0,00
147	usual breakfast	147	spread/dip/topping	mayonnaise	(mayonnaise)/2	2					2	50,00	0,00	50,00	0,00	50,00	50,00
148	usual breakfast	148	spread/dip/topping	spread	(low_fat_spread)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
149	usual breakfast	149	spread/dip/topping	ketchup	(ketchup)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
150	usual breakfast	150	spread/dip/topping	mustard	(mustard)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
151	usual breakfast	151	spread/dip/topping	cocoa	(cocoa)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
152	usual breakfast	152	spread/dip/topping	lemon curd	(lemon_curd)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
153	usual breakfast	153	spread/dip/topping	agave nectar	(agave_nectar)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
154	usual breakfast	154	herb/spice	herb	(mint)/1 (parsley)/1 (coriander)/1	3					1	0,00	0,00	100,00	0,00	0,00	100,00
155	usual breakfast	155	herb/spice	spice	(paprika)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
156	usual lunch	1	flour-based baked food	bread	(bread)/26 (white_bread)/8 (wholegrain_bread)/7 (brown_bread)/1 (ciabatta)/1 (pitta_bread)/1 (wholegrain_pitta_bread)/1 (bagel)/3 (baguette)/1 (roll)/1 (crusty_bread_roll)/1 (tiger_bread_roll)/1 (white_roll)/1 (seeded_roll)/1 (mediterranean_loaf)/1 (rye_bread)/1 (rye_bread_toasted)/1 (wholegrain_flatbread)/1 (coconut_bread)/1 (toast)/12 (white_toast)/1 (brown_toast)/1 (rooti_bread)/1 (cheese_bread)/1	79			(butter)/14 (sugar)/1 (peanut_butter)/3 (nutella)/1 (low_fat_spread)/1 (jam)/1	21	51	32,35	14,38	39,54	13,73	46,73	53,27
157	usual lunch	2	flour-based baked food	cracker	(crackers)/3 (cream_crackers)/1 (tuc)/1	5			(cheese)/1 (philadelphia_cheese)/1	2	5	60,00	40,00	0,00	0,00	100,00	0,00
158	usual lunch	3	flour-based baked food	scone	(scone)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00

all order	eating situation	eating situation order	general food category	basic food	types	type frequency	main ingredient type (meat, fish, vegetarian)	main ingredient subtype (chicken, prawns, tomatoes, curry)	accompaniments	accompaniments frequency	overall frequency (basic food)	% TF	% TO	% HF	% HO	% tasty	% healthy
159	usual lunch	4	flour-based baked food	oatcake	(oatcakes)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
160	usual lunch	5	flour-based baked food	bread sticks	(bread_sticks)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
161	usual lunch	6	flour-based fried food	sweet pancake	(pancakes)/2	2					2	0,00	100,00	0,00	0,00	100,00	0,00
162	usual lunch	7	grain	side rice	(rice)/26 (white_rice)/2 (whole_rice)/1 (wild_rice)/1 (brown_rice)/4 (boiled_rice)/1 (steamed_rice)/1	36					35	17,14	2,86	54,29	25,71	20,00	80,00
163	usual lunch	8	grain	side couscous	(couscous)/8	8			(mayonnaise)/1 (honey)/2	1	6	8,33	8,33	50,00	33,33	16,67	83,33
164	usual lunch	9	grain	oats	(porridge)/3 (oatmeal)/1	5			(nuts)/1 (seeds)/1	4	4	0,00	0,00	50,00	50,00	0,00	100,00
165	usual lunch	10	grain	side quinoa	(quinoa)/3	3					3	0,00	0,00	66,67	33,33	0,00	100,00
166	usual lunch	11	grain	general grain	(groats)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
167	usual lunch	12	grain	side buckwheat	(buckwheat)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
168	usual lunch	13	grain	side millet	(millet)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
169	usual lunch	14	grain	side barley	(pearl_barley)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
170	usual lunch	15	grain	polenta	(polenta_chips)/1	1					1	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
171	usual lunch	16	cereal	breakfast cereal	(cereal)/2 (cornflakes)/1	3					3	33,33	33,33	0,00	33,33	66,67	33,33
172	usual lunch	17	starchy vegetable	chips/fries	(french_fries)/5 (fries)/8 (chips)/16 (sweet_potato_fries)/1	30			(ketchup)/4 (mustard)/1 (salt)/2 (vinegar)/1 (tomato_sauce)/1 (curry_sauce)/1 (cheese)/2	12	27	35,19	61,11	0,00	3,70	96,30	3,70
173	usual lunch	18	starchy vegetable	crisps	(crisps)/19 (salt_vinegar_crisps)/1 (kettle_salt_vinegar)/1 (mccoy's_cheese_onion_crisps)/1 (cheese_onion_crisps)/1	23					22	43,18	52,27	0,00	4,55	95,45	4,55
174	usual lunch	19	starchy vegetable	side potatoes	(potatoes)/10 (white_potatoes)/1 (sweet_potatoes)/4 (baked_potatoes)/4 (oven_baked_potatoes)/1 (skillet_fried_potatoes)/1 (roast_potatoes)/1 (boiled_potatoes)/2 (wedges)/1	25			(salt)/3 (parsley)/3 (alioli)/1 (cheese)/2	9	21	23,81	11,90	40,48	23,81	35,71	64,29
175	usual lunch	20	starchy vegetable	mashed potato	(mashed_potato)/3	3					3	0,00	33,33	0,00	66,67	33,33	66,67
176	usual lunch	21	starchy vegetable	potato waffle	(potato_waffle)/2	2			(ketchup)/1	1	2	0,00	100,00	0,00	0,00	100,00	0,00
177	usual lunch	22	starchy vegetable	potato salad	(potato_salad)/2	2					2	0,00	100,00	0,00	0,00	100,00	0,00
178	usual lunch	23	starchy vegetable	potato bake	(duphinoise_potatoes)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
179	usual lunch	24	starchy vegetable	potato scone	(potato_scone)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
180	usual lunch	25	starchy vegetable	hash brown	(potato_hash_browns)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
181	usual lunch	26	meat protein	chicken	(chicken)/20 (breaded_chicken)/4 (chicken_breast)/6 (grilled_chicken)/2 (steamed_chicken)/1 (roast_chicken)/3 (thai_roast_chicken)/1 (fried_chicken)/2 (boiled_chicken)/1 (stir_fried_chicken)/1 (coronation_chicken)/1 (chicken_nuggets)/5 (chicken_wings)/1 (KFC_spicy_chicken_wings)/1 (chicken_kiev)/1	50			(BBQ_sauce)/1	1	41	20,33	16,26	46,34	17,07	36,59	63,41
182	usual lunch	27	meat protein	beef	(beef)/5 (corned_beef)/1 (steak)/8 (diced_steak)/1 (roast_beef)/1 (minced_beef)/1 (cold_beef)/1 (stir_fried_beef)/1	19					16	27,08	22,92	21,88	28,13	50,00	50,00
183	usual lunch	28	meat protein	bacon	(bacon)/9 (pancetta)/1	10			(ketchup)/1	1	10	40,00	60,00	0,00	0,00	100,00	0,00
184	usual lunch	29	meat protein	sausage	(sausages)/8 (fried_sausages)/1	9					9	22,22	77,78	0,00	0,00	100,00	0,00
185	usual lunch	30	meat protein	pork	(pork)/4 (pork_loin)/1 (diced_pork)/1 (pork_chop)/1	7					7	14,29	14,29	14,29	57,14	28,57	71,43
186	usual lunch	31	meat protein	ham	(ham)/5 (ham_platter)/1	6					6	66,67	16,67	16,67	0,00	83,33	16,67
187	usual lunch	32	meat protein	general meat	(minced_meat)/1 (fried_meat)/1 (cooked_meats)/1 (cold_meats)/1	4					5	20,00	40,00	20,00	20,00	60,00	40,00
188	usual lunch	33	meat protein	chorizo	(chorizo)/1 (spanish_chorizo)/1 (italian_chorizo)/1	3					3	0,00	66,67	33,33	0,00	66,67	33,33
189	usual lunch	34	meat protein	turkey	(turkey)/4	4					3	0,00	0,00	33,33	66,67	0,00	100,00
190	usual lunch	35	meat protein	meatball	(meatballs)/1 (lean_meatballs)/1	2					2	50,00	0,00	50,00	0,00	50,00	50,00
191	usual lunch	36	meat protein	plain burger	(burger_meat)/1 (plain_burger)/1	2			(ketchup)/1	1	2	50,00	50,00	0,00	0,00	100,00	0,00
192	usual lunch	37	meat protein	salami	(salami)/2	2					2	50,00	50,00	0,00	0,00	100,00	0,00
193	usual lunch	38	meat protein	pastrami	(pastrami)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
194	usual lunch	39	fish protein	tuna	(tuna)/19 (tuna_chunks)/1 (tuna_steak)/1 (tinned_tuna)/2	23			(mayonnaise)/5 (brine)/1 (salt)/1	7	20	10,00	5,00	67,50	17,50	15,00	85,00
195	usual lunch	40	fish protein	salmon	(salmon)/13 (smoked_salmon)/3 (grilled_salmon)/1 (battered_salmon)/1	18			(teryaki_sauce)/1	1	17	5,88	0,00	47,06	47,06	5,88	94,12
196	usual lunch	41	fish protein	general fish	(fish)/5 (fish_fillet)/1 (battered_fish)/2 (roasted_fish)/1 (fried_fish)/1 (steamed_fish)/2 (grilled_fish)/1	13					11	12,12	0,00	36,36	51,52	12,12	87,88
197	usual lunch	42	fish protein	cod	(cod)/7 (breaded_cod)/1	8			(soy_sauce)/1 (sesame_oil)/1	2	6	0,00	0,00	33,33	66,67	0,00	100,00
198	usual lunch	43	fish protein	fish fingers	(fish_fingers)/4	4					4	50,00	25,00	0,00	25,00	75,00	25,00
199	usual lunch	44	fish protein	prawn	(prawns)/4	4					4	0,00	0,00	50,00	50,00	0,00	100,00
200	usual lunch	45	fish protein	seabass	(seabass)/1	1			(soy_sauce)/1	1	1	0,00	0,00	100,00	0,00	0,00	100,00

all order	eating situation	eating situation order	general food category	basic food	types	type frequency	main ingredient type (meat, fish, vegetarian)	main ingredient subtype (chicken, prawns, tomatoes, curry)	accompaniments	accompaniments frequency	overall frequency (basic food)	% TF	% TO	% HF	% HO	% tasty	% healthy
201	usual lunch	46	fish protein	haddock	(haddock)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
202	usual lunch	47	vegetarian protein	simple egg (no other ingredients)	(eggs)/10 (boiled_eggs)/6 (fried_egg)/7 (scrambled_eggs)/2 (poached_eggs)/1 (sunny_side_up)/1	27			(ketchup)/1 (mayonnaise)/2	3	24	14,58	20,83	47,92	16,67	35,42	64,58
203	usual lunch	48	vegetarian protein	beans	(beans)/10 (fava_beans)/1 (red_beans)/1 (tinned_beans)/1 (baked_beans)/1	14					13	7,69	0,00	38,46	53,85	7,69	92,31
204	usual lunch	49	vegetarian protein	lentils	(lentils)/6	6					5	0,00	0,00	20,00	80,00	0,00	100,00
205	usual lunch	50	vegetarian protein	chickpeas	(chickpeas)/6	6					5	0,00	0,00	60,00	40,00	0,00	100,00
206	usual lunch	51	vegetarian protein	falafel	(falafel)/4	4					4	0,00	0,00	50,00	50,00	0,00	100,00
207	usual lunch	52	vegetarian protein	nuts	(almonds)/1 (pistachio_nuts)/1 (salted_pistachio_nuts)/1 (pecan_nuts)/1 (cashew_nuts)/2	6					4	0,00	12,50	75,00	12,50	12,50	87,50
208	usual lunch	53	vegetarian protein	dahl	(dahl)/2	3					3	0,00	0,00	66,67	33,33	0,00	100,00
209	usual lunch	54	vegetarian protein	tofu	(lentil_dahl)/1 (tofu)/1	2					2	50,00	0,00	0,00	50,00	50,00	50,00
210	usual lunch	55	vegetarian protein	legumes	(fried_tofu)/1 (legumes)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
211	usual lunch	56	vegetarian protein	mycoprotein/Quorn	(Quorn_chicken)/1	2					1	100,00	0,00	0,00	0,00	100,00	0,00
212	usual lunch	57	vegetarian protein	split peas	(Quorn_mince)/1 (split_peas)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
213	usual lunch	58	vegetarian protein	seeds	(sunflower_seeds)/1 (pumpkin_seeds)/1	2					1	0,00	0,00	50,00	50,00	0,00	100,00
214	usual lunch	59	dairy protein/alternatives	cheese	(cheese)/18 (fried_cheese)/1 (low_fat_cheese)/1 (cottage_cheese)/2 (cheese_spread)/1 (cow's_milk_cheese)/1 (goats_cheese)/2 (yellow_cheese)/1 (feta_cheese)/2 (brie)/3 (boursin)/1 (parmesan)/1 (cheddar)/1 (quark)/1 (cheese_board)/1	37			(chutney)/1	1	29	36,21	22,41	29,31	12,07	58,62	41,38
215	usual lunch	60	dairy protein/alternatives	yogurt	(yogurt)/7 (full_fat_natural_yogurt)/1 (natural_yogurt)/1 (yogurt_drink)/1 (greek_yogurt)/1	11					10	10,00	0,00	60,00	30,00	10,00	90,00
216	usual lunch	61	dairy protein/alternatives	plant based yogurt	(alpro_yogurt)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
217	usual lunch	62	general vegetable	side salad	(salad)/32 (salad_greens)/1 (green_salad)/2 (green_leaves)/1 (salad_leaves)/3 (mixed_salad)/1	41			(balsamic_vinegar)/1 (evoo)/1 (vinegar)/2 (olive_oil)/1	5	41	0,00	0,00	65,85	34,15	0,00	100,00
218	usual lunch	63	general vegetable	vegetable	(vegetable)/2 (roasted_vegetables)/4 (fried_vegetables)/2 (boiled_vegetables)/1 (steamed_vegetables)/1	10					10	0,00	0,00	50,00	50,00	0,00	100,00
219	usual lunch	64	general vegetable	pickle	(pickle)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
220	usual lunch	65	general vegetable	vegetable fries/chips	(vegetable_fries)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
221	usual lunch	66	above ground vegetable	tomatoes	(tomatoes)/23 (cherry_tomatoes)/1 (sundried_tomatoes)/1	25			(balsamic_vinegar)/1 (olive_oil)/1	2	24	4,17	0,00	68,75	27,08	4,17	95,83
222	usual lunch	67	above ground vegetable	pepper/capsicum	(peppers)/10 (red_pepper)/2 (sweet_pepper)/1 (bell_pepper)/2	15					15	0,00	6,67	60,00	33,33	6,67	93,33
223	usual lunch	68	above ground vegetable	lettuce	(lettuce)/12 (romaine_lettuce)/1 (sweet_lettuce)/1	14			(vinegar)/1	1	13	0,00	0,00	69,23	30,77	0,00	100,00
224	usual lunch	69	above ground vegetable	mushroom	(mushrooms)/11 (fried_mushrooms)/2	13			(cream)/1 (garlic)/1	2	12	8,33	8,33	41,67	41,67	16,67	83,33
225	usual lunch	70	above ground vegetable	broccoli	(broccoli)/8 (boiled_broccoli)/1 (tenderstem_broccoli)/1 (stir_fried_broccoli)/1	11					11	0,00	0,00	72,73	27,27	0,00	100,00
226	usual lunch	71	above ground vegetable	avocado	(avocado)/9	9					8	0,00	0,00	75,00	25,00	0,00	100,00
227	usual lunch	72	above ground vegetable	spinach	(spinach)/6 (pan_fried_spinach)/1	7					7	0,00	0,00	71,43	28,57	0,00	100,00
228	usual lunch	73	above ground vegetable	olive	(olives)/6	6					6	0,00	0,00	16,67	83,33	0,00	100,00
229	usual lunch	74	above ground vegetable	cucumber	(cucumber)/5 (cucumber_sticks)/1	6					6	0,00	0,00	50,00	50,00	0,00	100,00
230	usual lunch	75	above ground vegetable	cabbage	(cabbage)/1 (coleslaw)/4	5			(garlic)/1	1	5	20,00	20,00	60,00	0,00	40,00	60,00
231	usual lunch	76	above ground vegetable	celery	(celery)/1 (celery_sticks)/1	2			(dip)/1	1	4	0,00	0,00	50,00	50,00	0,00	100,00
232	usual lunch	77	above ground vegetable	peas	(peas)/3 (mangetout_peas)/1	4					4	0,00	0,00	25,00	75,00	0,00	100,00
233	usual lunch	78	above ground vegetable	rocket	(rocket)/3	3					3	0,00	0,00	66,67	33,33	0,00	100,00
234	usual lunch	79	above ground vegetable	courgette	(courgettej/3 (green_beans)/2	3			(soy_sauce)/1	1	3	0,00	0,00	33,33	66,67	0,00	100,00
235	usual lunch	80	above ground vegetable	green beans	(stir_fried_green_beans)/1	3					3	0,00	0,00	66,67	33,33	0,00	100,00
236	usual lunch	81	above ground vegetable	aubergine/eggplant	(aubergine)/2	2					2	0,00	0,00	0,00	100,00	0,00	100,00
237	usual lunch	82	above ground vegetable	cauliflower	(cauliflower)/2	2					2	0,00	0,00	50,00	50,00	0,00	100,00
238	usual lunch	83	above ground vegetable	chinese leaf	(chinese_leaf)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
239	usual lunch	84	above ground vegetable	chili pepper	(chili)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
240	usual lunch	85	above ground vegetable	capers	(capers)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
241	usual lunch	86	above ground vegetable	kale	(kale)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
242	usual lunch	87	above ground vegetable	butternut squash	(butternut_squash)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
243	usual lunch	88	above ground vegetable	brussel sprout	(brussel_sprouts_boiled)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
244	usual lunch	89	above ground vegetable	asparagus	(asparagus)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
245	usual lunch	90	above ground vegetable	fennel	(fennels)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
246	usual lunch	91	above ground vegetable	sweet corn	(corn)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
247	usual lunch	92	above ground vegetable	seaweed	(toasted_seaweed)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
248	usual lunch	93	above ground vegetable	pea sprouts	(pea_sprouts)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
249	usual lunch	94	above ground vegetable	bean sprouts	(stir_fried_bean_sprout)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
250	usual lunch	95	below ground vegetable	carrot	(carrots)/11 (carrot_sticks)/2 (grated_carrot)/1 (stir_fried_carrot)/1	15			(hummus)/1	1	13	0,00	0,00	46,15	53,85	0,00	100,00
251	usual lunch	96	below ground vegetable	onion	(onion)/3	3					3	0,00	0,00	100,00	0,00	0,00	100,00
252	usual lunch	97	below ground vegetable	beetroot	(beetroot)/3	3					3	0,00	0,00	66,67	33,33	0,00	100,00

all order	eating situation	eating situation order	general food category	basic food	types	type frequency	main ingredient type (meat, fish, vegetarian)	main ingredient subtype (chicken, prawns, tomatoes, curry)	accompaniments	accompaniments frequency	overall frequency (basic food)	% TF	% TO	% HF	% HO	% tasty	% healthy
253	usual lunch	98	below ground vegetable	garlic	(garlic)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
254	usual lunch	99	general fruit	fruit/piece of fruit	(fruit)/6 (fruit_slices)/1 (fresh_fruit)/1	8					8	0,00	0,00	87,50	12,50	0,00	100,00
255	usual lunch	100	general fruit	fruit salad	(fruit_salad)/2	2					2	0,00	0,00	100,00	0,00	0,00	100,00
256	usual lunch	101	berry fruit	strawberry	(strawberries)/11	11					11	0,00	0,00	27,27	72,73	0,00	100,00
257	usual lunch	102	berry fruit	blueberry	(blueberries)/3	3					3	0,00	0,00	0,00	100,00	0,00	100,00
258	usual lunch	103	berry fruit	raspberry	(raspberries)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
259	usual lunch	104	pit/core fruit	apple	(apple)/20	20					19	0,00	5,26	57,89	36,84	5,26	94,74
260	usual lunch	105	pit/core fruit	pear	(pear)/3	3					3	0,00	0,00	66,67	33,33	0,00	100,00
261	usual lunch	106	pit/core fruit	cherry	(cherries)/2 (dried_cherries)/1	3			(apple_juice_concentrate)/1	1	3	33,33	0,00	0,00	66,67	33,33	66,67
262	usual lunch	107	pit/core fruit	nectarine	(nectarine)/4	4					3	0,00	0,00	66,67	33,33	0,00	100,00
263	usual lunch	108	pit/core fruit	peach	(peach)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
264	usual lunch	109	pit/core fruit	plum	(plum)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
265	usual lunch	110	melon fruit	melon	(melon)/2	2					2	0,00	0,00	0,00	100,00	0,00	100,00
266	usual lunch	111	melon fruit	watermelon	(watermelon)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
267	usual lunch	112	melon fruit	pineapple	(pineapple)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
268	usual lunch	113	citrus fruit	grapes	(grapes)/11	11					11	0,00	0,00	18,18	81,82	0,00	100,00
269	usual lunch	114	citrus fruit	small orange	(clementine)/2 (satsuma)/1 (tangerine)/1 (mandarine)/2	6					6	0,00	0,00	66,67	33,33	0,00	100,00
270	usual lunch	115	citrus fruit	orange	(orange)/5	5					5	0,00	0,00	60,00	40,00	0,00	100,00
271	usual lunch	116	citrus fruit	lemon	(lemon_wedge)/1	1					2	0,00	0,00	50,00	50,00	0,00	100,00
272	usual lunch	117	tropical fruit	banana	(banana)/24	24					24	0,00	4,17	66,67	29,17	4,17	95,83
273	usual lunch	118	tropical fruit	mango	(mango)/2 (dried_mango)/1 (mango_slices)/1	4					4	0,00	0,00	75,00	25,00	0,00	100,00
274	usual lunch	119	tropical fruit	kiwi	(kiwi)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
275	usual lunch	120	dried fruit	raisin	(rainsins)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
276	usual lunch	121	baked dessert	cake	(cake)/2 (chocolate_cake)/4 (cheese_cake)/2 (cake_bar)/1	9					9	11,11	88,89	0,00	0,00	100,00	0,00
277	usual lunch	122	baked dessert	biscuit	(biscuits)/2 (bourbons)/1 (chocolate_biscuit)/2 (cantuccini)/1 (chocolate_digestives)/1 (custard_creams)/1	8					7	78,57	7,14	0,00	14,29	85,71	14,29
278	usual lunch	123	baked dessert	cookie	(cookies)/2 (chocolate_cookie)/2 (homemade_peanut_butter_cookies)/1	5					5	20,00	80,00	0,00	0,00	100,00	0,00
279	usual lunch	124	baked dessert	doughnut	(doughnuts)/3	3					3	33,33	66,67	0,00	0,00	100,00	0,00
280	usual lunch	125	baked dessert	sweet pastry	(sweet_pastries)/2	2					2	100,00	0,00	0,00	0,00	100,00	0,00
281	usual lunch	126	baked dessert	sweet pie	(pie)/2	2					2	0,00	100,00	0,00	0,00	100,00	0,00
282	usual lunch	127	baked dessert	muffin	(muffin)/1 (home_made_vegan_muffin)/1	2					2	0,00	100,00	0,00	0,00	100,00	0,00
283	usual lunch	128	baked dessert	tart	(peanut_butter_cup)/1 (custard_tart)/1	2					2	50,00	50,00	0,00	0,00	100,00	0,00
284	usual lunch	129	baked dessert	cupcake	(vegan_cupcake)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
285	usual lunch	130	baked dessert	brownie	(chocolate_brownies)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
286	usual lunch	131	baked dessert	bread jam roll	(jam_bread_rolls)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
287	usual lunch	132	baked dessert	malt loaf	(malt_loaf)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
288	usual lunch	133	chilled dessert	ice cream	(ice_cream)/3	3					3	0,00	100,00	0,00	0,00	100,00	0,00
289	usual lunch	134	confectionery	chocolate	(chocolate)/9 (dark_chocolate)/1 (share_bag_chocolate)/1 (chocolate_bar)/7 (pure_chocolate_bar)/1 (Snickers)/2 (Twix_bar)/1 (Mars_bar)/3 (chocolate_fudge_bar)/1 (milky_way_chocolate_bar)/1 (cocoa_date_cashew_bar)/1 (cereal_bar)/1	27					25	54,00	46,00	0,00	0,00	100,00	0,00
290	usual lunch	135	confectionery	snack bar	(granola_bar)/1 (energy_bar)/1 (flapjack)/1	5					4	37,50	62,50	0,00	0,00	100,00	0,00
291	usual lunch	136	confectionery	sweets	(haribo_sweets)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
292	usual lunch	137	confectionery	caramel	(caramel)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
293	usual lunch	138	carbs based dish	pasta dish	(pasta)/63 (brown_pasta)/2 (vegan_pasta)/1 (spaghetti)/6 (ravioli)/1 (macaroni)/2 (pasta_bake)/3 (lasagne)/10 (pasta_salad)/1 (already_made_pasta_salad)/1 (Mugshot_already_made_pasta)/1	91	(meat)/18 (fish)/1 (vegetarian)/39 (N/A)/32	(sauce)/3 (meat_sauce)/1 (cauliflower_sauce)/1 (aubergine_sauce)/1 (pepper_sauce)/1 (courgette)/1 (mushroom_sauce)/1 (cajun_style_sauce)/1 (chicken)/1 (chicken_soya)/1 (ketchup)/2 (ricotta)/1 (tomato_sauce)/9 (pesto_sauce)/5 (red_pesto)/1 (bolognese)/3 (vegetarian_bolognese)/1 (tuna_tomato_sauce)/1 (kale_halloumi)/1 (cheese)/3 (cheese_sauce)/1 (cream_sauce)/1 (vegetables)/1 (assorted_vegetables)/1 (carbonara)/2 (arrabbiata)/1	(cheese)/1	1	57	32,02	20,18	28,51	19,30	52,19	47,81
294	usual lunch	139	carbs based dish	pizza	(pizza)/20 (pizza_slice)/2 (homemade_pizza)/2 (frozen_pizza)/1 (takeaway_pizza_dominoes)/1 (fried_pizza)/1	27	(meat)/3 (vegetarian)/1 (N/A)/23	(pepperoni)/1 (pepperoni_mushroom_anchovies_mozzarella)/1 (smoked_sausage_pepperoni)/1			25	18,00	78,00	4,00	0,00	96,00	4,00
295	usual lunch	140	carbs based dish	noodle dish	(noodles)/3 (kimchi_instant_noodles)/1 (instant_noodles)/5 (package_noodles)/1 (fried_noodles)/2 (udon)/2 (rice_noodles)/1 (egg_noodles)/1	21	(meat)/2 (N/A)/14	(chicken)/2			14	17,86	28,57	28,57	25,00	46,43	53,57

all order	eating situation	eating situation order	general food category	basic food	types	type frequency	main ingredient type (meat, fish, vegetarian)	main ingredient subtype (chicken, prawns, tomatoes, curry)	accompaniments	accompaniments frequency	overall frequency (basic food)	% TF	% TO	% HF	% HO	% tasty	% healthy
296	usual lunch	141	carbs based dish	rice dish	(rice)/3 (risotto)/1 (fried_rice)/4 (biryani)/1	9	(meat)/1 (vegetarian)/3 (N/A)/5	(chicken)/1 (chowder_sauce)/1 (tomato_sauce)/1 (vegetable_cream_cheese)/1			9	55,56	11,11	33,33	0,00	66,67	33,33
297	usual lunch	142	carbs based dish	pastry/bake/pasty	(pastry)/1 (pastry_roll)/8 (bridie)/1 (pasty)/1 (bake)/1 (Greggs_bake)/1	13	(meat)/10 (vegetarian)/1 (N/A)/2	(sausage)/7 (cheese_onion)/1 (steak)/2			9	11,11	88,89	0,00	0,00	100,00	0,00
298	usual lunch	143	carbs based dish	baked/jacket potato	(jacket_potato)/2 (baked_potato)/7	9	(vegetarian)/3	(beans)/1 (coleslaw)/1 (butter_cheese)/1			9	0,00	0,00	44,44	55,56	0,00	100,00
299	usual lunch	144	carbs based dish	savoury pie	(pie)/5	5	(meat)/4 (N/A)/1	(steak)/1 (pork)/2 (chicken_gravy)/1			5	40,00	60,00	0,00	0,00	100,00	0,00
300	usual lunch	145	carbs based dish	quiche/tart	(quiche)/2 (quiche_lorraine)/1 (tart)/3	6	(meat)/1 (fish)/1 (vegetarian)/3 (N/A)/1	(feta_spinach)/1 (butternut_squash)/1 (smoked_salmon_spinach)/1 (cheese_onion)/1			4	75,00	25,00	0,00	0,00	100,00	0,00
301	usual lunch	146	carbs based dish	cous cous dish	(cous_cous)/2	2	(vegetarian)/2	(vegetables)/1 (lentil_sauce)/1			2	0,00	0,00	100,00	0,00	0,00	100,00
302	usual lunch	147	carbs based dish	nachos	(nachos)/2	2	(N/A)/1				2	0,00	100,00	0,00	0,00	100,00	0,00
303	usual lunch	148	carbs based dish	bulgur wheat dish	(porgouri)/1	1	(vegetarian)/1				1	0,00	0,00	0,00	100,00	0,00	100,00
304	usual lunch	149	carbs based dish	gnocchi dish	(gnocchi)/1	1	(vegetarian)/1	(vegetables)/1			1	0,00	0,00	100,00	0,00	0,00	100,00
305	usual lunch	150	carbs based dish	dumpling	(dumplings)/1	1	(N/A)/1				1	0,00	0,00	100,00	0,00	0,00	100,00
306	usual lunch	151	carbs based dish	samosa	(samosa)/1	1	(vegetarian)/1	(vegetables)/1			1	0,00	0,00	100,00	0,00	0,00	100,00
307	usual lunch	152	carbs based dish	savoury pancake	(savoury_pancakes)/1	1	(N/A)/1				1	0,00	100,00	0,00	0,00	100,00	0,00
308	usual lunch	153	protein based dish	egg dish	(scrambled_eggs)/1 (scrambled_eggs_on_toast)/1 (scotch_egg)/1 (shakshuka)/1 (omelette)/11 (frittata)/1 (spanish_omelette)/1 (tortilla)/1	18	(meat)/2 (vegetarian)/7 (N/A)/9	(ham_cheese)/1 (cheese_onion)/2 (potatoes)/2 (fried_vegetables)/1			16	31,25	25,00	18,75	25,00	56,25	43,75
309	usual lunch	154	protein based dish	kebab	(kebab)/2	2	(meat)/1				2	0,00	100,00	0,00	0,00	100,00	0,00
310	usual lunch	155	protein based dish	roast	(sunday_roast)/1	1	(meat)/1				1	0,00	100,00	0,00	0,00	100,00	0,00
311	usual lunch	156	protein based dish	hainan chicken rice	(hainan_chicken_rice)/1	1	(meat)/1				1	0,00	100,00	0,00	0,00	100,00	0,00
312	usual lunch	157	protein based dish	sausage supper	(sausage_supper)/1	1	(meat)/1		(salt)/1 (vinegar)/1	2	1	100,00	0,00	0,00	0,00	100,00	0,00
313	usual lunch	158	complex dish (could be either carbs, proteins, vegetables, or a mix of these)	sandwich	(bread)/4 (sandwich)/64 (homemade_sandwich)/1 (shop_bought_sandwich)/1 (white_bread_sandwich)/1 (wholemeal_sandwich)/2 (toastie)/11 (toast)/6 (baguette)/4 (panini)/2 (Subway_sandwich)/6 (Greggs_sandwich)/1 (roll)/8 (hot_dogs)/1 (croissant)/1 (bagel)/2 (pitta)/1 (sourdough)/1 (garlic_flat_bread)/1	118	(meat)/43 (fish)/14 (vegetarian)/44 (N/A)/17	(mayonnaise)/1 (chicken_vegetables)/1 (chicken_salad)/1 (chicken_tikka_sauce)/1 (ham_cheese)/7 (ham_salad)/1 (avocado)/2 (cheese_pickle)/1 (cheese_tomato)/3 (chicken_tikka)/1 (ham)/8 (quorn_ham)/1 (chicken)/4 (tuna)/8 (tuna_melt)/1 (tuna_sweet_corn)/1 (cheese)/16 (goat's_cheese)/1 (cream_cheese)/2 (cheese_tomato)/1 (egg)/4 (fried_egg)/1 (sausage)/2 (tomato_egg)/1 (bacon)/7 (BLT_bacon_lettuce_tomato)/5 (hummus_vegetables)/1 (hummus_carrots)/1	(mayonnaise)/8 (mustard)/2 (butter)/4 (olive_oil)/1 (ketchup)/2	17	59	34,28	35,09	21,53	9,10	69,37	30,63
314	usual lunch	159	complex dish (could be either carbs, proteins, vegetables, or a mix of these)	soup	(soup)/50 (homemade_soup)/3 (fresh_soup)/2 (canned_soup)/3 (sachet_soup)/2 (broth)/1 (miso_soup)/3	64	(meat)/3 (vegetarian)/35 (N/A)/26	(broccoli)/2 (vegetable)/9 (sweet_potato)/1 (leek)/1 (mushroom)/2 (spinach)/1 (butternut_squash_coconut)/1 (noodle)/1 (tomato)/6 (canned_tomato)/1 (red_lentil_chorizo)/1 (red_lentil_potato)/1 (leek_potato)/1 (butternut_squash)/1 (lentil)/3 (orzo)/1 (carrot)/1 (chicken)/2 (miso_dried_shiitake_mushrooms_spring_onion)/1 (soba_noodles)/1 (rice)/1	(salt)/1 (pepper)/1	2	45	3,33	5,63	54,37	36,67	8,96	91,04
315	usual lunch	160	complex dish (could be either carbs, proteins, vegetables, or a mix of these)	burger and bun	(burger)/14 (lean_burger)/1 (hamburger)/4 (double_hamburger)/1 (cheese_burger)/2 (home_made_burger)/3	25	(meat)/22 (vegetarian)/3	(bean)/1 (chicken)/3 (beef)/2	(spicy_sauce)/1 (cheese)/1	2	24	25,00	62,50	12,50	0,00	87,50	12,50
316	usual lunch	161	complex dish (could be either carbs, proteins, vegetables, or a mix of these)	meal salad	(salad)/28	28	(meat)/8 (fish)/3 (vegetarian)/17	(chicken)/4 (chicken_caesar)/2 (chicken_pepper)/1 (Greek_salad)/1 (tomato_cucumber)/1 (tuna)/3 (cous_cous)/3 (vegetables)/2 (mixed_vegetables)/1 (chicken_courgette)/1 (avocado_corn)/1 (rice)/1 (quinoa)/2 (tomato)/2 (bean)/1 (beetroot)/1			16	0,00	0,00	52,08	45,83	0,00	97,92
317	usual lunch	162	complex dish (could be either carbs, proteins, vegetables, or a mix of these)	curry	(curry)/7 (indian_curry)/1 (thai_curry)/1 (korma)/1	10	(meat)/1 (vegetarian)/3 (N/A)/6	(chicken)/1 (vegetables)/2 (broccoli_tomato)/1			9	44,44	33,33	11,11	11,11	77,78	22,22

all order	eating situation	eating situation order	general food category	basic food	types	type frequency	main ingredient type (meat, fish, vegetarian)	main ingredient subtype (chicken, prawns, tomatoes, curry)	accompaniments	accompaniments frequency	overall frequency (basic food)	% TF	% TO	% HF	% HO	% tasty	% healthy
318	usual lunch	163	complex dish (could be either carbs, proteins, vegetables, or a mix of these)	wrap	(wrap)/4 (fajita_wrap)/1 (tacos)/2 (tortilla_wrap)/2 (burrito)/1 (piadina)/1	11	(meat)/3 (vegetarian)/2 (N/A)/6	(chicken_salad)/2 (veggie_chilli_peppers)/1 (bacon)/1 (halloumi)/1	(hot_sauce)/1 (garlic_sauce)/1	2	8	22,92	47,92	12,50	12,50	70,83	25,00
319	usual lunch	164	complex dish (could be either carbs, proteins, vegetables, or a mix of these)	stir fry	(stir_fry)/8	8	(meat)/3 (fish)/1 (vegetarian)/3 (N/A)/1	(chicken_vegetables)/1 (chicken)/1 (beef)/1 (vegetable)/2 (spinach_garlic)/1 (prawn)/1	(black_bean_sauce)/1 (soy_sauce)/2	3	5	0,00	20,00	60,00	20,00	20,00	80,00
320	usual lunch	165	complex dish (could be either carbs, proteins, vegetables, or a mix of these)	ramen	(kimchi_ramen)/1 (ramen)/1	2	(vegetarian)/1 (N/A)/1-note this is for ramen				2	50,00	0,00	0,00	50,00	50,00	50,00
321	usual lunch	166	complex dish (could be either carbs, proteins, vegetables, or a mix of these)	sushi	(sushi)/1 (tuna_roll)/1	2	(fish)/1 (N/A)/1	(tuna)/1			2	0,00	0,00	50,00	50,00	0,00	100,00
322	usual lunch	167	complex dish (could be either carbs, proteins, vegetables, or a mix of these)	stew	(stew)/1 (tinned_stew)/1	2	(N/A)/2		(gravy)/1	1	2	50,00	0,00	50,00	0,00	50,00	50,00
323	usual lunch	168	complex dish (could be either carbs, proteins, vegetables, or a mix of these)	moussakka	(moussakka)/1	1	(vegetarian)/1	(vegetables)/1			1	0,00	0,00	0,00	100,00	0,00	100,00
324	usual lunch	169	complex dish (could be either carbs, proteins, vegetables, or a mix of these)	stuffed vegetable	(stuffed_pepper)/1	1	(N/A)/1				1	0,00	0,00	0,00	100,00	0,00	100,00
325	usual lunch	170	complex dish (could be either carbs, proteins, vegetables, or a mix of these)	chilli	(homemade_chilli)/1	1	(N/A)/1				1	0,00	0,00	0,00	100,00	0,00	100,00
326	usual lunch	171	complex dish (could be either carbs, proteins, vegetables, or a mix of these)	casserole	(casserole)/1	1	(N/A)/1				1	0,00	0,00	0,00	100,00	0,00	100,00
327	usual lunch	172	complex dish (could be either carbs, proteins, vegetables, or a mix of these)	croquettes/cutlets	(cutlet)/1	1	(vegetarian)/1				1	0,00	0,00	100,00	0,00	0,00	100,00
328	usual lunch	173	fast food	Mc Donalds	(McDonalds)/1	1	(N/A)/1				1	100,00	0,00	0,00	0,00	100,00	0,00
329	usual lunch	174	fast food	KFC	(KFC)/1	1	(N/A)/1				1	0,00	100,00	0,00	0,00	100,00	0,00
330	usual lunch	175	ethnic food	greek	(greek_dishes)/1	1	(vegetarian)/1		(olive_oil)/1	1	1	0,00	0,00	100,00	0,00	0,00	100,00
331	usual lunch	176	other	tapas	(tapas)/1	1	(N/A)/1				1	100,00	0,00	0,00	0,00	100,00	0,00
332	usual lunch	177	other	left over	(dinner_left_over)/1	1	(N/A)/1				1	0,00	0,00	100,00	0,00	0,00	100,00
333	usual lunch	178	cold drink	soft drink	(spft_drink)/3 (fizzy_drink)/2 (Coca_Cola)/16 (Diet_Coke)/9 (Fanta)/3 (Fanta_fruit_twist)/1 (Sprite)/2 (lemonade)/2 (Irn_Bru)/5 (Diet_Irn_Bru)/1 (Pepsi)/3 (Diet_Pepsi)/1 (ginger_beer)/1 (Vimto)/1	50					38	31,80	65,57	0,00	2,63	97,37	2,63
334	usual lunch	179	cold drink	energy drink	(energy_drink)/4 (Lucozade)/1 (Red_Bull)/1	6					6	16,67	83,33	0,00	0,00	100,00	0,00
335	usual lunch	180	cold drink	iced tea	(ice_tea)/1 (arizona_diet_peach_tea)/1	2					2	50,00	50,00	0,00	0,00	100,00	0,00
336	usual lunch	181	juice	fruit juice	(juice)/2 (fruit_juice)/6 (fresh_fruit_juice)/2 (apple_juice)/3 (orange_juice)/9 (fizzy_juice)/1 (tomato_juice)/1	24			(water)/1		22	0,00	31,82	37,88	30,30	31,82	68,18
337	usual lunch	182	juice	squash/diluting juice	(squash)/1 (diluting_juice)/2	3					3	0,00	33,33	66,67	0,00	33,33	66,67
338	usual lunch	183	blend	shake	(protein_shake)/2 (fruit_shake)/1 (milkshake)/2	5					5	20,00	0,00	80,00	0,00	20,00	80,00
339	usual lunch	184	blend	smoothie	(smoothie)/1 (fruit_smoothie)/1	2					2	0,00	0,00	0,00	100,00	0,00	100,00
340	usual lunch	185	water/hot drink	water	(water)/45 (tap_water)/3 (sparkling_water)/6 (still_water)/5	59					56	3,57	0,00	88,39	8,04	3,57	96,43
341	usual lunch	186	water/hot drink	tea	(tea)/20 (black_tea)/1 (English_breakfast)/2 (herbal_tea)/2 (green_tea)/4 (peppermint_tea)/2	31			(milk)/4 (sugar)/3	7	30	10,00	8,33	65,00	16,67	18,33	81,67
342	usual lunch	187	water/hot drink	coffee	(coffee)/24 (black_coffee)/4 (cappuccino)/1	29			(milk)/11 (sugar)/5	16	26	46,15	25,00	25,00	3,85	71,15	28,85
343	usual lunch	188	water/hot drink	hot chocolate	(hot_chocolate)/1 (hot_choc_drink)/1	2					2	0,00	100,00	0,00	0,00	100,00	0,00
344	usual lunch	189	alcoholic drink	beer	(beer)/4	4					4	0,00	100,00	0,00	0,00	100,00	0,00
345	usual lunch	190	alcoholic drink	wine	(wine)/3	3					3	0,00	66,67	0,00	33,33	66,67	33,33
346	usual lunch	191	dairy drink/alternative	plant based milk	(soy_milk)/1 (chocolate_soy_milk)/1 (almond_milk)/1	3					2	0,00	50,00	50,00	0,00	50,00	50,00
347	usual lunch	192	basic condiment	oil	(oil)/1 (olive_oil)/5 (sesame_oil)/1	7					7	42,86	0,00	42,86	14,29	42,86	57,14
348	usual lunch	193	basic condiment	salt	(salt)/2	2					2	50,00	50,00	0,00	0,00	100,00	0,00
349	usual lunch	194	basic condiment	vinegar	(balsamic_vinegar)/2	2					2	50,00	0,00	50,00	0,00	50,00	50,00
350	usual lunch	195	basic condiment	sugar	(sugar)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
351	usual lunch	196	dressing/sauce	tomato sauce	(tomato_sauce)/2 (sugo_sauce)/1 (tomato_bacon)/1	4					3	100,00	0,00	0,00	0,00	100,00	0,00
352	usual lunch	197	dressing/sauce	soy sauce	(soy_sauce)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
353	usual lunch	198	dressing/sauce	oyster sauce	(oyster_sauce)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
354	usual lunch	199	dressing/sauce	worcester sauce	(worcester_sauce)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
355	usual lunch	200	dressing/sauce	brown sauce	(brown_sauce)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
356	usual lunch	201	dressing/sauce	salad cream	(salad_cream)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
357	usual lunch	202	dressing/sauce	salad dressing	(salad_dressing:lemon juice, olive oil, vinegar)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
358	usual lunch	203	dressing/sauce	vegan salad dressing	(vegan_salad_sauce)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
359	usual lunch	204	dressing/sauce	pesto	(pesto_sauce)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
360	usual lunch	205	spread/dip/topping	hummus	(hummus)/7	7					7	14,29	14,29	57,14	14,29	28,57	71,43
361	usual lunch	206	spread/dip/topping	butter	(butter)/5 (salted_butter)/1	6					6	66,67	0,00	16,67	16,67	66,67	33,33
362	usual lunch	207	spread/dip/topping	mayonnaise	(mayonnaise)/3						3	33,33	0,00	66,67	0,00	33,33	66,67
363	usual lunch	208	spread/dip/topping	mustard	(mustard)/3	3					3	66,67	0,00	33,33	0,00	66,67	33,33
364	usual lunch	209	spread/dip/topping	ketchup	(ketchup)/2	2					2	50,00	50,00	0,00	0,00	100,00	0,00
365	usual lunch	210	spread/dip/topping	jam	(jam)/1 (scottish_jam)/1	2					2	0,00	50,00	50,00	0,00	50,00	50,00
366	usual lunch	211	spread/dip/topping	guacamole salsa	(avocado_guacamole)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
367	usual lunch	212	spread/dip/topping	sour cream dip	(sour_cream_dip)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
368	usual lunch	213	spread/dip/topping	peanut butter	(organic_peanut_butter)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
369	usual lunch	214	herb/spice	spice	(paprika)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00

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370	usual lunch	215	other	cream	(cream)/3 (double_cream)/1	4					4	0,00	50,00	25,00	25,00	50,00	50,00
371	usual dinner	1	flour-based baked good	bread	(bread)/28 (white_bread)/4 (garlic_bread)/14 (pitta_bread)/1 (poori_fried_bread)/2 (naan_bread)/2 (paratha_bread)/1 (rye_bread_toasted)/1 (brown_bread)/2 (baguette)/2 (toast)/4 (roti_bread)/1 (roll)/1 (bread_roll)/1	64			(butter)/7 (hummus)/2 (peanut_butter)/1 (nutella)/1 (oil)/1 (salt)/1	12	45	36,81	27,19	26,00	10,00	64,00	36,00
372	usual dinner	2	flour-based baked good	yorkshire pudding	(yorkshire_pudding)/3	3					3	0,00	100,00	0,00	0,00	100,00	0,00
373	usual dinner	3	flour-based baked good	bread sticks	(breadsticks)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
374	usual dinner	4	flour-based baked good	cracker	(prown_crackers)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
375	usual dinner	5	flour-based baked good	poppadom	(poppadoms)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
376	usual dinner	6	flour-based fried good	sweet pancake	(pancakes)/3	3					3	0,00	33,33	66,67	0,00	33,33	66,67
377	usual dinner	7	grain	side rice	(rice)/37 (white_rice)/8 (boiled_rice)/5 (wild_rice)/2 (brown_rice)/7	59			(soy_sauce)/1 (chicken_stock)/1	2	52	10,26	3,85	63,78	22,12	14,10	85,90
378	usual dinner	8	grain	side couscous	(couscous)/7	7					7	50,00	0,00	50,00	0,00	50,00	50,00
379	usual dinner	9	grain	side quinoa	(quinoa)/3	3					3	0,00	0,00	33,33	66,67	0,00	100,00
380	usual dinner	10	grain	popcorn	(popcorn)/2	2					2	0,00	100,00	0,00	0,00	100,00	0,00
381	usual dinner	11	grain	general grain	(groats)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
382	usual dinner	12	grain	side barley	(barley)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
383	usual dinner	13	grain	polenta	(polenta)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
384	usual dinner	14	cereal	breakfast cereal	(cereals)/4	4			(milk)/1		4	25,00	50,00	0,00	25,00	75,00	25,00
385	usual dinner	15	starchy vegetable	side potatoes	(potatoes)/21 (baked/jacket_potatoes)/5 (oven_baked_potatoes)/1 (sweet_potatoes)/12 (roasted_potatoes)/9 (boiled_potatoes)/6 (white_potatoes)/1 (potato_wedges)/5 (homemade_potato_oven_wedges)/1 (fried_potatoes)/3 (baby_potatoes)/1 (sauteed_potatoes)/1	65			(salt)/1 (parsley)/1 (mayonnaise)/1 (butter)/1 (cheese)/1	4	52	9,62	21,79	44,87	23,72	31,41	68,59
386	usual dinner	16	starchy vegetable	fries/chips	(chips)/26 (fries)/14 (french_fries)/4 (chips_shop)/1 (oven_fries)/1 (oven_chips)/1 (sweet_potato_chips)/1 (sweet_potato_fries)/3 (chips_sweet_potato_homemade)/1	52			(mayonnaise)/1 (garlic_mayonnaise)/2 (ketchup)/5 (hot_sauce)/2 (mustard)/1 (brown_sauce)/1 (tomato_sauce)/1 (cheese)/2	15	49	29,59	62,24	2,04	6,12	91,84	8,16
387	usual dinner	17	starchy vegetable	mashed potato	(mashed potatoes)/13	3			(gravy)/1 (milk)/1	2	14	21,43	35,71	21,43	21,43	57,14	42,86
388	usual dinner	18	starchy vegetable	crisps	(crisps)/2	2					1	0,00	100,00	0,00	0,00	100,00	0,00
389	usual dinner	19	starchy vegetable	potato salad	(potato_salad)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
390	usual dinner	20	starchy vegetable	hash brown	(potato_hash_browns)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
391	usual dinner	21	starchy vegetable	potato croquette	(potato_croquettes)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
392	usual dinner	22	meat protein	chicken	(chicken)/34 (chicken_breast)/8 (chicken_breast_baked)/1 (chicken_breast_grilled)/1 (roasted_chicken)/11 (breaded_chicken)/2 (grilled_chicken)/5 (fried_chicken)/8 (pan_fried_chicken)/2 (southern_fried_chicken)/1 (roasted_thai_chicken)/1 (baked_chicken)/1 (stuffed_chicken)/1 (oven_chicken)/1 (oven_chicken_boneless_legs)/1 (Nando's_chicken)/1 (chicken_meat)/1 (chicken_kebabs)/1 (cajun_chicken)/1 (chicken_opor_ayam)/1 (hainan_chicken)/1 (chicken_nuggets)/3 (chicken_wings)/3 (home_made_chicken_goujons)/1 (chicken_kiev)/6	97			(lemongrass)/1 (ginger)/1 (chilli)/1 (gravy)/2 (sauce)/2 (fajita_spice)/1 (hot_sauce)/1 (salt)/1 (pepper)/1 (jerk_seasoning)/1 (onion_garlic_lemon_stuffing)/1 (garlic_mayonnaise)/1 (black_bean_sauce)/1 (sweet_chilli_sauce)/1 (tomato_sauce)/1 (spices)/1 (sirracha_mayo)/1	19	70	16,31	18,33	51,90	13,45	34,64	65,36
393	usual dinner	23	meat protein	beef	(beef)/9 (beef_slow_cooked)/1 (beef_steak)/25 (beef_steak_medium_rare)/1 (beef_sirloin_steak)/1 (beef_lean_steak)/1 (beef_mince)/2 (diced_beef)/1 (beef_mince_20%fat)/1 (beef_olives)/1 (roast_beef)/1 (beef_rendang)/1	45			(peppercorn_sauce)/1	1	39	24,36	32,05	17,95	0,00	56,41	17,95
394	usual dinner	24	meat protein	sausage	(sausages)/15 (italian_sausage)/1 (fried_sausage)/1 (frozen_sausage)/1 (turkey_sausage)/1 (chicken_sausage)/1 (pork_sausage)/1 (beef_sausage)/1	22			(gravy)/2 (ketchup)/1	3	20	50,00	35,00	15,00	0,00	85,00	15,00

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395	usual dinner	25	meat protein	pork	(pork)/6 (pork_minced)/1 (roasted_pork)/1 (pulled_pork)/2 (pork_chops)/3 (fried_pork_chops)/1 (grilled_pork_chops)/1 (pork_ribs)/1 (pork_sausage)/1 (pork_meat)/1 (gammon_steak)/1	19			(seanoning)/2 (BBQ_sauce)/3	5	17	20,59	29,41	23,53	26,47	50,00	50,00
396	usual dinner	26	meat protein	bacon	(bacon)/9 (pancetta)/1	10					10	40,00	60,00	0,00	0,00	100,00	0,00
397	usual dinner	27	meat protein	ham	(ham)/3 (parma_ham)/2 (prosciutto)/1	6					6	33,33	66,67	0,00	0,00	100,00	0,00
398	usual dinner	28	meat protein	lamb	(lamb)/2 (minced_lamb)/1 (roasted_lamb)/1 (lamb_chops)/1 (lamb_lean_chops)/1 (lamb_meat)/1	7					6	0,00	33,33	16,67	50,00	33,33	66,67
399	usual dinner	29	meat protein	general meat	(meat_minced)/4 (meat_tinned)/1	5			(gravy)/1 (salt)/1 (pepper)/1	3	5	40,00	20,00	20,00	20,00	60,00	40,00
400	usual dinner	30	meat protein	ribs	(ribs)/4 (pork_ribs)/1 (beef_ribs)/1	6			(BBQ_sauce)/2	2	5	40,00	60,00	0,00	0,00	100,00	0,00
401	usual dinner	31	meat protein	turkey	(turkey)/2 (turkey_breast)/1 (breaded_turkey)/1 (baked_turkey_legs)/1	5					4	0,00	37,50	37,50	25,00	37,50	62,50
402	usual dinner	32	meat protein	meatball	(meatballs)/2 (lean_meatballs)/1	3					3	0,00	33,33	66,67	0,00	33,33	66,67
403	usual dinner	33	meat protein	chorizo	(chorizo)/2	2					2	50,00	50,00	0,00	0,00	100,00	0,00
404	usual dinner	34	meat protein	duck	(duck)/1 (roasted_duck)/1 (pan_fried_duck_liver)/1	3					2	25,00	0,00	0,00	75,00	25,00	75,00
405	usual dinner	35	meat protein	wild venison	(venison)/1 (wild_venison)/1	2					2	0,00	0,00	50,00	50,00	0,00	100,00
406	usual dinner	36	meat protein	cured sausage	(cured_sausage)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
407	usual dinner	37	meat protein	pepperoni	(pepperoni_sausage)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
408	usual dinner	38	meat protein	salami	(salami)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
409	usual dinner	39	meat protein	black pudding	(black_pudding)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
410	usual dinner	40	meat protein	donner meat	(donner_meat)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
411	usual dinner	41	meat protein	plain burger	(burger_meat)/1	1			(ketchup)/1	1	1	0,00	100,00	0,00	0,00	100,00	0,00
412	usual dinner	42	meat protein	goose	(goose_liver)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
413	usual dinner	43	meat protein	veal	(veal_tenderloin_grilled)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
414	usual dinner	44	meat protein	sheep	(haggis)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
415	usual dinner	45	fish protein	general fish	(fish)/14 (fresh_fish)/1 (white_fish)/1 (breaded_fish)/2 (steamed_fish)/1 (grilled_fish)/1 (baked_fish)/1 (fried_fish)/2 (battered_fish)/5 (battered_fried_fish)/1 (youngs_chip_shop_battered_fish)/1 (fish_fillets_assorted)/1	31			(salt)/1 (vinegar)/1 (butter)/1 (lemon)/1	4	28	15,48	16,07	39,88	28,57	31,55	68,45
416	usual dinner	46	fish protein	salmon	(salmon)/24 (grilled_salmon)/1 (baked_salmon)/2 (smoked_salmon)/1 (pan_fried_salmon)/1	29			(dill_sauce)/1 (sweet_chili_sauce)/1 (soy_sauce)/1 (teryaki_sauce)/1	4	28	0,00	0,00	66,07	33,93	0,00	100,00
417	usual dinner	47	fish protein	tuna	(tuna)/9	9			(mayonnaise)/1	1	9	11,11	11,11	55,56	22,22	22,22	77,78
418	usual dinner	48	fish protein	cod	(cod)/7 (battered_cod)/1	8			(garlic)/1	1	8	12,50	12,50	50,00	25,00	25,00	75,00
419	usual dinner	49	fish protein	prawn	(prawns)/8	8			(garlic)/1	1	8	0,00	12,50	37,50	50,00	12,50	87,50
420	usual dinner	50	fish protein	fish finger	(fish_fingers)/7	7					7	28,57	57,14	14,29	0,00	85,71	14,29
421	usual dinner	51	fish protein	fish cake	(fish_cake)/5 (crab_cake)/1	6					6	16,67	33,33	50,00	0,00	50,00	50,00
422	usual dinner	52	fish protein	seabass	(seabass)/2 (pan_fried_seabass)/1	3			(teryaki_sauce)/1	1	3	0,00	0,00	66,67	33,33	0,00	100,00
423	usual dinner	53	fish protein	haddock	(haddock)/3	3					3	0,00	0,00	100,00	0,00	0,00	100,00
424	usual dinner	54	fish protein	mackerel	(mackerel)/2	2					2	0,00	0,00	0,00	100,00	0,00	100,00
425	usual dinner	55	fish protein	fish ball	(fish_ball)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
426	usual dinner	56	fish protein	trout	(trout)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
427	usual dinner	57	fish protein	sardine	(sardines)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
428	usual dinner	58	fish protein	herring	(herring)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
429	usual dinner	59	fish protein	squid	(salt_pepper_squid)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
430	usual dinner	60	vegetarian protein	simple egg (no other ingredients)	(eggs)/8 (steamed_eggs)/2 (fried_eggs)/2 (scrambled_eggs)/4 (poached_eggs)/2 (boiled_eggs)/1 (sunny_side_up_eggs)/1	20			(soy_sauce)/1 (sesame_oil)/1 (tomato_sauce)/1	3	18	27,78	5,56	42,59	24,07	33,33	66,67
431	usual dinner	61	vegetarian protein	beans	(beans)/8 (baked_beans)/5 (kidney_beans)/4 (cannellini_beans)/1	18					16	6,25	15,63	28,13	50,00	21,88	78,13
432	usual dinner	62	vegetarian protein	Quorn/mycoprotein	(Quorn)/2 (Quorn_chicken)/1 (Quorn_chicken_pieces)/1 (Quorn_mince)/2 (Quorn_chicken_nuggets)/1	7					6	8,33	25,00	50,00	16,67	33,33	66,67
433	usual dinner	63	vegetarian protein	lentils	(lentils)/5	5					5	0,00	0,00	20,00	80,00	0,00	100,00
434	usual dinner	64	vegetarian protein	nuts	(nuts)/1 (chestnuts)/1 (peanuts)/2 (cashews)/1 (almonds)/1	6					5	0,00	0,00	0,00	100,00	0,00	100,00
435	usual dinner	65	vegetarian protein	tofu	(tofu)/4 (fried_tofu)/1	5			(soy_sauce)/1 (mushroom_sauce)/1	2	5	20,00	0,00	0,00	80,00	20,00	80,00
436	usual dinner	66	vegetarian protein	dahl	(dahl)/2 (lentil_dahl)/1	3					3	0,00	0,00	100,00	0,00	0,00	100,00
437	usual dinner	67	vegetarian protein	falafel	(falafel)/3	3					3	0,00	0,00	66,67	33,33	0,00	100,00
438	usual dinner	68	vegetarian protein	chickpeas	(chickpeas)/3	3					2	0,00	0,00	100,00	0,00	0,00	100,00
439	usual dinner	69	vegetarian protein	vegetarian sausage	(Linda_Mc_Cartney_sausage)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
440	usual dinner	70	vegetarian protein	vegetarian plain burger	(Gosh_vegetarian_burger)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
441	usual dinner	71	vegetarian protein	legume	(legumes)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
442	usual dinner	72	vegetarian protein	seeds	(sesame_seeds)/1 (pumpkin_seeds)/1	2					1	0,00	0,00	0,00	100,00	0,00	100,00

all order	eating situation	eating situation order	general food category	basic food	types	type frequency	main ingredient type (meat, fish, vegetarian)	main ingredient subtype (chicken, prawns, tomatoes, curry)	accompaniments	accompaniments frequency	overall frequency (basic food)	% TF	% TO	% HF	% HO	% tasty	% healthy
443	usual dinner	73	vegetarian protein	whey protein	(whey_protein)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
444	usual dinner	74	dairy protein	cheese	(cheese)/15 (grilled_cheese)/2 (paneer)/1 (halloumi)/4 (halloumi_fried)/1 (cheddar)/2 (grated_cheddar)/1 (mozzarella)/3 (cow's_milk_cheese)/1 (goat's_cheese)/2 (feta)/5 (parmesan_cheese)/2 (cottage_cheese)/1 (philadelphia_cream_cheese)/1 (camembert)/1	42			(satay_sauce)/1	1	28	41,07	30,18	19,11	9,64	71,25	28,75
445	usual dinner	75	dairy protein	yogurt	(yogurt)/9 (plain_yogurt)/1 (blueberry_yogurt)/1	11					11	9,09	0,00	81,82	9,09	9,09	90,91
446	usual dinner	76	general vegetable	side salad	(salad)/32 (leafy_salad)/1 (green_salad)/2 (mixed_leaf_salad)/1	36			(vinegar)/1 (red_wine_vinegar)/1 (balsamic_vinegar)/1 (vinegar_dressing)/1 (olive_oil)/1 (extra_vergin_olive_oil)/2	7	36	0,00	2,78	59,72	37,50	2,78	97,22
447	usual dinner	77	general vegetable	vegetable	(vegetables)/10 (green_vegetables)/1 (boiled_vegetables)/2 (green_leafy_vegetables)/1 (green_boiled_vegetables)/1 (roasted_vegetables)/7 (pickled_vegetables)/3 (mediterranean_vegetables)/1 (fried_vegetables)/1 (steamed_vegetables)/2 (sainsburys_mixed_frozen_vegetables)/1 (mixed_vegetables)/2	32			(gravy)/1 (hummus)/1 (tomato_sauce)/1 (coconut_milk)/1	4	24	0,00	12,50	68,75	18,75	12,50	87,50
448	usual dinner	78	aboveground vegetable	tomatoes	(tomatoes)/25 (cherry_tomatoes)/1 (sundried_tomatoes)/1 (chopped_tomatoes)/2 (cherry_roast_tomatoes)/1	30					28	0,00	0,00	73,21	26,79	0,00	100,00
449	usual dinner	79	aboveground vegetable	broccoli	(broccoli)/24 (boiled_broccoli)/1 (roasted_broccoli)/1 (stir_fried_broccoli)/1	27			(soy_sauce)/1 (oyster_sauce)/2	3	26	0,00	0,00	75,00	25,00	0,00	100,00
450	usual dinner	80	aboveground vegetable	pepper/capsicum	(pepper)/16 (red_pepper)/1 (roasted_pepper)/1 (bell_pepper)/5	23					23	0,00	0,00	69,57	30,43	0,00	100,00
451	usual dinner	81	aboveground vegetable	mushroom	(mushrooms)/14 (baked_mushrooms)/1 (fried_mushrooms)/1	16					16	0,00	6,25	62,50	31,25	6,25	93,75
452	usual dinner	82	aboveground vegetable	peas	(peas)/12 (peas_garden)/1 (mushy_peas)/1	14					14	0,00	3,57	64,29	32,14	3,57	96,43
453	usual dinner	83	aboveground vegetable	spinach	(spinach)/11	11			(garlic)/1	1	12	0,00	0,00	66,67	33,33	0,00	100,00
454	usual dinner	84	aboveground vegetable	lettuce	(lettuce)/8 (sweet_lettuce)/1	9			(oyster_soy_sauce)/1 (sesame_oil)/1	2	9	0,00	0,00	77,78	22,22	0,00	100,00
455	usual dinner	85	aboveground vegetable	avocado	(avocado)/9	9					7	0,00	0,00	42,86	57,14	0,00	100,00
456	usual dinner	86	aboveground vegetable	cauliflower	(cauliflower)/6	6					6	0,00	0,00	50,00	50,00	0,00	100,00
457	usual dinner	87	aboveground vegetable	cucumber	(cucumber)/5	5					5	0,00	0,00	60,00	40,00	0,00	100,00
458	usual dinner	88	aboveground vegetable	green beans	(green_beans)/5	5					5	0,00	0,00	100,00	0,00	0,00	100,00
459	usual dinner	89	aboveground vegetable	sweet corn	(corn)/2 (corn_hob)/1 (sweet_corn)/2	7					5	0,00	0,00	60,00	40,00	0,00	100,00
460	usual dinner	90	aboveground vegetable	rocket	(rocket)/4	4				3	4	0,00	0,00	50,00	50,00	0,00	100,00
461	usual dinner	91	aboveground vegetable	olive	(olives)/4	4					4	0,00	0,00	75,00	25,00	0,00	100,00
462	usual dinner	92	aboveground vegetable	chili pepper	(chili_pepper)/1 (fresh_chili)/1 (jalapeno)/1	3					3	0,00	0,00	100,00	0,00	0,00	100,00
463	usual dinner	93	aboveground vegetable	aubergine/eggplant	(aubergine)/1 (roasted_aubergine)/1 (fried_aubergine)/1 (baked_aubergine)/1	4					3	16,67	0,00	50,00	33,33	16,67	83,33
464	usual dinner	94	aboveground vegetable	brussel sprouts	(brussel_sprouts)/3	3					3	0,00	0,00	33,33	66,67	0,00	100,00
465	usual dinner	95	aboveground vegetable	cabbage	(cabbage)/3	3			(garlic)/1	1	3	0,00	0,00	100,00	0,00	0,00	100,00
466	usual dinner	96	aboveground vegetable	bean sprouts	(bean_sprouts)/3	3			(chicken_stock)/1	1	3	0,00	0,00	66,67	33,33	0,00	100,00
467	usual dinner	97	aboveground vegetable	artichoke	(artichoke)/2	2					2	0,00	0,00	0,00	100,00	0,00	100,00
468	usual dinner	98	aboveground vegetable	kale	(kale)/2	2					2	0,00	0,00	50,00	50,00	0,00	100,00
469	usual dinner	99	aboveground vegetable	courgette/zucchini	(courgettes)/2	2					2	0,00	0,00	50,00	50,00	0,00	100,00
470	usual dinner	100	aboveground vegetable	chinese leaf	(chinese_leaf)/1	1			(oyster_sauce)/1 (soy_sauce)/1 (sesame_oil)/1	1	1	0,00	0,00	100,00	0,00	0,00	100,00
471	usual dinner	101	aboveground vegetable	fennel	(fennel)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
472	usual dinner	102	aboveground vegetable	leek	(leek)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
473	usual dinner	103	aboveground vegetable	pak choi	(pak choi)/1	1			(oyster_sauce)/1	1	1	0,00	0,00	0,00	100,00	0,00	100,00
474	usual dinner	104	aboveground vegetable	celery	(celery)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
475	usual dinner	105	below ground vegetable	carrot	(carrots)/17 (boiled_carrots)/1 (roasted_carrots)/2 (stir_fried_carrot)/1	21					20	0,00	0,00	62,50	37,50	0,00	100,00
476	usual dinner	106	below ground vegetable	onion	(onion)/13 (roasted_onion)/1 (spring_onion)/2 (red_onion)/1	17					15	0,00	0,00	63,33	36,67	0,00	100,00
477	usual dinner	107	below ground vegetable	asparagus	(asparagus)/4	4					4	0,00	0,00	25,00	75,00	0,00	100,00
478	usual dinner	108	below ground vegetable	turnip	(turnip)/3	3					3	0,00	0,00	33,33	66,67	0,00	100,00
479	usual dinner	109	below ground vegetable	garlic	(garlic)/2 (fried_garlic)/1	3					3	0,00	33,33	66,67	0,00	33,33	66,67
480	usual dinner	110	below ground vegetable	beetroot	(beetroot)/2	2					2	0,00	0,00	100,00	0,00	0,00	100,00
481	usual dinner	111	below ground vegetable	parsnip	(parsnip)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
482	usual dinner	112	general fruit	fruit salad	(fruit_salad)/4	4					4	0,00	0,00	50,00	50,00	0,00	100,00
483	usual dinner	113	general fruit	fruit/piece of fruit	(fruit)/2 (fruit_slices)/1	3					2	0,00	0,00	0,00	100,00	0,00	100,00
484	usual dinner	114	berry fruit	strawberry	(strawberries)/4	4					4	0,00	0,00	0,00	100,00	0,00	100,00
485	usual dinner	115	berry fruit	raspberry	(raspberry)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
486	usual dinner	116	berry fruit	blueberry	(blueberry)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
487	usual dinner	117	pit/core fruit	apple	(apple)/5	5					5	0,00	0,00	40,00	60,00	0,00	100,00
488	usual dinner	118	pit/core fruit	peach	(peach)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
489	usual dinner	119	citrus fruit	orange	(orange)/4	4					4	0,00	0,00	25,00	75,00	0,00	100,00
490	usual dinner	120	citrus fruit	grapes	(grapes)/3	3					3	0,00	0,00	33,33	66,67	0,00	100,00
491	usual dinner	121	citrus fruit	small orange	(mandarines)/1 (clementines)/1	2					2	0,00	0,00	0,00	100,00	0,00	100,00
492	usual dinner	122	melon fruit	melon	(melon)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
493	usual dinner	123	melon fruit	watermelon	(watermelon)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
494	usual dinner	124	tropical fruit	banana	(banana)/8	8					8	0,00	0,00	50,00	50,00	0,00	100,00

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495	usual dinner	125	tropical fruit	pineapple	(pineapple)/4	4					3	0,00	0,00	0,00	100,00	0,00	100,00
496	usual dinner	126	tropical fruit	plantain	(fried_plantain)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
497	usual dinner	127	tropical fruit	kiwi	(kiwi)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
498	usual dinner	128	tropical fruit	fig	(dried_figs)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
499	usual dinner	129	dried fruit	date	(dried_dates)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
500	usual dinner	130	baked dessert	cake	(cake)/3 (cheese_cake)/2 (baklava)/1 (chocolate_cake)/4 (chocolate_lava_cake)/1 (chocolate_sponge)/1	12					11	9,09	90,91	0,00	0,00	100,00	0,00
501	usual dinner	131	baked dessert	biscuit	(biscuits)/3	3					3	66,67	33,33	0,00	0,00	100,00	0,00
502	usual dinner	132	baked dessert	sweet pie	(sweet_pie)/1 (fruit_pie)/1 (apple_pie)/2	3					3	0,00	100,00	0,00	0,00	100,00	0,00
503	usual dinner	133	baked dessert	crumble	(apple_crumble)/1 (rhubarb_crumble)/1	2					1	0,00	100,00	0,00	0,00	100,00	0,00
504	usual dinner	134	baked dessert	muffin	(muffin)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
505	usual dinner	135	baked dessert	doughnut	(doughnut)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
506	usual dinner	136	baked dessert	crème brulee	(crème brulee)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
507	usual dinner	137	baked dessert	sweet waffle	(waffles)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
508	usual dinner	138	chilled dessert	ice cream	(ice_cream)/13 (ice_cream_chocolate)/1	14					13	15,38	84,62	0,00	0,00	100,00	0,00
509	usual dinner	139	chilled dessert	pudding	(rice_pudding)/3 (sticky_toffe_pudding)/1 (vegan_pudding)/1 (vegan_tapioca_pudding)/1	6					5	0,00	100,00	0,00	0,00	100,00	0,00
510	usual dinner	140	chilled dessert	tiramisu	(tiramisu)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
511	usual dinner	141	chilled dessert	mousse	(chocolate_mousse)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
512	usual dinner	142	confectionery	chocolate	(chocolate)/1 (chocolate_liquor_filled)/1 (chocolate_dark)/1 (chocolates)/1 (chocolate_bar)/1	5					5	40,00	60,00	0,00	0,00	100,00	0,00
513	usual dinner	143	confectionery	caramel	(caramel)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
514	usual dinner	144	confectionery	marshmallow	(marshmallows)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
515	usual dinner	145	other	custard	(custard)/1	1					2	0,00	100,00	0,00	0,00	100,00	0,00
516	usual dinner	146	carbs based dish	pasta dish	(pasta)/71 (white_pasta)/1 (homemade_pasta)/1 (gluten_free_pasta)/1 (wholewheat_pasta)/4 (whole_grain_pasta)/1 (brown_pasta)/1 (spaghetti)/8 (microwave_frozen_spaghetti)/1 (quick_cooked_filled_pasta)/1 (macaroni)/7 (fusilli)/1 (tagliatelle)/1 (fettuccine)/1 (pasta_bake)/8 (spaghetti)/12 (cannelloni)/1 (ravioli)/1 (pasta_salad)/1 (tagliatelle)/1 (lasagne)/25 (egg_pasta)/1	151	(meat)/54 (fish)/7 (vegetarian)/51 (N/A)/36	(sauce)/2 (bolognese)/19 (carbonara)/6 (tomato_sauce)/19 (creamy_tomato_sauce)/1 (vegetables)/3 (courgettes)/2 (courgette_sauce)/1 (zucchini)/1 (aubergine_sauce)/1 (pepper_sauce)/1 (sardine_tomato_sauce)/1 (mushroom)/1 (fried_mushroom)/1 (cheese)/12 (cream_sauce)/1 (creamy_broccoli_sauce)/1 (chicken)/1 (chicken_peppers_chopped_tomatoes_onion)/1 (chorizo)/1 (meatballs)/3 (bacon_mushroom_pesto_sauce)/1 (pesto)/2 (tuna)/4 (tuna_creamy_tomato_sauce)/1 (butternut_squash_anchovies)/1 (kale_halloumi)/1 (tomatoes_olives_pesto_jalapeno)/1	(ketchup)/1 (cheese)/2 (grated_cheese)/1 (onion)/2 (garlic)/2	6	74	28,51	29,90	31,40	10,18	58,42	41,58
517	usual dinner	147	carbs based dish	pizza	(pizza)/48 (takeaway_pizza)/2 (homemade_pizza)/7 (fried_pizza)/1 (shop_bought_pizza)/1	59	(vegetarian)/4 (vegan)/1 (meat)/6 (N/A)/47	(margherita)/1 (vegetable)/2 (vegan_cheese)/1 (pepperoni)/4 (smoked_sausage)/1 (cheese)/1	(bbq_sauce)/1	1	53	35,85	58,49	2,83	2,83	94,34	5,66
518	usual dinner	148	carbs based dish	noodle dish	(noodles)/12 (fried_noodles)/1 (udon)/1 (fried_udon)/2 (instant_noodles)/1 (package_noodles)/1 (home_made_chow_mein)/1 (egg_noodles)/2 (buckwheat_noodles)/1 (homemade_noodles)/1 (chineese_noodles)/1 (wholewheat_noodles)/1	25	(meat)/3 (vegetarian)/3 (N/A)/19	(sauce)/1 (pork_vegetables_mushroom)/1 (chicken_vegetables_mushroom)/1 (black_bean_sauce)/1 (peanuts_tofu)/1 (vegetables)/1 (chicken)/1			22	18,18	22,73	47,73	11,36	40,91	59,09
519	usual dinner	149	carbs based dish	rice dish	(rice)/3 (white_rice)/1 (fried_rice)/7 (egg_fried_rice)/1 (biryani)/1 (risotto)/10 (paella)/1	24	(meat)/3 (fish)/1 (vegetarian)/9 (N/A)/11	(chicken)/1 (chowder_sauce)/1 (vegetables)/2 (peanuts)/1 (egg_beef_broccoli)/1 (creamy_sauce)/1 (mushrooms)/3 (chicken_mushrooms)/1 (mixed_seafood)/1	(butter)/1 (soy_sauce)/1 (chilli_sauce)/1	2	18	25,00	30,56	25,00	19,44	55,56	44,44
520	usual dinner	150	carbs based dish	baked/jacket potato	(baked_potato)/7 (jacket_potato)/2	9	(vegetarian)/2 (meat)/1 (N/A)/9	(cheese)/2 (chilli)/1	(butter)/2		9	0,00	0,00	44,44	55,56	0,00	100,00
521	usual dinner	151	carbs based dish	savoury pie	(pie)/8 (savoury_pie)/1	9	(meat)/5 (fish)/1 (vegetarian)/1 (N/A)/2	(chicken)/3 (Quorn_chicken_leek)/1 (steak)/1	(cream)/1 (gravy)/2	3	8	62,50	37,50	0,00	0,00	100,00	0,00
522	usual dinner	152	carbs based dish	pastry/bake/pasty	(pasty)/1 (pastry)/1 (pastry_roll)/1 (puff_pastry)/1 (Greggs_bake)/1	5	(meat)/1 (vegetarian)/2 (N/A)/2	(salad_bean)/1 (vegetarian_sausage)/1 (steak)/1			5	0,00	50,00	50,00	0,00	50,00	50,00
523	usual dinner	153	carbs based dish	quiche/tart	(quiche)/4 (pastry_tart)/1	5	(vegetarian)/3 (N/A)/2	(broccoli)/1 (feta_pine_nut)/1 (vegetables_cheese)/1			5	60,00	40,00	0,00	0,00	100,00	0,00
524	usual dinner	154	carbs based dish	dumpling	(dumplings)/1 (fried_dumplings)/1 (Ukrainian_dumplings)/1 (gyoza)/1	4	(N/A)/4				4	0,00	50,00	25,00	25,00	50,00	50,00
525	usual dinner	155	carbs based dish	cous cous dish	(cous_cous)/5	5	(vegetarian)/5	(mint_parsley_tomatoes_onion_garlic_olive_oil_lime)/1 (mushroom_cream)/1 (broccoli)/1 (vegetables)/1 (peppers)/1			4	12,50	0,00	87,50	0,00	12,50	87,50

all order	eating situation	eating situation order	general food category	basic food	types	type frequency	main ingredient type (meat, fish, vegetarian)	main ingredient subtype (chicken, prawns, tomatoes, curry)	accompaniments	accompaniments frequency	overall frequency (basic food)	% TF	% TO	% HF	% HO	% tasty	% healthy
526	usual dinner	156	carbs based dish	roll/samosa	(vietnamese_rolls)/1 (cabbage_rolls)/1 (spring_rolls)/3	5	(vegetarian)/2 (N/A)/3	(vegetables)/1 (baked_vegetables)/1			4	25,00	0,00	0,00	75,00	25,00	75,00
527	usual dinner	157	carbs based dish	gnocchi dish	(gnocchi)/3	3	(vegetarian)/2 (N/A)/1	(tomato_sauce)/1 (vegetables_cheese)/1			3	33,33	33,33	33,33	0,00	66,67	33,33
528	usual dinner	158	carbs based dish	nachos	(nachos)/2	2	(vegetarian)/2	(guacamole_salsa)/1 (salsa_guacamole_soured_cream)/1			2	0,00	100,00	0,00	0,00	100,00	0,00
529	usual dinner	159	carbs based dish	quinoa dish	(quinoa)/1	1	(vegetarian)/1	(vegetables)/1			1	0,00	0,00	0,00	100,00	0,00	100,00
530	usual dinner	160	carbs based dish	samosa	(samosa)/1	1	(N/A)/1				1	0,00	100,00	0,00	0,00	100,00	0,00
531	usual dinner	161	protein based dish	egg dish	(scrambled_eggs)/2 (baked_egg_in_avocado)/1 (shakshouka)/1 (omelette)/10 (spanish_omelette)/1	15	(meat)/3 (vegetarian)/4 (N/A)/8	(ham_cheese_onion)/1 (bacon)/1 (vegetable)/1 (chorizo)/1 (potatoes)/1			14	35,71	17,86	25,00	21,43	53,57	46,43
532	usual dinner	162	protein based dish	fish and chips	(fish_chips)/2 (battered_fish_chips)/1	3	(fish)/1				3	33,33	66,67	0,00	0,00	100,00	0,00
533	usual dinner	163	protein based dish	mince and tatties	(mince_tatties)/1	1	(meat)/1				1	0,00	0,00	100,00	0,00	0,00	100,00
534	usual dinner	164	protein based dish	minced pork and spicy eggplant	(spicy_eggplant_minced_pork)/1	1	(meat)/1				1	0,00	100,00	0,00	0,00	100,00	0,00
535	usual dinner	165	protein based dish	shepherd/cottage pie	(shepherd_pie)/1	1	(meat)/1				1	0,00	100,00	0,00	0,00	100,00	0,00
536	usual dinner	166	protein based dish	palak paneer	(palak_paneer)/1	1	(vegetarian)/1				1	0,00	0,00	0,00	100,00	0,00	100,00
537	usual dinner	167	vegetable based dish	cauliflower cheese bake	(cauliflower_cheese_bake)/4	4	(vegetarian)/4	(cauliflower)/4			4	25,00	0,00	25,00	50,00	25,00	75,00
538	usual dinner	168	complex dish (e.g., could be either carbs, proteins, or vegetables or a mix of these)	burger and bun	(burger)/34 (lean_burger)/1 (hamburger)/4 (cheese_burger)/3 (Mc_Donalds_Big_Mac)/1 (patty_cake)/1	44	(meat)/35 (fish)/1 (vegetarian)/8	(beef)/8 (pork)/1 (bean)/1 (Quorn_mycoprotein_chicken)/1 (venison)/1 (bean)/1 (fried_vegetable_feta)/1	(hot_sauce)/1 (ketchup)/1 (cheese)/1 (lettuce)/1	4	38	18,95	60,61	11,40	6,58	79,56	17,98
539	usual dinner	169	complex dish (e.g., could be either carbs, proteins, or vegetables or a mix of these)	curry	(curry)/45 (takeaway_curry)/1 (thai_green_curry)/1 (indian_curry)/1 (home_made_curry)/3 (ready_meal_curry)/2 (tikka_masala)/2 (korma)/2	57	(meat)/23 (fish)/1 (vegetarian)/19 (N/A)/17	(lamb)/4 (chicken)/17 (vegetables)/4 (butter_bean)/1 (chickpea_mushroom)/1 (butter_chicken)/1 (butternut_squash)/1 (chickpea)/3 (coconut)/1 (lentil)/2 (red_lentil)/1 (green_lentil)/1 (Quorn_chicken_pieces)/1 (spinach_potato)/1			37	30,63	25,90	30,63	12,84	56,53	43,47
540	usual dinner	170	complex dish (e.g., could be either carbs, proteins, or vegetables or a mix of these)	soup	(soup)/37 (borsch)/1 (canned_soup)/2 (chinease_soup)/1 (shanghainese_noodle_soup)/1 (kadhi_soup)/1 (broth)/2 (tom_yum)/1	46	(meat)/5 (fish)/1 (N/A)/12 (vegetarian)/28	(lentil)/3 (split_peas)/1 (orzo)/1 (broccoli)/1 (carrot)/1 (sweet_potato)/1 (vegetables)/10 (tomato)/5 (pork_vegetables)/1 (smoked_mackerel_cream_of_tomato_spaghetti)/1 (mushroom)/1 (spiced_yogurt)/1 (butternut_squash)/1 (chicken)/3 (chicken_noodle)/1 (chickpea)/1			34	2,94	11,76	31,37	53,92	14,71	85,29
541	usual dinner	171	complex dish (e.g., could be either carbs, proteins, or vegetables or a mix of these)	meal salad	(salad)/22 (garden_salad)/1	23	(meat)/2 (fish)/5 (vegetarian)/16	(chicken)/1 (tuna)/1 (tuna_feta)/1 (cous_cous)/4 (quinoa)/1 (vegetables)/4 (roasted_vegetables)/1 (tuna_tomatoes)/2 (carrots_cucumber_tomato)/1 (corn_avocado)/1 (chicken_green_leafs)/1 (lettuce_onion_pepper_cucumber_grapes)/1 (leafy_salad_peppers)/1 (mozzarella)/1 (prawn)/1	(olive_oil)/1 (mayonnaise)/1	2	21	4,76	0,00	54,76	40,48	4,76	95,24
542	usual dinner	172	complex dish (e.g., could be either carbs, proteins, or vegetables or a mix of these)	sandwich	(bread)/11 (sandwich)/11 (bruschetta)/1 (panini)/1 (toastie)/1 (toast)/5 (hot_dog)/3	33	(meat)/9 (fish)/4 (vegetarian)/14 (vegan)/1 (N/A)/5	(chicken_cheese_vegetables)/1 (ham_cheese)/4 (vegetables)/2 (cheese)/4 (gouda_cheese)/1 (ham)/1 (tuna)/1 (fish_finger)/1 (bacon)/1 (potato_scone)/1 (hasbrowns)/1 (fish_pate)/1 (avocado)/1 (cheddar)/1 (brie)/1 (cream_cheese)/1 (pate)/1 (tuna_pate)/1 (pot_sticker_mushrooms)/1	(butter)/2 (ketchup)/3	5	20	48,57	23,10	24,17	4,17	71,67	28,33
543	usual dinner	173	complex dish (e.g., could be either carbs, proteins, or vegetables or a mix of these)	wrap	(tacos)/2 (tacos_shells)/1 (fajitas)/6 (wrap)/3 (tortilla_wrap)/6 (burrito)/4	22	(meat)/7 (fish)/1 (vegetarian)/5 (vegan)/1 (N/A)/8	(chilli)/1 (chicken)/2 (chicken_salad)/1 (chicken_and_salad)/1 (chicken_vegetables_rice)/1 (refried_bean)/1 (steak)/1 (tzatziki_dip_cucumber_carrots)/1 (cheese)/1 (tomatoes)/1 (vegetables)/1	(sour_cream)/1 (garlic_sauce)/1 (salsa)/1 (soured_cream)/1	4	16	18,75	31,25	31,25	18,75	50,00	50,00
544	usual dinner	174	complex dish (e.g., could be either carbs, proteins, or vegetables or a mix of these)	stir fry	(stir_fry)/21	21	(meat)/7 (vegetarian)/12 (N/A)/2	(chicken)/2 (chicken_vegetables)/1 (beef)/2 (minced_beef_cucumber)/1 (pork_loin)/1 (vegetables)/5 (oriental_vegetables)/1 (vegetable_noodle)/2 (butternut_squash_port)/1 (noodles)/2 (tempe)/1	(bean_sauce)/1 (black_bean_sauce)/1 (soy_sauce)/2 (oyster_sauce)/2 (sesame_oil)/1	7	15	16,67	13,33	35,00	35,00	30,00	70,00

all order	eating situation	eating situation order	general food category	basic food	types	type frequency	main ingredient type (meat, fish, vegetarian)	main ingredient subtype (chicken, prawns, tomatoes, curry)	accompaniments	accompaniments frequency	overall frequency (basic food)	% TF	% TO	% HF	% HO	% tasty	% healthy
545	usual dinner	175	complex dish (e.g., could be either carbs, proteins, or vegetables or a mix of these)	stew	(stew)/11 (nigerian_abeokuta_stew)/1 (nigerian_stew)/1	13	(meat)/4 (vegetarian)/5 (N/A)/4	(meat_potato)/1 (beef)/1 (sausage)/1 (chickpea_green_pepper_tomato)/1 (chicken_vegetable_coconut_milk)/1 (vegetables)/3 (carrotes)/1			12	4,17	8,33	66,67	20,83	12,50	87,50
546	usual dinner	176	complex dish (e.g., could be either carbs, proteins, or vegetables or a mix of these)	chilli	(chilli)/9	9	(meat)/5 (vegetarian)/4	(beef)/1 (carne)/4 (lentil)/1 (vegetables)/1 (soya_mince_vegetables)/1			9	33,33	11,11	11,11	44,44	44,44	55,56
547	usual dinner	177	complex dish (e.g., could be either carbs, proteins, or vegetables or a mix of these)	sushi	(sushi)/1 (mixed_sushi)/1 (kimbap)/1 (tuna_roll)/1	4	(fish)/2 (N/A)/2		(soy_sauce)/1	1	4	0,00	25,00	0,00	75,00	25,00	75,00
548	usual dinner	178	complex dish (e.g., could be either carbs, proteins, or vegetables or a mix of these)	casserole	(casserole)/4	4	(meat)/4	(beef)/1 (lamb_dumplings)/1 (beef_black_bean_sausage)/1 (chicken_chorizo_spinach)/1			4	0,00	25,00	25,00	50,00	25,00	75,00
549	usual dinner	179	complex dish (e.g., could be either carbs, proteins, or vegetables or a mix of these)	moussaka	(moussaka)/1 (vegetarian_moussaka)/1	2	(meat)/1 (vegetarian)/1	(lamb)/1 (vegetables)/1			2	0,00	0,00	0,00	100,00	0,00	100,00
550	usual dinner	180	complex dish (e.g., could be either carbs, proteins, or vegetables or a mix of these)	fritters	(fritters)/2	2	(vegetarian)/2	(courgette)/1 (vegetables)/1			2	50,00	0,00	0,00	50,00	50,00	50,00
551	usual dinner	181	complex dish (e.g., could be either carbs, proteins, or vegetables or a mix of these)	ramen	(korean_spicy_cold_ramen)/1	1	(N/A)/1				1	0,00	100,00	0,00	0,00	100,00	0,00
552	usual dinner	182	complex dish (e.g., could be either carbs, proteins, or vegetables or a mix of these)	enchilladas	(enchilladas)/1	1	(meat)/1	(chicken)/1			1	0,00	100,00	0,00	0,00	100,00	0,00
553	usual dinner	183	complex dish (e.g., could be either carbs, proteins, or vegetables or a mix of these)	pakora	(pakora)/1	1	(vegetarian)/1	(vegetables)/1			1	0,00	100,00	0,00	0,00	100,00	0,00
554	usual dinner	184	ethnic food	chinese	(chinese)/1	1	(N/A)/1				1	100,00	0,00	0,00	0,00	100,00	0,00
555	usual dinner	185	ethnic food	greek	(greek_recipes)/1	1	(vegetarian)/1	(vegetables)/1	(olive_oil)/1	1	1	0,00	0,00	100,00	0,00	0,00	100,00
556	usual dinner	186	other	microwave meal	(microwave_meal)/1	1	(N/A)/1				1	0,00	100,00	0,00	0,00	100,00	0,00
557	usual dinner	187	cold drink	soft drink	(soft_drink)/4 (soft_drink_no_sugar)/1 (Coca_Cola)/10 (Coca_Cola_diet)/3 (Fanta)/1 (lemonade)/1 (Orangeade)/1 (Irn_Bru)/4 (Diet_Irn_Bru)/1 (elderflower_cordial)/1 (Pepsi)/3 (ginger_beer)/1	31					25	34,00	62,00	4,00	0,00	96,00	4,00
558	usual dinner	188	cold drink	iced tea	(iced_tea)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
559	usual dinner	189	cold drink	energy drink	(energy_drink)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
560	usual dinner	190	juice	fruit juice	(juice)/3 (fruit_juice)/5 (orange_juice)/4 (blackcurrant_juice)/1 (fizzy_juice)/1 (lychee_juice)/1	15					15	0,00	26,67	20,00	53,33	26,67	73,33
561	usual dinner	191	juice	squash/diluting juice	(squash)/1 (diluting_juice)/1	2			(water)/1		2	100,00	0,00	0,00	0,00	100,00	0,00
562	usual dinner	192	blend	shake	(protein_shake)/1 (whey_protein_shake)/1	2					2	0,00	0,00	100,00	0,00	0,00	100,00
563	usual dinner	193	water/hot drink	water	(water)/34 (tap_water)/4 (sparkling_water)/4 (still_water)/6	48					46	0,00	0,00	88,04	11,96	0,00	100,00
564	usual dinner	194	water/hot drink	tea	(tea)/14 (green_tea)/5 (white_tea)/1 (herbal_tea)/2 (fruit_tea)/1 (camomile)/1 (rooibos_tea)/1 (peppermint_tea)/1	26			(sugar)/2 (milk)/2	4	23	8,70	0,00	54,35	36,96	8,70	91,30
565	usual dinner	195	water/hot drink	coffee	(coffee)/5	5					6	16,67	33,33	33,33	16,67	50,00	50,00
566	usual dinner	196	water/hot drink	hot chocolate	(hot_chocolate)/2	2					2	50,00	50,00	0,00	0,00	100,00	0,00
567	usual dinner	197	alcoholic drink	wine	(wine)/18 (white_wine)/3 (red_wine)/4 (ginger_wine)/1	26					24	33,33	45,83	0,00	20,83	79,17	20,83
568	usual dinner	198	alcoholic drink	beer	(beer)/21 (bottle_beer)/2 (lager)/2	25					24	29,17	70,83	0,00	0,00	100,00	0,00
569	usual dinner	199	alcoholic drink	cider	(cider)/3	3					3	33,33	66,67	0,00	0,00	100,00	0,00
570	usual dinner	200	alcoholic drink	spirit/liquor	(whisky)/1 (gin)/1 (baileys)/1	3					2	0,00	100,00	0,00	0,00	100,00	0,00
571	usual dinner	201	alcoholic drink	cocktail	(spirit_lemonade)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
572	usual dinner	202	dairy drink/alternative	milk	(milk)/9 (skimmed_milk)/1 (chocolate_milk)/1 (low_fat_milk)/1	12					11	0,00	22,73	63,64	13,64	22,73	77,27
573	usual dinner	203	dairy drink/alternative	plant based milk	(coconut_milk)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
574	usual dinner	204	basic condiment	oil	(olive_oil)/6 (evoo)/1 (sesame_oil)/1 (coconut_oil)/1 (fry_light_oil)/1	10					9	22,22	5,56	66,67	5,56	27,78	72,22
575	usual dinner	205	basic condiment	vinegar	(vinegar)/4	4					4	50,00	0,00	0,00	50,00	50,00	50,00
576	usual dinner	206	basic condiment	salt	(salt)/3 (LO_salt)/1	4					3	66,67	16,67	16,67	0,00	83,33	16,67
577	usual dinner	207	basic condiment	sugar/sweetner	(sweetner)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
578	usual dinner	208	dressing/sauce	pesto	(pesto)/3 (green_pesto)/1 (red_pesto)/1 (home_made_basil_pesto)/1	6					5	60,00	20,00	0,00	20,00	80,00	20,00
579	usual dinner	209	dressing/sauce	tomato sauce	(tomato_sauce)/3	3					3	33,33	0,00	66,67	0,00	33,33	66,67
580	usual dinner	210	dressing/sauce	bolognese/ragu	(bolognese)/1 (beef_ragu)/1 (veggie_bolognese_Quorn)/1	3					3	33,33	0,00	33,33	33,33	33,33	66,67
581	usual dinner	211	dressing/sauce	curry sauce	(curry_sauce)/3	3					3	100,00	0,00	0,00	0,00	100,00	0,00
582	usual dinner	212	dressing/sauce	soy sauce	(soy_sauce)/1 (soy_sauce_indonesian)/1	2					2	100,00	0,00	0,00	0,00	100,00	0,00
583	usual dinner	213	dressing/sauce	salad cream/dressing	(salad_cream)/1 (salad_dressing)/1	2					2	50,00	0,00	0,00	50,00	50,00	50,00
584	usual dinner	214	dressing/sauce	red hot sauce	(red_hot_sauce)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00

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585	usual dinner	215	dressing/sauce	chili sauce	(chili_sauce)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
586	usual dinner	216	dressing/sauce	cream sauce	(cream_sauce)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
587	usual dinner	217	dressing/sauce	peppercorn sauce	(peppercorn_sauce)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
588	usual dinner	218	dressing/sauce	pepper sauce	(pepper_sauce)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
589	usual dinner	219	dressing/sauce	brown sauce	(brown_sauce)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
590	usual dinner	220	dressing/sauce	gravy	(gravy)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
591	usual dinner	221	dressing/sauce	pasta sauce	(pasta_sauce)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
592	usual dinner	222	dressing/sauce	cream sauce	(creamy_sauce)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
593	usual dinner	223	dressing/sauce	hunter's chicken sauce	(hunter's_chicken_pre_made_sauce)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
594	usual dinner	224	dip/spread/topping	mayonnaise	(mayonnaise)/5 (mayonnaise_low_fat)/1	6					6	16,67	66,67	0,00	16,67	83,33	16,67
595	usual dinner	225	dip/spread/topping	ketchup	(ketchup)/5	5					5	40,00	60,00	0,00	0,00	100,00	0,00
596	usual dinner	226	dip/spread/topping	butter	(butter)/4	4					4	50,00	25,00	25,00	0,00	75,00	25,00
597	usual dinner	227	dip/spread/topping	hummus	(hummus)/3	3					3	0,00	0,00	66,67	33,33	0,00	100,00
598	usual dinner	228	dip/spread/topping	guacamole salsa	(guacamole_salsa)/2	2					2	0,00	0,00	50,00	50,00	0,00	100,00
599	usual dinner	229	dip/spread/topping	sweet and sour	(sweet_sour)/1 (uncle_ben's_sweet_sour)/1	2					2	0,00	50,00	0,00	50,00	50,00	50,00
600	usual dinner	230	dip/spread/topping	mustard	(mustard)/2	2					2	50,00	50,00	0,00	0,00	100,00	0,00
601	usual dinner	231	dip/spread/topping	salsa	(salsa)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
602	usual dinner	232	dip/spread/topping	peanut butter	(peanut_butter)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
603	usual dinner	233	dip/spread/topping	nutella	(nutella)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
604	usual dinner	234	herb/spice	herb	(herbs)/1 (fresh_green_herbs)/1 (fresh_coriander)/1 (basil)/1 (fresh_basil)/1 (fresh_dill)/1 (fresh_parsley)/1	7					3	0,00	0,00	66,67	33,33	0,00	100,00
605	usual dinner	235	other	cream	(cream)/4 (double_cream)/1 (whipped_cream)/1	6					6	16,67	66,67	0,00	16,67	83,33	16,67
606	usual dinner	236	other	stock	(meat_stock)/1 (oxo_cube)/1	2					2	50,00	50,00	0,00	0,00	100,00	0,00
607	day time snack	1	flour-based baked food	bread	(bread)/15 (white_bread)/3 (wholemeal_bread)/1 (brown_bread)/2 (white_roll)/3 (white_crusty_roll)/1 (white_bread)/1 (fruit_bread)/1 (toast)/19 (white_toast)/1 (brown_toast)/2 (baguette)/1 (white_baguette)/1 (garlic_bread)/1 (cheese_bread)/1 (wholemeal_pitta)/1 (rye_bread)/1 (bagel)/1	56			(butter)/16 (olive_oil)/1 (almond_butter)/2 (peanut_butter)/2 (jam)/2 (hummus)/3 (chocolate_spread)/1 (low_fat_spread)/1 (marmalade)/1 (nutella)/1 (marmite)/1	31	41	41,67	31,91	16,67	9,76	73,58	26,42
608	day time snack	2	flour-based baked food	oatcake	(oatcakes)/13 (store_oatcakes)/1 (home_baked_oatcakes)/1	15			(peanut_butter)/1 (dark_chocolate_spread)/1 (chutney)/1 (cheese)/1 (cheese)/1 (rocket)/1	6	14	0,00	17,86	46,43	35,71	17,86	82,14
609	day time snack	3	flour-based baked food	cracker	(crackers)/4 (salted_crackers)/1 (salt_pepper_crackers)/1 (salt_vinegar_crackers)/1 (cream_crackers)/2 (sweet_crackers)/1	10					8	31,25	25,00	25,00	18,75	56,25	43,75
610	day time snack	4	flour-based baked food	rice cake	(rice_cakes)/5 (Snack_and_jacks)/1 (chocolate_covered_rice_cakes)/1	7					7	0,00	14,29	28,57	57,14	14,29	85,71
611	day time snack	5	flour-based baked food	crisp bread	(ryvita)/2	2			(hummus)/1	1	2	0,00	0,00	50,00	50,00	0,00	100,00
612	day time snack	6	flour-based baked food	bread sticks	(bread_sticks)/1	1			(hummus)/1	1	1	0,00	100,00	0,00	0,00	100,00	0,00
613	day time snack	7	flour-based baked food	scone	(scone)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
614	day time snack	8	grain	popcorn	(pop_corn)/3 (salted_popcorn)/1	4					4	0,00	75,00	25,00	0,00	75,00	25,00
615	day time snack	9	grain	tortilla chips	(tortillas)/1 (tortilla_chips)/1 (Doritos)/2	4					4	0,00	100,00	0,00	0,00	100,00	0,00
616	day time snack	10	grain	corn snack	(roasted_corn_snack)/1 (baked_corn_snack)/1	2					2	0,00	0,00	0,00	100,00	0,00	100,00
617	day time snack	11	grain	side rice	(white_rice)/1	1			(chicken_stock)/1	1	1	0,00	0,00	100,00	0,00	0,00	100,00
618	day time snack	12	cereal	breakfast cereal	(cereal)/5 (cheerios)/1 (rice_crispies)/1 (shreddies)/1 (corn_flakes)/1 (bran_flakes)/1	10			(milk)/3 (soy_milk)/2	5	9	0,00	22,22	33,33	44,44	22,22	77,78
619	day time snack	13	cereal	oats	(oats)/2 (porridge)/1 (oatmeal)/2	5			(milk)/1 (yogurt)/1	2	5	0,00	0,00	40,00	60,00	0,00	100,00
620	day time snack	14	cereal	granola	(granola)/2	2					2	0,00	0,00	50,00	50,00	0,00	100,00
621	day time snack	15	starchy vegetable	crisps	(crisps)/46 (salt_vinegar_crisps)/2 (cheese_onion_crisps)/2 (Pringles)/1 (Walker_chips)/1 (Walker_cheese_onion_crisps)/1 (Kettle_chips_salt_vinegar)/1 (Kettle_chips_BBQ)/1 (Maccoy's_cheese_onion)/1	56					53	46,70	53,30	0,00	0,00	100,00	0,00
622	day time snack	16	starchy vegetable	fries/chips	(fries)/3 (french_fries)/1 (chips)/6 (sweet_potato_chips)/1	9			(ketchup)/2 (mustard)/1 (brown_sauce)/1 (cheese)/1	5	11	45,45	45,45	0,00	9,09	90,91	9,09
623	day time snack	17	starchy vegetable	potato scone	(potato_scone)/3	3					3	33,33	66,67	0,00	0,00	100,00	0,00
624	day time snack	18	starchy vegetable	side potatoes	(sweet_potatoes)/1 (boiled_potatoes)/1	2					2	0,00	0,00	50,00	50,00	0,00	100,00
625	day time snack	19	starchy vegetable	mashed potato	(mashed_potato)/2	2			(cheese)/1 (milk)/1	2	1	0,00	50,00	0,00	50,00	50,00	50,00
626	day time snack	20	meat protein	ham	(ham)/5 (ham_slices)/1	6					6	50,00	16,67	33,33	0,00	66,67	33,33
627	day time snack	21	meat protein	chicken	(chicken_breast)/1 (deep_fried_chicken)/1 (sliced_chicken)/1 (chicken_nuggets)/1 (sausage)/2	4					4	0,00	50,00	0,00	50,00	50,00	50,00
628	day time snack	22	meat protein	sausage	(square_sausage)/1 (grilled_sausage)/1	4					3	0,00	83,33	16,67	0,00	83,33	16,67
629	day time snack	23	meat protein	bacon	(bacon)/3 (grilled_bacon)/1	4					3	66,67	16,67	16,67	0,00	83,33	16,67

all order	eating situation	eating situation order	general food category	basic food	types	type frequency	main ingredient type (meat, fish, vegetarian)	main ingredient subtype (chicken, prawns, tomatoes, curry)	accompaniments	accompaniments frequency	overall frequency (basic food)	% TF	% TO	% HF	% HO	% tasty	% healthy
630	day time snack	24	meat protein	beef	(corn_beef)/1 (commercial_beef_jerky)/1	2					2	0,00	100,00	0,00	0,00	100,00	0,00
631	day time snack	25	meat protein	general meat	(cold_meat)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
632	day time snack	26	meat protein	salami	(salami)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
633	day time snack	27	meat protein	cabanossi	(cabanossi)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
634	day time snack	28	meat protein	pepperoni	(pepperoni)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
635	day time snack	29	meat protein	hotdog	(cocktails_weenies)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
636	day time snack	30	meat protein	meatball	(meatballs)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
637	day time snack	31	meat protein	duck	(duck)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
638	day time snack	32	meat protein	chorizo	(chorizo)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
639	day time snack	33	fish protein	tuna	(tuna)/4 (tuna)/1	5			(mayonnaise)/1	1	5	20,00	0,00	40,00	40,00	20,00	80,00
640	day time snack	34	fish protein	general fish	(battered_fish)/1	1			(lemon)/1		1	0,00	100,00	0,00	0,00	100,00	0,00
641	day time snack	35	fish protein	shellfish	(steamed_shellfish)/1 (baked_shellfish)/1	2					1	0,00	0,00	0,00	100,00	0,00	100,00
642	day time snack	36	fish protein	sardine	(sardines)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
643	day time snack	37	fish protein	squid	(salt_pepper_squid)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
644	day time snack	38	fish protein	salmon	(smoked_salmon)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
645	day time snack	39	vegetarian protein	nuts	(nuts)/16 (mixed_nuts)/1 (honey_glazed_nuts)/1 (hazelnuts)/1 (raw_hazelnuts)/1 (brazilian_nuts)/4 (pecan_nuts)/2 (pistachio_nuts)/1 (cashew_nuts)/5 (peanuts)/6 (salted_peanuts)/2 (crunchy_coated_peanuts)/1 (almond_nuts)/7 (walnuts)/1 (pine_nuts)/1	49			(salt)/1	1	36	4,17	6,48	62,04	27,31	10,65	89,35
646	day time snack	40	vegetarian protein	simple egg (no extra ingredients)	(eggs)/2 (scrambled_eggs)/1 (fired_egg)/2 (boiled_eggs)/2 (poached_eggs)/2	9					7	0,00	21,43	28,57	50,00	21,43	78,57
647	day time snack	41	vegetarian protein	seeds	(seeds)/2 (sunflower_seeds)/1 (pumpkin_seeds)/1	4					3	0,00	0,00	66,67	33,33	0,00	100,00
648	day time snack	42	vegetarian protein	beans	(tinned_beans)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
649	day time snack	43	vegetarian protein	nut/seed mix	(nut_seed_mix)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
650	day time snack	44	dairy protein/alternative	yogurt	(yogurt)/21 (greek_yogurt)/1 (full_fat_natural_yogurt)/1 (low_fat_yogurt)/2 (chocolate_yogurt)/1 (fruit_yogurt)/1	27			(honey)/2 (fruit_jam)/1	3	26	1,92	3,85	48,08	46,15	5,77	94,23
651	day time snack	45	dairy protein/alternative	cheese	(cheese)/17 (cheese_slices)/1 (cheese_spread)/1 (full_fat_cheese)/1 (cottage_cheese)/1 (cheese_strings)/1 (babybel)/1 (soft_goats_cheese)/1 (smoked_cheese)/1 (brie)/1 (cheddar)/1	27					23	43,48	17,39	29,71	9,42	60,87	39,13
652	day time snack	46	dairy protein/alternative	yakult	(yakult)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
653	day time snack	47	general vegetable	side salad	(salad)/6	6			(italian_dressing)/1	1	6	0,00	0,00	16,67	83,33	0,00	100,00
654	day time snack	48	general vegetable	vegetable	(vegetable_sticks)/1 (raw_vegetables)/1	2					2	0,00	0,00	50,00	50,00	0,00	100,00
655	day time snack	49	general vegetable	seaweed	(wasabi_toasted_seaweed_snack)/1 (dried_seaweed_snack)/1	2					2	0,00	0,00	50,00	50,00	0,00	100,00
656	day time snack	50	general vegetable	vegetable crisps	(vegetable_crisps)/2 (tomatoes)/4	2					2	0,00	50,00	0,00	50,00	50,00	50,00
657	day time snack	51	above ground vegetable	tomatoes	(plum_tomatoes)/1 (grilled_tomatoes)/1 (cherry_tomatoes)/2	8					8	0,00	0,00	37,50	62,50	0,00	100,00
658	day time snack	52	above ground vegetable	cucumber	(cucumber)/5 (pepper)/3	5					5	0,00	0,00	40,00	60,00	0,00	100,00
659	day time snack	53	above ground vegetable	pepper	(red_peppers)/1 (raw_pepper)/1	5					5	0,00	0,00	80,00	20,00	0,00	100,00
660	day time snack	54	above ground vegetable	avocado	(avocado)/4	4					4	0,00	0,00	50,00	50,00	0,00	100,00
661	day time snack	55	above ground vegetable	olive	(olives)/2	2					2	0,00	0,00	0,00	100,00	0,00	100,00
662	day time snack	56	above ground vegetable	celery	(celery)/1	1			(salt)/1	1	1	0,00	0,00	100,00	0,00	0,00	100,00
663	day time snack	57	above ground vegetable	lettuce	(lettuce)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
664	day time snack	58	above ground vegetable	mushroom	(mushrooms)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
665	day time snack	59	above ground vegetable	broccoli	(broccoli)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
666	day time snack	60	above ground vegetable	cabbage	(coleslaw)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
667	day time snack	61	above ground vegetable	spinach	(spinach)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
668	day time snack	62	above ground vegetable	peas	(wasabi_peas)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
669	day time snack	63	below ground vegetable	carrot	(carrot)/13 (uncooked_carrotes)/1 (carrot_sticks)/4 (pickled_onions)/1	18			(hummus)/3	3	18	0,00	0,00	33,33	66,67	0,00	100,00
670	day time snack	64	below ground vegetable	onion	(spring_onions)/1	2					2	0,00	0,00	0,00	100,00	0,00	100,00
671	day time snack	65	below ground vegetable	beetroot	(beetroot)/1 (fruit)/8	1					1	0,00	0,00	0,00	100,00	0,00	100,00
672	day time snack	66	general fruit	fruit/piece of fruit	(fresh_fruit)/2 (piece_of_fruit)/1	11					11	0,00	0,00	63,64	36,36	0,00	100,00
673	day time snack	67	general fruit	fruit salad	(fruit_salad)/2	2					2	0,00	0,00	0,00	100,00	0,00	100,00
674	day time snack	68	berry fruit	strawberry	(strawberries)/9	9					9	0,00	0,00	44,44	55,56	0,00	100,00
675	day time snack	69	berry fruit	blueberry	(blueberries)/9	9					9	0,00	0,00	66,67	33,33	0,00	100,00
676	day time snack	70	berry fruit	berry	(berries)/3	3					3	0,00	0,00	66,67	33,33	0,00	100,00
677	day time snack	71	berry fruit	raspberry	(raspberries)/2	2					2	0,00	0,00	100,00	0,00	0,00	100,00
678	day time snack	72	berry fruit	red fruit	(red_fruits)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
679	day time snack	73	berry fruit	cranberry	(dried_cranberries)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
680	day time snack	74	pit/core fruit	apple	(apple)/46 (pink_lady_apples)/1 (peach)/3	47					46	0,00	2,17	67,39	30,43	2,17	97,83
681	day time snack	75	pit/core fruit	peach	(peach_slices)/1 (doughnut_piece)/1	5					5	0,00	0,00	40,00	60,00	0,00	100,00
682	day time snack	76	pit/core fruit	pear	(pear)/5	5					5	0,00	0,00	80,00	20,00	0,00	100,00
683	day time snack	77	pit/core fruit	cherry	(cherries)/5	5					5	0,00	0,00	60,00	40,00	0,00	100,00
684	day time snack	78	pit/core fruit	plum	(plums)/3 (dried_prunes)/1	4					4	0,00	0,00	50,00	50,00	0,00	100,00
685	day time snack	79	pit/core fruit	apricot	(apricot)/2 (dried_apricot)/1	3					3	0,00	0,00	66,67	33,33	0,00	100,00
686	day time snack	80	pit/core fruit	nectarine	(nectarine)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
687	day time snack	81	melon fruit	melon	(melon)/6 (honeydew_melon)/1	7					7	0,00	0,00	42,86	57,14	0,00	100,00
688	day time snack	82	melon fruit	watermelon	(watermelon)/2	2					2	0,00	0,00	100,00	0,00	0,00	100,00
689	day time snack	83	citrus fruit	grapes	(grapes)/18	18					18	0,00	0,00	61,11	38,89	0,00	100,00

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690	day time snack	84	citrus fruit	orange	(orange)/15 (tangerines)/4	15					15	0,00	0,00	53,33	46,67	0,00	100,00
691	day time snack	85	citrus fruit	small orange	(clementines)/4 (satsuma)/3 (mandarine)/1	12					10	0,00	0,00	65,00	35,00	0,00	100,00
692	day time snack	86	tropical fruit	banana	(banana)/54	54					53	0,00	0,00	77,36	22,64	0,00	100,00
693	day time snack	87	tropical fruit	mango	(mango)/4 (dried_mango)/2	6					6	0,00	0,00	83,33	16,67	0,00	100,00
694	day time snack	88	tropical fruit	pineapple	(pineapple)/3 (dried_pineapple)/1	4					4	0,00	0,00	50,00	50,00	0,00	100,00
695	day time snack	89	tropical fruit	kiwi	(kiwi)/2	2					2	0,00	0,00	100,00	0,00	0,00	100,00
696	day time snack	90	tropical fruit	lychee	(lychee)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
697	day time snack	91	tropical fruit	fig	(dried_figs)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
698	day time snack	92	dried fruit	raisin	(raisins)/7 (dates)/3	7					7	0,00	14,29	42,86	42,86	14,29	85,71
699	day time snack	93	dried fruit	date	(dried_pitted_dates)/1 (medjool_dates)/1	5					5	0,00	20,00	40,00	40,00	20,00	80,00
700	day time snack	94	dried fruit	dried fruit	(dried_fruits)/3 (dried_fruit_mixes)/1	4					4	0,00	0,00	75,00	25,00	0,00	100,00
701	day time snack	95	baked dessert	biscuit	(biscuits)/18 (sweet_biscuits)/1 (butter_biscuits)/1 (breakfast_biscuits)/3 (bella_vita_breakfast_biscuits)/1 (tea_biscuits)/1 (chocolate_biscuits)/5 (burbons_biscuits)/3 (digestives)/4 (chocolate_digestives)/2 (dark_chocolate_digestives)/1 (carr's_water_biscuits)/1 (custard_creams)/4 (oreos)/1 (oat_biscuits)/1 (milk_wafers)/1	47					40	56,25	32,50	5,00	6,25	88,75	11,25
702	day time snack	96	baked dessert	cake	(cake)/17 (chocolate_cake)/3 (vanilla_sponge_cake)/1 (cheese_cake)/3	24					21	25,40	74,60	0,00	0,00	100,00	0,00
703	day time snack	97	baked dessert	cookie	(cookies)/8 (chocolate_cookies)/3 (chocolate_chip_cookies)/3 (peanut_butter_cookies)/1 (vegan_cookie)/1 (chocolate_bourbon_cookie)/1	17					16	37,50	62,50	0,00	0,00	100,00	0,00
704	day time snack	98	baked dessert	doughnut	(doughnut)/7 (jam_doughnut)/1	8					8	12,50	87,50	0,00	0,00	100,00	0,00
705	day time snack	99	baked dessert	muffin	(muffin)/5 (vegan_muffin)/1 (chocolate_muffin)/2	8					8	50,00	50,00	0,00	0,00	100,00	0,00
706	day time snack	100	baked dessert	croissant	(croissant)/1 (chocolate_croissant)/1 (pain_au_chocolat)/2	4					4	50,00	50,00	0,00	0,00	100,00	0,00
707	day time snack	101	baked dessert	brownie	(brownie)/2 (chocolate_brownie)/1	3					3	0,00	100,00	0,00	0,00	100,00	0,00
708	day time snack	102	baked dessert	cupcake	(cupcake)/2	2			(icing)/1		2	0,00	100,00	0,00	0,00	100,00	0,00
709	day time snack	103	baked dessert	sweet pastry	(pastry)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
710	day time snack	104	baked dessert	iced bun	(iced_buns)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
711	day time snack	105	baked dessert	sweet pie	(pie)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
712	day time snack	106	chilled dessert	ice cream	(ice_cream)/17 (Magnum)/1 (Mars_ice_cream)/1	19					19	15,79	84,21	0,00	0,00	100,00	0,00
713	day time snack	107	chilled dessert	pudding	(chia_pudding)/1 (organic_chocolate_pudding)/1	2					2	0,00	0,00	0,00	100,00	0,00	100,00
714	day time snack	108	chilled dessert	ice lolly	(fast_ice_lolly)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
715	day time snack	109	chilled dessert	éclair	(chocolate_eclair)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
716	day time snack	110	chilled dessert	mousse	(chocolate_mousse)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
717	day time snack	111	confectionery	chocolate	(chocolate)/26 (dark_chocolate)/10 (white_chocolate)/1 (chocolates)/1 (Maltesers)/1 (Revels)/1 (dairy_milk_chocolate)/1 (Terry's_chocolate_orange)/1 (chocolate_bar)/26 (chocolate_fudge_bar)/1 (dark_chocolate_bar)/1 (dairy_milk_bar)/1 (Mars_bar)/5 (Snickers_bar)/2 (Twix)/3 (Kit_Kat)/1 (Boost)/1	83			(green_tea_powder)/1	1	71	46,48	50,94	0,00	2,11	97,42	2,11
718	day time snack	112	confectionery	snack bar	(oat_bar)/1 (granola_bar)/3 (fruit_bar)/2 (raw_fruit_nut_bar)/1 (dried_fruit_nut_bar)/1 (cereal_bar)/14 (protein_bar)/3 (gluten_free_bar)/1 (nakd_bar)/2 (cocoa_orange_nakd_bar)/1 (cocoa_date_cashew_nut_bar)/1 (breakfast_bar)/2 (energy_bar)/1 (candy_bar)/1 (nature_valley_snack_bars)/1 (9_bar)/1 (flapjack)/5 (vegan_flapjack)/1	38					36	25,00	11,11	25,00	38,89	36,11	63,89
719	day time snack	113	confectionery	sweets	(sweets)/8 (boiled_sweets)/1 (candy)/3 (Haribo_sweets)/2 (gummy_bears)/1 (jelly_beans)/1 (polo_mints)/2 (M&Ms)/1 (tic_tacs)/1 (skittles)/1 (Drumstick_lolly)/1	22					18	28,89	71,11	0,00	0,00	100,00	0,00
720	day time snack	114	confectionery	liquorice	(liquorice)/2	2					2	0,00	100,00	0,00	0,00	100,00	0,00
721	day time snack	115	confectionery	caramel	(caramel)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00

all order	eating situation	eating situation order	general food category	basic food	types	type frequency	main ingredient type (meat, fish, vegetarian)	main ingredient subtype (chicken, prawns, tomatoes, curry)	accompaniments	accompaniments frequency	overall frequency (basic food)	% TF	% TO	% HF	% HO	% tasty	% healthy
722	day time snack	116	carbs based dish	pasta dish	(pasta)/5 (spaghetti)/1	6	(meat)/1 (vegetarian)/1 (N/A)/4	(sauce)/1 (tomato_sauce)/1 (bolognese)/1			6	33,33	16,67	0,00	50,00	50,00	50,00
723	day time snack	117	carbs based dish	pastry/bake/pasty	(bake)/2 (pastry_roll)/4	6	(meat)/6	(steak)/2 (sausage)/4			5	20,00	80,00	0,00	0,00	100,00	0,00
724	day time snack	118	carbs based dish	noodle dish	(instant_noodles)/3 (instant_pot_noodles)/1	4	(N/A)/3				4	0,00	50,00	50,00	0,00	50,00	50,00
725	day time snack	119	carbs based dish	savoury pie	(pie)/7	7	(meat)/7	(pork)/3 (venison)/1 (steak)/1 (mince)/1 (chicken)/1			4	0,00	100,00	0,00	0,00	100,00	0,00
726	day time snack	120	carbs based dish	roll/samosa	(samosa)/4	4	(meat)/2 (vegetarian)/1 (N/A)/1	(chicken)/1 (beef)/1 (vegetable)/1			2	16,67	83,33	0,00	0,00	100,00	0,00
727	day time snack	121	carbs based dish	pizza	(pizza)/1	1	(meat)/1	(pepperoni)/1			1	100,00	0,00	0,00	0,00	100,00	0,00
728	day time snack	122	carbs based dish	baked/jacket potato	(baked_potato)/1						1	0,00	0,00	0,00	100,00	0,00	100,00
729	day time snack	123	protein based dish	egg dish	(scotch_egg)/1 (omelette)/1	2	(meat)/1 (vegetarian)/1	(cheese)/1	(tomato_sauce)/1	1	2	0,00	100,00	0,00	0,00	100,00	0,00
730	day time snack	124	protein based dish	kebab	(kebab)/1	1	(meat)/1				1	0,00	100,00	0,00	0,00	100,00	0,00
731	day time snack	125	complex dish (could be carbs, proteins, vegetables, or a mixed of these)	sandwich	(bread)/1 (sandwich)/19 (shop_bought)/1 (sandwich)/1 (panini_sandwich)/1 (french_toast)/1 (roll)/2 (Subway_sandwich)/1 (baguette)/1 (wholewheat_bagel)/1 (toastie)/2 (toast)/5 (croque_monsieur)/1 (hot_dog)/1	38	(meat)/14 (fish)/3 (vegetarian)/13 (N/A)/8	(chicken)/3 (meat_cheese)/1 (tuna)/2 (ham_cheese)/3 (bacon)/3 (ham)/1 (peanut_butter)/2 (peanut_butter_jam)/1 (cheese)/3 (soft_cheese)/1 (cream_ceese)/1 (pate)/1 (mackerel)/1 (cheese_red_onion)/1 (crisp_cheddar_cheese)/1 (pepperoni_cheese_lettuce)/1	(ketchup)/1 (mayonnaise)/3 (salt)/1 (tomato_chutney)/1	6	26	33,33	44,87	14,10	7,69	78,21	21,79
732	day time snack	126	complex dish (could be carbs, proteins, vegetables, or a mixed of these)	soup	(soup)/6	6	(vegetarian)/1 (N/A)/5	(noodle)/1 (lentils)/1			6	33,33	16,67	16,67	33,33	50,00	50,00
733	day time snack	127	complex dish (could be carbs, proteins, vegetables, or a mixed of these)	burger and bun	(burger)/3 (plain_burger)/1 (hamburger)/1	5	(meat)/5		(ketchup)/1 (cheese)/2	3	5	40,00	60,00	0,00	0,00	100,00	0,00
734	day time snack	128	complex dish (could be carbs, proteins, vegetables, or a mixed of these)	sushi	(sushi)/1 (tuna_roll)/1	2	(fish)/1 (vegetarian)/1	(tuna)/1			2	0,00	0,00	50,00	50,00	0,00	100,00
735	day time snack	129	complex dish (could be carbs, proteins, vegetables, or a mixed of these)	ramen	(store_bought_ramen)/1	1	(meat)/1	(beef)/1			1	0,00	0,00	100,00	0,00	0,00	100,00
736	day time snack	130	complex dish (could be carbs, proteins, vegetables, or a mixed of these)	curry	(curry)/1	1	(N/A)/1				1	0,00	0,00	100,00	0,00	0,00	100,00
737	day time snack	131	complex dish (could be carbs, proteins, vegetables, or a mixed of these)	wrap	(tortilla_wrap)/1	1	(N/A)/1				1	0,00	100,00	0,00	0,00	100,00	0,00
738	day time snack	132	complex dish (could be carbs, proteins, vegetables, or a mixed of these)	meal salad	(salad)/1	1	(meat)/1	(chicken)/1			1	0,00	0,00	0,00	100,00	0,00	100,00
739	day time snack	133	complex dish (could be carbs, proteins, vegetables, or a mixed of these)	pakora	(pakora)/2	2	(meat)/1 (vegetarian)/1	(chicken)/1 (mushroom)/1			1	0,00	100,00	0,00	0,00	100,00	0,00
740	day time snack	134	fast food	MacDonalds	(Mac_Donalds)/1	1	(N/A)/1				1	0,00	100,00	0,00	0,00	100,00	0,00
741	day time snack	135	cold drink	soft drink	(soft_drink)/4 (Coke)/7 (diet_Coke)/6 (Fanta_Orange)/1 (Orangeade)/1 (Pepsi)/1 (Irn_Bru)/3 (Diet_Irn_Bru)/1	24					21	57,14	42,86	0,00	0,00	100,00	0,00
742	day time snack	136	cold drink	energy drink	(energy_drink)/3 (sugar_free_energy_drink)/1 (lucozade)/1 (Red_Bull)/1	6					6	33,33	50,00	16,67	0,00	83,33	16,67
743	day time snack	137	blend	shake	(protein_shake)/5 (milkshake)/4 (chocolate_milkshake)/1 (fruit_shake)/1	11					11	9,09	27,27	36,36	27,27	36,36	63,64
744	day time snack	138	blend	smoothie	(fruit_smoothie)/3 (fruit_vegetable_smoothie)/1 (innocent_smoothie)/1	5					5	0,00	0,00	60,00	40,00	0,00	100,00
745	day time snack	139	juice	fruit juice	(juice)/1 (fruit_juice)/6 (lemon_juice)/1 (orange_juice)/9 (fresh_orange_juice)/1 (ready_made_juice)/1 (tomato_juice)/1 (cramberry_juice)/2 (raspberry_juice)/1 (raspberry_apple_juice)/1 (mango_peach_apple_juice)/1 (apple_juice)/1 (pear_juice)/1 (pineapple_juice)/1	28					21	14,29	21,43	38,10	26,19	35,71	64,29
746	day time snack	140	juice	squash/diluting juice	(diluting_juice)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
747	day time snack	141	juice	coconut water	(coconut_water)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
748	day time snack	142	water/hot drink	water	(water)/34 (still_water)/2 (sparkling_water)/6 (tap_water)/2	44					43	0,00	2,33	93,02	4,65	2,33	97,67
749	day time snack	143	water/hot drink	coffee	(coffee)/31 (cold_brew_coffee)/1 (black_coffee)/3 (espresso)/1 (cappuccino)/6 (latte)/3 (caffe_latte)/1 (starbucks_latte)/1	47			(sugar)/7 (milk)/15	22	41	46,34	24,39	21,95	7,32	70,73	29,27
750	day time snack	144	water/hot drink	tea	(tea)/23 (black_tea)/4 (earl_gray_tea)/1 (camomile_tea)/1 (green_tea)/4 (oolong_tea)/1 (herbal_tea)/2 (fruit_tea)/1 (peppermint_tea)/1	38			(sugar)/5 (milk)/11	16	33	18,18	10,61	59,09	12,12	28,79	71,21
751	day time snack	145	water/hot drink	hot chocolate	(hot_chocolate)/4 (coconut_milk_hot_chocolate)/2	6			(cream)/1 (marshmallows)/1	2	6	33,33	66,67	0,00	0,00	100,00	0,00
752	day time snack	146	alcoholic drink	beer	(beer)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00

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753	day time snack	147	dairy drink/alternative	milk	(milk)/14 (semi_skimmed_milk)/1 (chocolate_milk)/2	17					16	9,38	6,25	62,50	21,88	15,63	84,38
754	day time snack	148	dairy drink/alternative	plant based milk	(soy_milk)/2 (hazelnut_milk)/1	3			(cocoa_powder)/1	1	3	0,00	33,33	33,33	33,33	33,33	66,67
755	day time snack	149	other drink	vitamin water	(flavoured_vitamin_water)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
756	day time snack	150	basic condiment	sugar	(sugar)/2 (sweetner)/1	3					3	100,00	0,00	0,00	0,00	100,00	0,00
757	day time snack	151	basic condiment	salt	(salt)/1 (lo-Salt)/1	2					1	50,00	0,00	0,00	50,00	50,00	50,00
758	day time snack	152	dressing/sauce	gravy	(gravy)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
759	day time snack	153	spread/dip/topping	butter	(butter)/4 (salted_butter)/1	5					5	80,00	20,00	0,00	0,00	100,00	0,00
760	day time snack	154	spread/dip/topping	hummus	(hummus)/4	4					4	0,00	0,00	25,00	75,00	0,00	100,00
761	day time snack	155	spread/dip/topping	peanut butter	(peanut_butter)/5	5					4	75,00	0,00	25,00	0,00	75,00	25,00
762	day time snack	156	spread/dip/topping	chocolate spread	(nutella)/2 (chocolate_spread)/1	3					3	33,33	66,67	0,00	0,00	100,00	0,00
763	day time snack	157	spread/dip/topping	mayonnaise	(mayonnaise)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
764	day time snack	158	spread/dip/topping	guacamole	(guacamole)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
765	day time snack	159	spread/dip/topping	nut butter	(nut_butter)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
766	day time snack	160	spread/dip/topping	jam	(jam)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
767	day time snack	161	spread/dip/topping	honey	(honey)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
768	day time snack	162	herb/spice	herb	(mint)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
769	evening snack	1	flour-based baked food	bread	(bread)/15 (fresh_bread)/1 (white_bread)/4 (wholegrain_bread)/1 (wholemeal_bread)/1 (brown_bread)/2 (fried_bread)/1 (toast)/35 (white_toast)/1 (brown_toast)/1 (bagel)/2 (wholewheat_pitta)/1 (garlic_bread)/1	66			(butter)/24 (jam)/5 (chocolate_spread)/2 (dark_chocolate_spread)/1 (peanut_butter)/3 (crunchy_peanut_butter)/1 (sugar)/1 (nutella)/2 (honey)/1 (oil)/1 (salt)/1 (lemon_curd)/1 (marmite)/1 (hummus)/1	45	48	39,93	17,88	16,15	26,04	57,81	42,19
770	evening snack	2	flour-based baked food	cracker	(crackers)/9 (cheese_crackers)/1 (salted_crackers)/1	11			(butter)/1 (cheese)/2	3	10	15,00	50,00	10,00	25,00	65,00	35,00
771	evening snack	3	flour-based baked food	oatcake	(oatcakes)/7	7			(butter)/1 (peanut_butter)/1 (dark_chocolate_spread)/1	3	7	0,00	0,00	71,43	28,57	0,00	100,00
772	evening snack	4	flour-based baked food	scone	(scone)/4	4			(butter)/1 (jam)/2 (ice_cream)/1	4	3	33,33	66,67	0,00	0,00	100,00	0,00
773	evening snack	5	flour-based baked food	rice cake	(rice_cakes)/2 (rice_crackers)/1	3			(almond_butter)/1 (honey)/1	2	3	0,00	0,00	33,33	66,67	0,00	100,00
774	evening snack	6	flour-based baked food	crisp bread	(ryvita)/1	1			(hummus)/1	1	1	0,00	0,00	100,00	0,00	0,00	100,00
775	evening snack	7	flour-based baked food	pretzel	(hard_pretzel)/1 (sainsbury's_pretzel)/1	2					1	0,00	100,00	0,00	0,00	100,00	0,00
776	evening snack	8	flour-based fried food	sweet pancake	(pancake)/2	2			(maple_syrup)/1	1	2	0,00	100,00	0,00	0,00	100,00	0,00
777	evening snack	9	grain	breakfast cereal	(cereal)/11 (cornflakes)/3 (bran_flakes)/1 (Cheerios)/1 (Special_K)/1 (Shreddies_cereal)/1 (Weetabix)/2 (farin lactee_baby foor)/1	21			(milk)/6	6	18	13,89	33,33	43,52	9,26	47,22	52,78
778	evening snack	10	grain	popcorn	(pop_corn)/10 (salted_popcorn)/2 (home_popped_pop_corn)/1	13			(salt)/1 (sugar)/1	2	12	8,33	50,00	16,67	25,00	58,33	41,67
779	evening snack	11	grain	oats	(oatmeal)/2 (porridge)/4	2			(milk)/1	1	6	0,00	0,00	50,00	50,00	0,00	100,00
780	evening snack	12	grain	granola	(granola)/2	2					2	50,00	0,00	50,00	0,00	50,00	50,00
781	evening snack	13	grain	tortilla chips	(tortilla_chips)/1 (Doritos)/1	2					2	0,00	50,00	50,00	0,00	50,00	50,00
782	evening snack	14	starchy vegetable	crisps	(crisps)/33 (salt_vinegar_crisps)/2 (salted_crisps)/1 (walkers_crisps)/3 (walkers_baked_salt_vinegar)/1 (cheese_onion_crisps)/2 (cassava_crisps)/1 (Pringles)/2 (Kettle_salt_vinegar_chips)/1 (Kettle_BBQ_flabour_chips)/1	47					45	51,11	48,89	0,00	0,00	100,00	0,00
783	evening snack	15	starchy vegetable	fries/chips	(fries)/3 (french_fries)/2 (chips)/12	17			(salt)/1 (ketchup)/1 (mayonnaise)/1	3	16	34,38	62,50	0,00	3,13	96,88	3,13
784	evening snack	16	starchy vegetable	side potatoes	(potatoes)/2 (potato_wedges)/1	3			(cheese)/1	1	3	33,33	0,00	66,67	0,00	33,33	66,67
785	evening snack	17	starchy vegetable	potato scone	(potato_scone)/1	1			(ketchup)/1	1	1	100,00	0,00	0,00	0,00	100,00	0,00
786	evening snack	18	meat protein	ham	(ham)/4 (ham_slices)/2 (prosciutto)/1	7					7	42,86	28,57	14,29	14,29	71,43	28,57
787	evening snack	19	meat protein	chicken	(chicken)/3 (fried_chicken)/1 (chicken_nuggets)/1	5					4	62,50	0,00	0,00	37,50	62,50	37,50
788	evening snack	20	meat protein	sausage	(sausage)/1 (sliced_sausage)/1	2					2	50,00	0,00	50,00	0,00	50,00	50,00
789	evening snack	21	meat protein	salami	(salami)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
790	evening snack	22	meat protein	cabanossi	(cabanossi)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
791	evening snack	23	meat protein	beef	(beef_jerky)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
792	evening snack	24	meat protein	pork	(pork)/1 (pork_scratchings)/1	2			(apple_sauce)/1	1	1	0,00	50,00	50,00	0,00	50,00	50,00
793	evening snack	25	meat protein	bacon	(bacon)/4	4					4	25,00	75,00	0,00	0,00	100,00	0,00
794	evening snack	26	fish protein	tuna	(tuna)/3	3					3	0,00	33,33	33,33	33,33	33,33	66,67
795	evening snack	27	fish protein	sardine	(sardines)/2	2					2	0,00	0,00	50,00	50,00	0,00	100,00
796	evening snack	28	fish protein	salmon	(salmon)/1 (smoked_salmon)/1	2					2	0,00	0,00	0,00	100,00	0,00	100,00
797	evening snack	29	fish protein	general fish	(battered_fish)/1	1			(salt)/1	1	1	0,00	100,00	0,00	0,00	100,00	0,00
798	evening snack	30	fish protein	squid	(salt_pepper_squid)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
799	evening snack	31	fish protein	crab	(crab_sticks)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
800	evening snack	32	fish protein	mackerel	(mackerel)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00

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801	evening snack	33	vegetarian protein	nuts	(nuts)/13 (mixed_nuts)/1 (brazil_nuts)/1 (pecans)/1 (pistachios)/1 (cashews)/4 (salted_cashews)/1 (peanuts)/5 (salted_peanuts)/2 (almonds)/4 (walnuts)/1 (nut_snack)	35			(raisin)/1	1	26	3,85	8,97	55,77	31,41	12,82	87,18
802	evening snack	34	vegetarian protein	simple egg (no extra ingredients)	(egg)/3 (scrambled_egg)/1 (boiled_egg)/2 (fried_egg)/1	7			(butter)/1	1	6	0,00	0,00	72,22	27,78	0,00	100,00
803	evening snack	35	vegetarian protein	seeds	(seeds)/2 (sunflower_seeds)/3	5					5	0,00	0,00	60,00	40,00	0,00	100,00
804	evening snack	36	vegetarian protein	beans	(beans)/2 (baked_beans)/2	4					4	0,00	50,00	25,00	25,00	50,00	50,00
805	evening snack	37	vegetarian protein	falafel	(falafel)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
806	evening snack	38	dairy protein/alternative	cheese	(cheese)/20 (full_fat_cheese)/1 (cheese_slice)/1 (cheese_spread)/1 (low_fat_cheese_spread)/1 (philadelphia_cheese)/1 (cream_cheese)/1 (cottage_cheese)/1 (mozzarella)/1 (mozzarella_sticks)/1 (quark)/1	30			(ketchup)/1	1	25	32,00	30,00	30,00	8,00	62,00	38,00
807	evening snack	39	dairy protein/alternative	yogurt	(yogurt)/15 (plain_yogurt)/2 (fruit_yogurt)/1 (frozen_yogurt)/1 (greek_yogurt)/1 (full_fat_natural_yogurt)/1	23			(honey)/1	1	22	0,00	0,00	72,73	27,27	0,00	100,00
808	evening snack	40	dairy protein/alternative	plant based yogurt	(Alpro_soya_yogurt)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
809	evening snack	41	general vegetable	side salad	(green_salad)/1 (salad_leaves)/1 (lettuce)/1	3					3	0,00	0,00	33,33	66,67	0,00	100,00
810	evening snack	42	general vegetable	vegetable	(vegetables)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
811	evening snack	43	general vegetable	vegetable crisps	(vegetable_crisps)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
812	evening snack	44	aboveground vegetable	cucumber	(cucumber)/4 (cucumber_sticks)/1	5					5	0,00	0,00	20,00	80,00	0,00	100,00
813	evening snack	45	aboveground vegetable	olive	(olives)/4	4					4	0,00	25,00	0,00	75,00	25,00	75,00
814	evening snack	46	aboveground vegetable	tomatoes	(tomatoes)/3	3					3	0,00	0,00	66,67	33,33	0,00	100,00
815	evening snack	47	aboveground vegetable	pepper	(peppers)/1 (red_peppers)/2 (green_peppers)/1	4			(hummus)/2	2	3	0,00	0,00	33,33	66,67	0,00	100,00
816	evening snack	48	aboveground vegetable	broccoli	(broccoli)/2	2					2	0,00	0,00	50,00	50,00	0,00	100,00
817	evening snack	49	aboveground vegetable	chilli	(chilli)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
818	evening snack	50	aboveground vegetable	artichoke	(artichoke)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
819	evening snack	51	aboveground vegetable	spinach	(spinach)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
820	evening snack	52	aboveground vegetable	peas	(peas)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
821	evening snack	53	below ground vegetable	carrot	(carrots)/9 (raw_carrots)/1 (carrot_sticks)/3	13			(hummus)/2	2	13	0,00	0,00	30,77	69,23	0,00	100,00
822	evening snack	54	below ground vegetable	onion	(red_onion)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
823	evening snack	55	general fruit	fruit/piece of fruit	(fruit)/11 (fresh_fruit)/1	2					12	0,00	0,00	50,00	50,00	0,00	100,00
824	evening snack	56	general fruit	fruit salad	(fresh_fruit_salad)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
825	evening snack	57	berry fruit	strawberry	(strawberries)/12	12			(cream)/1	1	12	0,00	8,33	33,33	58,33	8,33	91,67
826	evening snack	58	berry fruit	blueberry	(blueberries)/6	6					6	0,00	0,00	66,67	33,33	0,00	100,00
827	evening snack	59	berry fruit	raspberry	(raspberries)/4	4					5	0,00	0,00	60,00	40,00	0,00	100,00
828	evening snack	60	berry fruit	berry	(berries)/1 (mixed_berries)/1	2					2	0,00	0,00	100,00	0,00	0,00	100,00
829	evening snack	61	melon fruit	melon	(melon)/7	7					8	0,00	0,00	25,00	75,00	0,00	100,00
830	evening snack	62	melon fruit	watermelon	(watermelon)/4	4					4	0,00	0,00	50,00	50,00	0,00	100,00
831	evening snack	63	pit/core fruit	apple	(apple)/31 (granny_smith_apple)/1	32					32	0,00	0,00	46,88	53,13	0,00	100,00
832	evening snack	64	pit/core fruit	pear	(pear)/5	5					5	0,00	0,00	100,00	0,00	0,00	100,00
833	evening snack	65	pit/core fruit	peach	(peach)/4	4					4	0,00	0,00	100,00	0,00	0,00	100,00
834	evening snack	66	pit/core fruit	cherry	(cherries)/4	4					4	0,00	0,00	50,00	50,00	0,00	100,00
835	evening snack	67	pit/core fruit	plum	(plum)/2	2					2	0,00	0,00	100,00	0,00	0,00	100,00
836	evening snack	68	pit/core fruit	apricot	(apricots)/2	2					2	0,00	0,00	50,00	50,00	0,00	100,00
837	evening snack	69	pit/core fruit	nectarine	(nectarine)/2	2					2	0,00	0,00	100,00	0,00	0,00	100,00
838	evening snack	70	citrus fruit	grapes	(grapes)/18	18					18	0,00	0,00	44,44	55,56	0,00	100,00
839	evening snack	71	citrus fruit	orange	(orange)/9 (clementine)/1	9					9	0,00	0,00	77,78	22,22	0,00	100,00
840	evening snack	72	citrus fruit	small orange	(mandarine)/1 (satsuma)/2 (tangerine)/3	7					7	0,00	14,29	57,14	28,57	14,29	85,71
841	evening snack	73	citrus fruit	lemon	(lemon)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
842	evening snack	74	tropical fruit	banana	(bananas)/37 (frozen_banana)/1	38			(peanut_butter)/1	1	38	0,00	2,63	71,05	26,32	2,63	97,37
843	evening snack	75	tropical fruit	pineapple	(pineapple)/4 (pineapple_slices)/1	5					5	0,00	0,00	20,00	80,00	0,00	100,00
844	evening snack	76	tropical fruit	mango	(mango)/2 (dried_mango)/2	4					4	0,00	0,00	75,00	25,00	0,00	100,00
845	evening snack	77	tropical fruit	kiwi	(kiwi)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
846	evening snack	78	tropical fruit	coconut	(dried_coconut)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
847	evening snack	79	tropical fruit	fig	(figs)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
848	evening snack	80	tropical fruit	lychee	(lychee)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
849	evening snack	81	dried fruit	dried fruit	(dried_fruit)/4 (dried_fruit_mixes)/1	5					5	0,00	0,00	20,00	80,00	0,00	100,00
850	evening snack	82	dried fruit	date	(dates)/1 (dried_pitted_dates)/1	2					2	0,00	0,00	100,00	0,00	0,00	100,00
851	evening snack	83	dried fruit	raisin	(raisins)/2	2					2	0,00	0,00	0,00	100,00	0,00	100,00
852	evening snack	84	baked dessert	biscuit	(biscuits)/16 (tea_biscuits)/1 (sweet_biscuits)/1 (chocolate_biscuits)/4 (burbon_biscuits)/1 (chocolate_bourbon_biscuits)/1 (digestives)/9 (chocolate_digestives)/3 (short_bread)/2 (caramel_short_bread)/1 (millionaire_short_bread)/1 (custard_creams)/5 (oreo)/1	46					35	53,81	46,19	0,00	0,00	100,00	0,00

all order	eating situation	eating situation order	general food category	basic food	types	type frequency	main ingredient type (meat, fish, vegetarian)	main ingredient subtype (chicken, prawns, tomatoes, curry)	accompaniments	accompaniments frequency	overall frequency (basic food)	% TF	% TO	% HF	% HO	% tasty	% healthy
853	evening snack	85	baked dessert	cake	(cake)/13 (cheese_cake)/2 (fruit_cake)/1 (chocolate_cake)/3 (mug_cake)/1 (vegan_cake)/1	21			(cream)/1	1	20	25,00	75,00	0,00	0,00	100,00	0,00
854	evening snack	86	baked dessert	cookie	(cookies)/12 (chocolate_cookies)/1 (chocolate_chip_cookie)/1 (milk_chocolate_cookie)/1 (white_chocolate_cookies)/1 (vegan_cookies)/1	17					17	35,29	64,71	0,00	0,00	100,00	0,00
855	evening snack	87	baked dessert	doughnut	(doughnuts)/5	5			(jam)/1	1	5	20,00	80,00	0,00	0,00	100,00	0,00
856	evening snack	88	baked dessert	muffin	(muffin)/4	4					4	0,00	100,00	0,00	0,00	100,00	0,00
857	evening snack	89	baked dessert	brownie	(brownie)/3	3					3	0,00	100,00	0,00	0,00	100,00	0,00
858	evening snack	90	baked dessert	cupcake	(cupcake)/1 (vegan_cupcake)/1	2			(icing)/1	1	2	0,00	100,00	0,00	0,00	100,00	0,00
859	evening snack	91	baked dessert	loaf	(malt_loaf)/1 (banana_loaf)/1	2					2	50,00	50,00	0,00	0,00	100,00	0,00
860	evening snack	92	baked dessert	sweet pastry	(sugary_pastry)/1 (apple_turnover)/1	2					2	0,00	100,00	0,00	0,00	100,00	0,00
861	evening snack	93	baked dessert	croissant	(chocolate_croissant)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
862	evening snack	94	baked dessert	tart	(cinnamon_pop_tart)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
863	evening snack	95	baked dessert	sweet waffle	(waffles)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
864	evening snack	96	baked dessert	iced bun	(iced_buns)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
865	evening snack	97	chilled dessert	ice cream	(ice_cream)/21 (chocolate_ice_cream)/1 (vanilla_chocolate_ice_cream_cone)/1 (cookies_chocolate_icecream)/1 (Magnum_ice_cream)/1	25					25	32,00	68,00	0,00	0,00	100,00	0,00
866	evening snack	98	chilled dessert	pudding	(pudding)/1 (chia_pudding)/1 (jam_sponge_pudding)/1 (banana_organic_chocolate_pudding)/1 (vegan_pudding)/1	5			(cream)/1 (custard)/1	2	5	0,00	60,00	20,00	20,00	60,00	40,00
867	evening snack	99	chilled dessert	tiramisu	(tiramisu)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
868	evening snack	100	chilled dessert	mousse	(chocolate_mousse)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
869	evening snack	101	confectionery	chocolate	(chocolate)/32 (dark_chocolate)/6 (milk_chocolate)/3 (white_chocolate)/1 (chocolates)/1 (turkish_delight)/1 (self_made_dark_chocolate_truffles)/1 (chocolate_fingers)/1 (Maltesers)/1 (chocolate_share_bag)/1 (alpro_soya_chocolate_dessert)/2 (chocolate_bar)/12 (dark_chocolate_bar)/1 (pure_chocolate_bar)/1 (Cadbury_chocolate_bar)/1 (Mars_bar)/4 (Snickers_bar)/4 (Bounty_bar)/1	74					60	48,89	50,28	0,00	0,83	99,17	0,83
870	evening snack	102	confectionery	snack bar	(raw_fruit_nut_bar)/1 (nakd_bars)/1 (cocoa_orange_nakd_bar)/1 (chocolate_orange_bar)/1 (cocoa_date_raisin_cashew_nut_bar)/1 (cereal_bar)/2 (energy_bar)/1 (peanut_bar)/1 (granola_bar)/1 (breakfast_bar)/1 (flapjack)/1 (oat_flapjack)/1 (cake_bar)/1	14					12	25,00	20,83	20,83	33,33	45,83	54,17
871	evening snack	103	confectionery	sweets	(sweets)/3 (fizzy_Haribos)/1 (gummy_bears)/1 (M&Ms)/1 (wrapped_candy)/1	7					7	14,29	85,71	0,00	0,00	100,00	0,00
872	evening snack	104	confectionery	liquorice	(liquorice)/2	2					2	0,00	50,00	0,00	50,00	50,00	50,00
873	evening snack	105	carbs based dish	pizza	(pizza)/10 (pizza_slice)/1	11	(meat)/2 (N/A)/8	(smoked_sausage)/1 (pepperoni)/2			10	50,00	40,00	0,00	10,00	90,00	10,00
874	evening snack	106	carbs based dish	pasta dish	(spaghetti)/1 (pasta)/3 (wholewheat_pasta)/1 (macaroni)/1 (spaghetti)/2 (lasagne)/1	9	(meat)/3 (vegetarian)/2	(bolognese)/1 (cheese)/1 (tomato_sauce)/1 (pancetta_tomato_cheese)/1	(sprinkled_cheese)/1 (parmesan_cheese)/1	2	6	5,56	36,11	25,00	33,33	41,67	58,33
875	evening snack	107	carbs based dish	savoury pie	(pie)/4 (scotch_pie)/1	5	(meat)/5	(steak)/1 (mince)/1 (chicken)/1 (pork)/1			3	33,33	66,67	0,00	0,00	100,00	0,00
876	evening snack	108	carbs based dish	pastry/bake/pasty	(pastry_roll)/3	3	(meat)/3	(sausage)/3			3	33,33	66,67	0,00	0,00	100,00	0,00
877	evening snack	109	carbs based dish	rice dish	(rice)/1	1	(meat)/1	(beef_broccoli)/1			1	0,00	0,00	100,00	0,00	0,00	100,00
878	evening snack	110	carbs based dish	noodle dish	(instant_pot_noodle)/1	1	(N/A)/1				1	100,00	0,00	0,00	0,00	100,00	0,00
879	evening snack	111	carbs based dish	focaccia	(focaccia_bread)/1	1	(N/A)/1				1	100,00	0,00	0,00	0,00	100,00	0,00
880	evening snack	112	carbs based dish	samosa	(samosa)/1	1	(meat)/1	(chicken)/1			1	100,00	0,00	0,00	0,00	100,00	0,00
881	evening snack	113	protein based dish	egg dish	(scotch_egg)/1 (scrambled_egg_on_toast)/1	2	(meat)/1 (vegetarian)/1				2	0,00	50,00	50,00	0,00	50,00	50,00
882	evening snack	114	protein based dish	kebab	(kebab)/1 (lamb_kebab)/1	2	(meat)/2				2	50,00	50,00	0,00	0,00	100,00	0,00
883	evening snack	115	complex dish (could be carbs, proteins, vegetables or a mixed of these)	sandwich	(sandwich)/18 (toasties)/2 (toast)/8 (bread)/1 (bruschetta)/1	30	(meat)/6 (fish)/2 (vegetarian)/15 (N/A)/7	(chicken)/1 (chicken_salad)/1 (ham)/2 (ham_cheese)/1 (tuna)/2 (cheese)/8 (cream_cheese)/1 (nutella)/1 (chocolate_spread)/1 (peanut_butter)/1 (pepperoni_cheese_lettuce)/1 (patej)/1 (beans)/2 (avocaado)/1	(mayonnaise)/3	3	21	46,98	19,21	16,19	17,62	66,19	33,81
884	evening snack	116	complex dish (could be carbs, proteins, vegetables or a mixed of these)	burger and bun	(burger)/3 (plain_burger)/1 (cheese_burger)/1	5	(meat)/5		(ketchup)/1 (mustard)/1 (cheese)/1	3	5	60,00	40,00	0,00	0,00	100,00	0,00
885	evening snack	117	complex dish (could be carbs, proteins, vegetables or a mixed of these)	soup	(soup)/3 (tin_soup)/1	4	(vegetarian)/3 (N/A)/1	(butternut_squash)/1 (sweet_potato)/1 (tomato)/1			3	0,00	0,00	66,67	33,33	0,00	100,00

all order	eating situation	eating situation order	general food category	basic food	types	type frequency	main ingredient type (meat, fish, vegetarian)	main ingredient subtype (chicken, prawns, tomatoes, curry)	accompaniments	accompaniments frequency	overall frequency (basic food)	% TF	% TO	% HF	% HO	% tasty	% healthy
886	evening snack	118	complex dish (could be carbs, proteins, vegetables or a mixed of these)	wrap	(tacos)/1 (tortilla)/1	2	(vegetarian)/1 (N/A)/1	(tzatziki_cucumber_carrots)/1			2	0,00	50,00	0,00	50,00	50,00	50,00
887	evening snack	119	complex dish (could be carbs, proteins, vegetables or a mixed of these)	pakora	(pakora)/2	2	(meat)/1 (N/A)/1	(chicken)/1			2	0,00	100,00	0,00	0,00	100,00	0,00
888	evening snack	120	complex dish (could be carbs, proteins, vegetables or a mixed of these)	ramen	(ramen)/1	1	(N/A)/1				1	0,00	100,00	0,00	0,00	100,00	0,00
889	evening snack	121	complex dish (could be carbs, proteins, vegetables or a mixed of these)	meal salad	(salad)/1	1	(vegetarian)/1	(hummus)/1			1	0,00	0,00	100,00	0,00	0,00	100,00
890	evening snack	122	complex dish (could be carbs, proteins, vegetables or a mixed of these)	fritters	(fritters)/1	1	(vegetarian)/1	(vegetables)/1			1	100,00	0,00	0,00	0,00	100,00	0,00
891	evening snack	123	other	left over	(left_over_dinner)/1	1	(N/A)/1				1	0,00	0,00	0,00	100,00	0,00	100,00
892	evening snack	124	cold drink	soft drink	(soft_drink)/3 (fizzy_drink)/1 (Coca_Cola)/8 (Diet_Coke)/3 (7_Up)/1 (Sprite)/2 (lemonade)/1 (Pepsi)/2 (Irn_Bru)/5	26					19	47,37	47,37	5,26	0,00	94,74	5,26
893	evening snack	125	cold drink	energy drink	(energy_drink)/1 (Lucozade)/1	2					2	50,00	50,00	0,00	0,00	100,00	0,00
894	evening snack	126	juice	fruit juice	(juice)/3 (fruit_juice)/5 (canned_juice)/1 (orange_juice)/9 (fresh_orange_juice)/1 (tomato_juice)/1 (apple_juice)/1	21					20	10,00	25,00	25,00	40,00	35,00	65,00
895	evening snack	127	juice	squah/diluting juice	(diluting_juice)/2 (squash)/1	3			(water)/1	1	3	0,00	33,33	66,67	0,00	33,33	66,67
896	evening snack	128	blend	smoothie	(smoothie)/2 (fruit_smoothie)/2 (homemade_smoothie)/2	6					6	0,00	0,00	16,67	83,33	0,00	100,00
897	evening snack	129	blend	shake	(milkshake)/2 (protein_shake)/3 (banana_whey_protein_shake)/1	6					5	0,00	10,00	90,00	0,00	10,00	90,00
898	evening snack	130	water/hot drink	tea	(tea)/21 (black_tea)/3 (camomile_tea)/2 (fennel_tea)/1 (green_tea)/7 (peppermint_tea)/2 (herbal_tea)/5 (oolong_tea)/1 (jasmine_tea)/2 (fruit_tea)/2 (english_breakfast_tea)/1	47			(sugar)/5 (honey)/1 (milk)/8	14	37	11,71	6,76	68,02	13,51	18,47	81,53
899	evening snack	131	water/hot drink	water	(water)/24 (sparkling_water)/2 (still_water)/2 (tap_water)/1	29					29	3,45	0,00	89,66	6,90	3,45	96,55
900	evening snack	132	water/hot drink	coffee	(coffee)/12 (black_coffee)/3 (latte)/1	16			(sugar)/1 (milk)4	5	16	50,00	6,25	37,50	6,25	56,25	43,75
901	evening snack	133	water/hot drink	hot chocolate	(hot_chocolate)/10	10					10	40,00	50,00	0,00	10,00	90,00	10,00
902	evening snack	134	water/hot drink	malted milk	(horlick_hot_drink)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
903	evening snack	135	alcoholic drink	beer	(beer)/14 (lager)/1	5					14	21,43	78,57	0,00	0,00	100,00	0,00
904	evening snack	136	alcoholic drink	wine	(wine)/11 (red_wine)/1 (white_wine)/2	14					14	7,14	85,71	7,14	0,00	92,86	7,14
905	evening snack	137	alcoholic drink	cider	(cider)/3	3					3	0,00	100,00	0,00	0,00	100,00	0,00
906	evening snack	138	alcoholic drink	cocktail	(cocktail)/1 (gin_tonic)/1 (spirit_lemonade)/1	3					3	33,33	66,67	0,00	0,00	100,00	0,00
907	evening snack	139	alcoholic drink	spirit/liquor	(whiskey)/1	1					2	50,00	50,00	0,00	0,00	100,00	0,00
908	evening snack	140	dairy drink/alternative	milk	(milk)/18 (whole_milk)/2 (semi_skimmed_milk)/1 (chocolate_milk)/2	23					22	4,55	11,36	65,91	18,18	15,91	84,09
909	evening snack	141	dairy drink/alternative	plant based milk	(soy_milk)/3 (coconut_milk)/1	4					3	0,00	0,00	100,00	0,00	0,00	100,00
910	evening snack	142	basic condiment	sugar/sweetner	(sugar)/1 (sweetener)/1 (low_calorie_sweetner)/1	3					3	33,33	33,33	33,33	0,00	66,67	33,33
911	evening snack	143	basic condiment	salt	(salt)/2	2					2	50,00	50,00	0,00	0,00	100,00	0,00
912	evening snack	144	basic condiment	oil	(olive_oil)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
913	evening snack	145	basic condiment	vinegar	(vinegar)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
914	evening snack	146	dressing/sauce	gravy	(gravy)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
915	evening snack	147	dressing/sauce	tomato sauce	(tomato_sauce)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
916	evening snack	148	dressing/sauce	sweet chilli sauce	(sweet_chilli_sauce)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
917	evening snack	149	dressing/sauce	garlic sauce	(garlic_sauce)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
918	evening snack	150	spread/dip/topping	peanut butter	(peanut_butter)/8 (pip_nut_coco_peanut_butter)/1	9					9	33,33	11,11	44,44	11,11	44,44	55,56
919	evening snack	151	spread/dip/topping	honey	(honey)/4	4					4	0,00	25,00	50,00	25,00	25,00	75,00
920	evening snack	152	spread/dip/topping	hummus	(hummus)/3	3			(paprika)/1	1	3	0,00	0,00	33,33	66,67	0,00	100,00
921	evening snack	153	spread/dip/topping	ketchup	(ketchup)/2	2					2	0,00	50,00	50,00	0,00	50,00	50,00
922	evening snack	154	spread/dip/topping	butter	(butter)/2	2					2	0,00	100,00	0,00	0,00	100,00	0,00
923	evening snack	155	spread/dip/topping	mayonnaise	(mayonnaise)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
924	evening snack	156	spread/dip/topping	mustard	(mustard)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
925	evening snack	157	spread/dip/topping	chutney	(chutney)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
926	evening snack	158	spread/dip/topping	margarine	(margarine)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
927	evening snack	159	spread/dip/topping	branston pickle	(branston_pickle)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
928	evening snack	160	spread/dip/topping	jam	(strawberry_jam)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
929	evening snack	161	spread/dip/topping	chocolate spread	(nutella)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
930	evening snack	162	spread/dip/topping	syrups	(maple_syrup)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
931	evening snack	163	spread/dip/topping	cocoa	(cocoa_powder)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
932	evening snack	164	herb/spice	spice	(cinnamon)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
933	evening snack	165	other	cream	(whipped_cream)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00

all order	eating situation	eating situation order	general food category	basic food	types	type frequency	main ingredient type (meat, fish, vegetarian)	main ingredient subtype (chicken, prawns, tomatoes, curry)	accompaniments	accompaniments frequency	overall frequency (basic food)	% TF	% TO	% HF	% HO	% tasty	% healthy
934	brunch out	1	flour-based baked food	bread	(bread)/12 (white_bread)/3 (wholemeal_bread)/1 (toast)/37 (white_toast)/2 (wholewheat_toast)/1 (brown_toast)/2 (toasted_pitta_bread)/1 (white_bread_roll)/1 (bagel)/9 (bread_roll)/1 (wholemeal_toast)/1 (sourdough_bread)/1 (naan_bread)/1 (pumpernickel_bread)/1 (garlic_bread)/1 (fried_bread)/1 (fried_toast)/1 (rye_bread)/1	78			(butter)/25 (jam)/6 (honey)/1 (almond_butter)/1 (low_fat_spread)/1 (nutella)/2 (hummus)/1	37	57	29,94	28,10	35,67	5,70	58,04	41,37
935	brunch out	2	flour-based baked food	scone	(scone)/5	5			(butter_jam)/2	2	5	60,00	40,00	0,00	0,00	100,00	0,00
936	brunch out	3	flour-based baked food	oatcake	(oatcakes)/3 (store_oatcakes)/1	4					4	25,00	25,00	25,00	25,00	50,00	50,00
937	brunch out	4	flour-based baked food	fruit bread	(toasted_teacake)/1	1			(butter)/1	1	1	0,00	100,00	0,00	0,00	100,00	0,00
938	brunch out	5	flour-based baked food	crisp bread	(crisp_bread)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
939	brunch out	6	flour-based baked food	cracker	(crackers)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
940	brunch out	7	flour-based baked food	crumpet	(crumpet)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
941	brunch out	8	flour-based fried food	sweet pancake	(pancake)/29 (stack_pancakes)/1	30			(maple_syrup)/1 (nutella)/2 (jam)/1 (syrup)/2 (honey)/2 (cream)/1 (crunchy_peanut_butter)/1 (fruit)/2 (berries)/1	13	27	44,44	55,56	0,00	0,00	100,00	0,00
942	brunch out	9	flour-based fried food	sweet crepe	(crepe)/1	1			(chocolate)/1	1	1	0,00	100,00	0,00	0,00	100,00	0,00
943	brunch out	10	grain	side rice	(white_rice)/1 (boiled_rice)/1	2					2	0,00	0,00	100,00	0,00	0,00	100,00
944	brunch out	11	grain	side couscous	(cous_cous)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
945	brunch out	12	grain	tortilla chips	(tortilla_chips)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
946	brunch out	13	cereal	granola	(granola)/13	13			(yogurt)/2 (natural_yogurt)/1 (fruit)/1	4	13	0,00	0,00	46,15	53,85	0,00	100,00
947	brunch out	14	cereal	oats	(porridge)/5 (oatmeal)/2	7					6	0,00	0,00	50,00	50,00	0,00	100,00
948	brunch out	15	cereal	breakfast cereal	(cereal)/4	4					4	0,00	0,00	25,00	75,00	0,00	100,00
949	brunch out	16	cereal	muesli	(muesli)/3 (crunchy_muesli)/1	4			(milk)/1	1	4	0,00	25,00	25,00	50,00	25,00	75,00
950	brunch out	17	starchy vegetable	chips/fries	(fries)/5 (french_fries)/4 (sweet_potato_fries)/1 (chips)/9	19			(salt)/1 (ketchup)/4	5	18	38,89	58,33	2,78	0,00	97,22	2,78
951	brunch out	18	starchy vegetable	potato scone	(potato_scone)/11	11					11	45,45	54,55	0,00	0,00	100,00	0,00
952	brunch out	19	starchy vegetable	hash brown	(hash_browns)/8 (crisps)/3	8					8	62,50	37,50	0,00	0,00	100,00	0,00
953	brunch out	20	starchy vegetable	crisps	(onion_crisps)/1 (cheese_onion_crisps)/2 (salt_vingear_Kettle_chips)/1	7					6	58,33	41,67	0,00	0,00	100,00	0,00
954	brunch out	21	starchy vegetable	side potatoes	(potatoes)/1 (grilled_potatoes)/1 (boiled_potatoes)/1 (fried_potatoes)/1 (baked_potato)/1	5			(chilli_garlic)/1	1	5	20,00	40,00	20,00	20,00	60,00	40,00
955	brunch out	22	starchy vegetable	potato waffle	(potato_waffle)/1	1			(ketchup)/1	1	1	0,00	100,00	0,00	0,00	100,00	0,00
956	brunch out	23	starchy vegetable	potato pancake	(potato_pancake)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
957	brunch out	24	meat protein	bacon	(bacon)/36 (turkey_bacon)/1 (chicken_bacon)/1 (roasted_bacon)/1	39			(ketchup)/1	1	38	60,53	39,47	0,00	0,00	100,00	0,00
958	brunch out	25	meat protein	sausage	(sausages)/26 (lorne_sausage)/2 (square_sausage)/2 (pork_sausage)/1	31			(ketchup)/2	2	29	55,17	41,38	0,00	3,45	96,55	3,45
959	brunch out	26	meat protein	black pudding	(black_pudding)/8	8					8	50,00	50,00	0,00	0,00	100,00	0,00
960	brunch out	27	meat protein	ham	(ham)/4 (ham_platter)/1 (cured_ham)/1 (roasted_ham)/1 (sliced_ham)/1	8					7	64,29	21,43	14,29	0,00	85,71	14,29
961	brunch out	28	meat protein	sheep	(haggis)/5	5					5	20,00	80,00	0,00	0,00	100,00	0,00
962	brunch out	29	meat protein	chicken	(roasted_chicken_breast)/1 (fried_chicken)/1 (chinese_steamed_chicken)/1 (grilled_chicken)/1	4					2	16,67	16,67	50,00	16,67	33,33	66,67
963	brunch out	30	meat protein	beef	(steak)/2	2					2	50,00	50,00	0,00	0,00	100,00	0,00
964	brunch out	31	meat protein	prosciutto	(prosciutto_crudo)/2	2					2	50,00	50,00	0,00	0,00	100,00	0,00
965	brunch out	32	meat protein	general meat	(cured_meats)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
966	brunch out	33	meat protein	pepperoni	(pepperon)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
967	brunch out	34	meat protein	pork	(pork_belly)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
968	brunch out	35	meat protein	chorizo	(chorizo)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
969	brunch out	36	fish protein	salmon	(salmon)/5 (smoked_salmon)/10 (sliced_salmon)/2	17					17	5,88	5,88	47,06	41,18	11,76	88,24
970	brunch out	37	fish protein	general fish	(fish)/1 (oily_fish)/1 (fried_battered_fish)/1	3					3	33,33	0,00	0,00	66,67	33,33	66,67
971	brunch out	38	fish protein	prawn	(prawns)/2	2					2	0,00	0,00	0,00	100,00	0,00	100,00
972	brunch out	39	fish protein	tuna	(tuna)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
973	brunch out	40	vegetarian protein	simple egg (no extra ingredients)	(eggs)/16 (scrambled_eggs)/18 (poached_eggs)/14 (fried_egg)/18 (boiled_egg)/5	71			(hollandaise_sauce)/1	1	53	23,74	11,95	45,44	18,87	35,69	64,31
974	brunch out	41	vegetarian protein	beans	(beans)/2 (roasted_beans)/1 (baked_beans)/12	15					15	33,33	20,00	40,00	6,67	53,33	46,67
975	brunch out	42	vegetarian protein	nuts	(nuts)/1 (walnuts)/1 (almonds)/1	3					3	0,00	0,00	66,67	33,33	0,00	100,00
976	brunch out	43	vegetarian protein	vegetarian sausage	(vegetarian_sausages)/2	2					2	0,00	50,00	0,00	50,00	50,00	50,00
977	brunch out	44	vegetarian protein	falafel	(falafel)/2	2					2	0,00	50,00	0,00	50,00	50,00	50,00
978	brunch out	45	vegetarian protein	mycoprotein/Quorn	(Quorn_sausages)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
979	brunch out	46	vegetarian protein	tofu	(scrambled_tofu)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00

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980	brunch out	47	dairy protein/alternative	cheese	(cheese)/9 (fried_cheese)/1 (mozzarella)/2 (feta_cheese)/3 (halloumi)/1 (fried_halloumi_cheese)/1 (cow's_milk_cheese)/1 (cream_cheese)/5 (goat's_cheese)/1 (ricotta_cheese)/1	25					23	36,96	19,57	32,61	10,87	56,52	43,48
981	brunch out	48	dairy protein/alternative	yogurt	(yogurt)/10 (greek_yogurt)/2 (actimel)/1	13			(fruit)/2	2	13	0,00	0,00	38,46	61,54	0,00	100,00
982	brunch out	49	dairy protein/alternative	plant based yogurt	(vegan_yogurt)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
983	brunch out	50	general vegetable	side salad	(salad)/14 (salad_leaves)/1 (leafy_salad)/1	16			(thousand_island_sauce)/1	1	16	0,00	0,00	37,50	62,50	0,00	100,00
984	brunch out	51	general vegetable	vegetable	(vegetables)/1 (greens)/1	2					2	0,00	0,00	50,00	50,00	0,00	100,00
985	brunch out	52	aboveground vegetable	tomatoes	(tomatoes)/16 (grilled_tomato)/2 (fried_tomato)/4 (roasted_tomatoes)/1	23					23	8,70	0,00	78,26	13,04	8,70	91,30
986	brunch out	53	aboveground vegetable	mushroom	(mushrooms)/9 (grilled_mushroom)/2 (fried_mushrooms)/6 (roasted_mushrooms)/1	18			(garlic)/1 (butter)/1	2	18	16,67	11,11	50,00	22,22	27,78	72,22
987	brunch out	54	aboveground vegetable	avocado	(avocado)/12	12					12	0,00	0,00	66,67	33,33	0,00	100,00
988	brunch out	55	aboveground vegetable	spinach	(spinach)/5 (wilted_spinach)/1	6					6	0,00	0,00	100,00	0,00	0,00	100,00
989	brunch out	56	aboveground vegetable	cabbage	(cabbage)/1 (coleslaw)/2	3					3	0,00	66,67	33,33	0,00	66,67	33,33
990	brunch out	57	aboveground vegetable	pepper/capsicum	(capsicum)/1 (peppers)/1	2					2	0,00	0,00	50,00	50,00	0,00	100,00
991	brunch out	58	aboveground vegetable	lettuce	(lettuce)/2	2					2	0,00	0,00	50,00	50,00	0,00	100,00
992	brunch out	59	aboveground vegetable	olive	(olives)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
993	brunch out	60	aboveground vegetable	courgette	(courgettes)/1	1			(pesto_sauce)/1	1	1	0,00	0,00	0,00	100,00	0,00	100,00
994	brunch out	61	aboveground vegetable	cucumber	(cucumber)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
995	brunch out	62	aboveground vegetable	kale	(kale)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
996	brunch out	63	aboveground vegetable	peas	(peas)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
997	brunch out	64	aboveground vegetable	sweet corn	(grilled_corns)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
998	brunch out	65	aboveground vegetable	celery	(celery_sticks)/1	1					1	0,00	0,00	0,00	0,00	0,00	0,00
999	brunch out	66	below ground vegetable	carrot	(carrots)/2	2					2	0,00	0,00	50,00	50,00	0,00	100,00
1000	brunch out	67	below ground vegetable	onion	(red_onion)/1 (onion_rings)/1	2					2	0,00	50,00	50,00	0,00	50,00	50,00
1001	brunch out	68	below ground vegetable	beetroot	(sliced_beetroot)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
1002	brunch out	69	below ground vegetable	turnip	(turnip)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
1003	brunch out	70	general fruit	fruit salad	(fruit_salad)/11	11			(natural_yogurt)/1 (mascarpone_cream)/1	2	10	0,00	5,00	25,00	70,00	5,00	95,00
1004	brunch out	71	general fruit	fruit/piece of fruit	(fruit)/6 (fresh_fruit)/1 (red_fruits)/1	8					8	0,00	0,00	62,50	37,50	0,00	100,00
1005	brunch out	72	berry fruit	strawberry	(strawberries)/10	10					10	0,00	0,00	50,00	50,00	0,00	100,00
1006	brunch out	73	berry fruit	blueberry	(blueberries)/3	3					3	0,00	0,00	33,33	66,67	0,00	100,00
1007	brunch out	74	berry fruit	berry	(berries)/1 (mixed_berries)/1	2					2	0,00	0,00	100,00	0,00	0,00	100,00
1008	brunch out	75	berry fruit	raspberry	(raspberries)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
1009	brunch out	76	berry fruit	blackberry	(blackberries)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
1010	brunch out	77	pit/core fruit	apple	(apple)/11	11					10	0,00	0,00	50,00	50,00	0,00	100,00
1011	brunch out	78	pit/core fruit	pear	(pear)/2	2					2	0,00	0,00	0,00	100,00	0,00	100,00
1012	brunch out	79	pit/core fruit	peach	(peach)/2	2					2	0,00	0,00	50,00	50,00	0,00	100,00
1013	brunch out	80	pit/core fruit	cherry	(cherries)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
1014	brunch out	81	melon fruit	melon	(melon)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
1015	brunch out	82	citrus fruit	orange	(orange)/3	3					3	0,00	0,00	66,67	33,33	0,00	100,00
1016	brunch out	83	citrus fruit	grapes	(grapes)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
1017	brunch out	84	tropical fruit	banana	(banana)/14	14					14	0,00	0,00	57,14	42,86	0,00	100,00
1018	brunch out	85	tropical fruit	pineapple	(pineapple)/2	2					2	0,00	0,00	50,00	50,00	0,00	100,00
1019	brunch out	86	dried fruit	dried fruit	(dried_fruit)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
1020	brunch out	87	baked dessert	cake	(cake)/8 (chocolate_cake)/2 (millionaire_cake)/1 (cheese_cake)/2 (carrot_cake)/3 (vegan_cake)/1	17					15	43,33	50,00	0,00	6,67	93,33	6,67
1021	brunch out	88	baked dessert	croissant	(croissant)/15 (chocolate_croissant)/1 (pain_au_chocolat)/2	18			(butter)/2 (jam)/1	3	15	50,00	46,67	0,00	3,33	96,67	3,33
1022	brunch out	89	baked dessert	sweet waffle	(waffles)/14 (chocolate_chip_waffles)/1	15			(ice_cream)/1 (maple_syrup)/3 (chocolate_sauce)/2 (nutella)/1	7	15	26,67	73,33	0,00	0,00	100,00	0,00
1023	brunch out	90	baked dessert	muffin	(muffin)/7 (chocolate_muffin)/2 (breakfast_muffin)/1 (blueberry_muffin)/1	11					11	9,09	81,82	0,00	9,09	90,91	9,09
1024	brunch out	91	baked dessert	cookie	(cookie)/3 (chocolate_cookie)/1 (milk_chocolate_cookie)/1 (belgian_chocolate_cookie)/1	6					6	33,33	66,67	0,00	0,00	100,00	0,00
1025	brunch out	92	baked dessert	biscuit	(biscuits)/2 (digestives)/2 (chocolate_biscuits)/1	5					5	40,00	60,00	0,00	0,00	100,00	0,00
1026	brunch out	93	baked dessert	sweet pastry	(pastry)/2 (cream_pastry)/1 (yum_yum)/1	4					4	100,00	0,00	0,00	0,00	100,00	0,00
1027	brunch out	94	baked dessert	doughnut	(doughnut)/2	2					2	50,00	50,00	0,00	0,00	100,00	0,00
1028	brunch out	95	baked dessert	brioche	(brioche)/1 (chocolate_brioche)/1	2					2	50,00	0,00	50,00	0,00	50,00	50,00
1029	brunch out	96	baked dessert	sweet pie	(pie)/2	2					2	50,00	50,00	0,00	0,00	100,00	0,00
1030	brunch out	97	baked dessert	brownie	(vegan_brownie)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
1031	brunch out	98	baked dessert	cupcake	(cup_cake)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
1032	brunch out	99	baked dessert	cinammon roll	(cinnamon_roll)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
1033	brunch out	100	chilled dessert	ice cream	(ice_cream)/3	3					3	33,33	66,67	0,00	0,00	100,00	0,00
1034	brunch out	101	chilled dessert	pudding	(fried_fruit_pudding)/1 (vegan_pudding)/1	2					2	0,00	100,00	0,00	0,00	100,00	0,00
1035	brunch out	102	confectionery	chocolate	(chocolate)/3 (chocolate_bar)/2	5					5	20,00	80,00	0,00	0,00	100,00	0,00
1036	brunch out	103	confectionery	snack bar	(breakfast_bar)/1 (oat_honey_bar)/1 (granola_bar)/1 (flapjack_raisin)/1 (flapjack_chocolate_chips)/1	5					4	25,00	50,00	0,00	25,00	75,00	25,00
1037	brunch out	104	carbs based dish	pasta dish	(pasta)/4 (macaroni)/2 (lasagne)/1	7	(vegetarian)/5 (N/A)/2	(tomato_sauce)/2 (cheese)/2 (vegetables)/1			5	0,00	33,33	40,00	26,67	33,33	66,67

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1038	brunch out	105	carbs based dish	pastry/bake/pasty	(greggs_roll_pastry)/3 (roll_pastry)/2 (greggs_bake)/2	7	(meat)/7	(sausage)/5 (steak)/2			4	50,00	50,00	0,00	0,00	100,00	0,00
1039	brunch out	106	carbs based dish	pizza	(pizza)/2	2	(N/A)/2				2	50,00	50,00	0,00	0,00	100,00	0,00
1040	brunch out	107	carbs based dish	focaccia	(focaccia)/2	2	(N/A)/2				2	100,00	0,00	0,00	0,00	100,00	0,00
1041	brunch out	108	carbs based dish	quiche/tart	(quiche)/1 (quiche_lorraine)/1	2	(meat)/1 (N/A)/1				2	50,00	50,00	0,00	0,00	100,00	0,00
1042	brunch out	109	carbs based dish	savoury pie	(pie)/2	2	(meat)/1 (vegetarian)/1	(steak)/1 (cheese_onion)/1			2	100,00	0,00	0,00	0,00	100,00	0,00
1043	brunch out	110	carbs based dish	savoury pancake	(pancake)/1	1	(meat)/1	(bacon)/1	(maple_syrup)/1	1	1	100,00	0,00	0,00	0,00	100,00	0,00
1044	brunch out	111	carbs based dish	savoury waffle	(waffles)/1	1	(meat)/1	(bacon)/1	(maple_syrup)/1	1	1	0,00	100,00	0,00	0,00	100,00	0,00
1045	brunch out	112	carbs based dish	savoury crepe	(crepes)/1	1	(meat)/1	(ham_cheese)/1			1	100,00	0,00	0,00	0,00	100,00	0,00
1046	brunch out	113	carbs based dish	baked/jacket potato	(jaket_potato)/1	1	(vegetarian)/1	(beans)/1			1	0,00	0,00	100,00	0,00	0,00	100,00
1047	brunch out	114	protein based dish	egg dish	(eggs)/1 (baked_eggs)/1 (scrambled_eggs)/6 (poached_eggs)/6 (fried_eggs)/1 (shakshuka)/1 (omelette)/13 (spanish_omelette)/1 (frittata)/2 (eggs_benedict)/7 (eggs_florentine)/2 (eggs_mornay)/1 (eggs_royale)/3	46	(meat)/10 (fish)/3 (vegetarian)/18 (N/A)/13	(tomato_sweet_potato)/1 (cheese)/2 (bacon)/1 (ham)/2 (mixed_peppers)/1 (spinach_cheese)/1 (potatoes)/1	(spinach)/1 (avocado)/1 (pepper_sauce)/1 (butter)/2	5	25	29,00	22,33	40,67	8,00	51,33	48,67
1048	brunch out	115	protein based dish	english breakfast	(english_breakfast)/2 (full_english_breakfast)/4 (fried_breakfast)/1	7	(meat)/7	(bacon_eggs_beans_toast)/1	(butter)/1	1	7	14,29	85,71	0,00	0,00	100,00	0,00
1049	brunch out	116	protein based dish	kebab	(kebab)/2	2	(meat)/2	(lamb)/1 (beef)/1			1	0,00	100,00	0,00	0,00	100,00	0,00
1050	brunch out	117	complex dish (could be either carbs, proteins, vegetables, or a mix of these)	sandwich	(sandwich)/21 (Subway_sandwich)/1 (shop_bought_sandwich)/1 (baguette)/4 (panini)/2 (toast)/4 (toastie)/3 (butty)/1 (roll)/8 (Gregg's_roll)/1 (croque_monsieur)/2 (Mcmuffin)/1 (french_toast)/12 (brosche_french_toast)/1 (hot_dog)/1 (filled_roll)/1 (bagel)/4	68	(meat)/31 (fish)/5 (vegetarian)/23 (N/A)/9	(meat)/1 (cheese)/3 (cheese_lettuce)/1 (cheese_tomato)/1 (cheese_pesto)/1 (cream_cheese)/2 (tuna)/2 (tuna_cucumber)/2 (chicken)/1 (chicken_salad)/1 (ham)/1 (ham_tomato)/1 (ham_cheese)/4 (bacon)/12 (BLT:bacon_lettuce_tomato)/2 (hummus_winter_vegetables)/1 (Club:chicken_bacon_lettuce_tomato)/1 (egg)/1 (egg_watercress)/1 (egg_bacon_cheese)/1 (sausage)/2 (meatball_cheese_lettuce_red_onion)/1 (wurstel)/1 (beans)/1 (salmon)/1 (tomato)/1	(butter)/3 (tomato_sauce)/2 (kethcup)/1 (mayonnaise)/1 (BBQ_sauce)/1 (honey)/1 (maple_syrup)/4 (olive_oil)/1 (crunchy_peanut_butter)/1	15	49	38,44	30,27	17,01	14,29	68,71	31,29
1051	brunch out	118	complex dish (could be either carbs, proteins, vegetables, or a mix of these)	burger and bun	(burger)/8 (cheese_burger)/4 (hamburger)/1	13	(meat)/11 (fish)/1 (vegetarian)/1	(beef)/2 (chicken)/1 (organic_chicken)/1 (falafel)/1	(mustard)/1	1	12	41,67	50,00	0,00	8,33	91,67	8,33
1052	brunch out	119	complex dish (could be either carbs, proteins, vegetables, or a mix of these)	soup	(soup)/9 (soup_de_jour)/1	10	(vegetarian)/1 (N/A)/9	(vegetables)/1			10	0,00	0,00	70,00	30,00	0,00	100,00
1053	brunch out	120	complex dish (could be either carbs, proteins, vegetables, or a mix of these)	wrap	(tortilla_wrap)/2 (breakfast_burrito)/1 (breakfast_tacos)/1	4	(meat)/2 (N/A)/2	(chicken)/1 (chorizo)/1	(sweet_chilli)/1	1	4	25,00	50,00	25,00	0,00	75,00	25,00
1054	brunch out	121	complex dish (could be either carbs, proteins, vegetables, or a mix of these)	meal salad	(salad)/3	3	(meat)/1 (fish)/1 (vegetarian)/1	(goats_cheese)/1 (smoked_salmon)/1 (chicken_caesar)/1			2	25,00	0,00	25,00	50,00	25,00	75,00
1055	brunch out	122	complex dish (could be either carbs, proteins, vegetables, or a mix of these)	curry	(curry)/1	1	(vegetarian)/1	(chickpea)/1			1	0,00	0,00	0,00	100,00	0,00	100,00
1056	brunch out	123	complex dish (could be either carbs, proteins, vegetables, or a mix of these)	chilli	(chilli)/1	1	(meat)/1	(con_carne)/1			1	100,00	0,00	0,00	0,00	100,00	0,00
1057	brunch out	124	complex dish (could be either carbs, proteins, vegetables, or a mix of these)	fritters	(vegetarian)/1	1	(sweet_potato)/1	(avocado)/1			1	0,00	100,00	0,00	0,00	100,00	0,00
1058	brunch out	125	cold drink	soft drink	(soft_drink)/1 (Coca_Cola)/14 (Diet_Coke)/4 (Fanta)/2 (Sprite)/3 (7_Up)/1 (lemonade)/1 (Irn_Bru)/4 (fresh_orange_soda_water)/1	31					21	34,13	51,59	11,90	2,38	85,71	14,29
1059	brunch out	126	juice	fruit juice	(juice)/2 (freshly_squeezed_juice)/1 (fruit_juice)/4 (fresh_fruit_juice)/1 (orange_juice)/30 (fresh_orange_juice)/2 (apple_juice)/4 (grapefruit_juice)/1 (tomato_juice)/1 (multivitamin_juice)/1 (mango_juice)/1	48					41	9,76	4,88	51,22	34,15	14,63	85,37
1060	brunch out	127	blend	smoothie	(smoothie)/6 (fruit_smoothie)/2 (strawberry_smoothie)/1 (banana_smoothie)/2	11					11	0,00	9,09	36,36	54,55	9,09	90,91
1061	brunch out	128	blend	shake	(milkshake)/4	4					4	0,00	100,00	0,00	0,00	100,00	0,00
1062	brunch out	129	water/hot drink	coffee	(coffee)/38 (black_coffee)/7 (white_coffee)/1 (cappuccino)/8 (latte)/4 (whole_milk_latte)/1 (caffe_latte)/1 (mocha_coffe)/1	61			(milk)/19 (sugar)/9 (brown_sugar)/3	31	55	43,94	18,18	30,61	7,27	62,12	37,88

all order	eating situation	eating situation order	general food category	basic food	types	type frequency	main ingredient type (meat, fish, vegetarian)	main ingredient subtype (chicken, prawns, tomatoes, curry)	accompaniments	accompaniments frequency	overall frequency (basic food)	% TF	% TO	% HF	% HO	% tasty	% healthy
1063	brunch out	130	water/hot drink	tea	(tea)/34 (black_tea)/4 (black_english_tea)/1 (english_breakfast_tea)/1 (black_earl_gray)/1 (fruit_tea)/1 (green_tea)/3 (herbal_tea)/1 (peppermint_tea)/1	47			(milk)/10 (sugar)/5 (brown_sugar)/1	16	45	20,00	4,44	56,67	18,89	24,44	75,56
1064	brunch out	131	water/hot drink	water	(water)/28 (tap_water)/4 (table_water)/1 (still_water)/3 (sparkling_water)/2	38					37	0,00	0,00	78,38	21,62	0,00	100,00
1065	brunch out	132	water/hot drink	hot chocolate	(hot_chocolate)/11	11			(cream)/1	1	11	27,27	72,73	0,00	0,00	100,00	0,00
1066	brunch out	133	alcoholic drink	wine	(wine)/2 (white_wine)/1 (red_wine)/1 (prosecco)/1	5					5	0,00	80,00	20,00	0,00	80,00	20,00
1067	brunch out	134	alcoholic drink	cocktail	(tomato_juice_alcohol)/1 (mimosa)/2 (sangria)/1	4					3	16,67	83,33	0,00	0,00	100,00	0,00
1068	brunch out	135	alcoholic drink	beer	(beer)/2 (lager)/1	3					2	50,00	50,00	0,00	0,00	100,00	0,00
1069	brunch out	136	other drink	chocolate drink	(chocolate_drink)/2	2					2	0,00	100,00	0,00	0,00	100,00	0,00
1070	brunch out	137	basic condiment	salt	(salt)/2	2					2	50,00	50,00	0,00	0,00	100,00	0,00
1071	brunch out	138	basic condiment	sugar/sweetener	(sweetner)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
1072	brunch out	139	basic condiment	pepper	(pepper)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
1073	brunch out	140	basic condiment	vinegar	(vinegar)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
1074	brunch out	141	dressing/sauce	hollandaise sauce	(hollandaise_sauce)/4	4					4	25,00	75,00	0,00	0,00	100,00	0,00
1075	brunch out	142	dressing/sauce	brown sauce	(brown_sauce)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
1076	brunch out	143	dressing/sauce	salad dressing	(salad_dressing)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
1077	brunch out	144	spread/dip/topping	ketchup	(ketchup)/7	7					7	42,86	57,14	0,00	0,00	100,00	0,00
1078	brunch out	145	spread/dip/topping	syrup	(syrup)/1 (maple_syrup)/5 (golden_syrup)/1	7					6	33,33	66,67	0,00	0,00	100,00	0,00
1079	brunch out	146	spread/dip/topping	butter	(butter)/5	5					5	20,00	60,00	20,00	0,00	80,00	20,00
1080	brunch out	147	spread/dip/topping	chocolate spread	(chocolate_spread)/1 (nutella)/3	4					4	25,00	75,00	0,00	0,00	100,00	0,00
1081	brunch out	148	spread/dip/topping	marmalade/jam	(marmalade)/1 (jam)/3 (berry_jam)/1	5					4	37,50	62,50	0,00	0,00	100,00	0,00
1082	brunch out	149	spread/dip/topping	hummus	(humus)/2	2					2	0,00	0,00	50,00	50,00	0,00	100,00
1083	brunch out	150	spread/dip/topping	mayonnaise	(mayonnaise)/2	2					2	0,00	100,00	0,00	0,00	100,00	0,00
1084	brunch out	151	spread/dip/topping	peanut butter	(peanut_butter)/1	1					2	50,00	50,00	0,00	0,00	100,00	0,00
1085	brunch out	152	spread/dip/topping	honey	(honey)/2	2					2	0,00	0,00	100,00	0,00	0,00	100,00
1086	brunch out	153	spread/dip/topping	spread	(low_fat_spread)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
1087	brunch out	154	spread/dip/topping	guacamole salsa	(guacamole)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
1088	brunch out	155	spread/dip/topping	baba ganoush	(baba_ganoush)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
1089	brunch out	156	spread/dip/topping	tahini	(tahini)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
1090	brunch out	157	other	cream	(clotted_cream)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
1091	lunch out	1	flour-based baked food	bread	(bread)/15 (white_bread)/4 (wholemeal_bread)/2 (wholegrain_bread)/1 (naan_bread)/4 (ciabatta)/1 (flatbread)/1 (pitta_bread)/2 (garlic_bread)/4 (baguette)/1 (bread_muffin)/1 (panini_bread)/1 (bread_roll)/1 (bagel)/1 (burger_bun)/1 (toast)/1 (fried_toast)/1 (cheesebread)/1 (roll)/1 (bread_bun)/1	45			(butter)/5 (hummus)/2 (ketchup)/1 (mayonnaise)/1	9	30	45,00	18,89	22,22	13,89	63,89	36,11
1092	lunch out	2	flour-based baked food	scone	(scone)/2 (cheese_scone)/1	3			(butter)/2 (jam)/1	3	3	0,00	100,00	0,00	0,00	100,00	0,00
1093	lunch out	3	flour-based baked food	tortilla chips	(tortilla_chips)/2	2					2	50,00	50,00	0,00	0,00	100,00	0,00
1094	lunch out	4	flour-based baked food	poppadom	(poppadoms)/1	1			(mango_chutney)/1	1	1	0,00	100,00	0,00	0,00	100,00	0,00
1095	lunch out	5	flour-based baked food	oatcake	(oatcakes)/1	1			(peanut_butter)/1	1	1	0,00	0,00	100,00	0,00	0,00	100,00
1096	lunch out	6	flour-based baked food	pretzel	(sainsbury's pretzel)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
1097	lunch out	7	flour-based baked food	pastry	(pastry)/1	1			(spreads)/1	1	1	0,00	0,00	100,00	0,00	0,00	100,00
1098	lunch out	8	flour-based baked food	cracker	(crackers)/1	1			(butter)/1 (cheese)/1	2	1	0,00	0,00	100,00	0,00	0,00	100,00
1099	lunch out	9	flour-based fried food	sweet pancake	(pancake)/3	3			(cream)/1 (jam)/1	2	3	0,00	100,00	0,00	0,00	100,00	0,00
1100	lunch out	10	flour-based fried food	sweet crepe	(crepe)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
1101	lunch out	11	grain	side rice	(rice)/15 (steamed_rice)/2	17					17	17,65	11,76	47,06	23,53	29,41	70,59
1102	lunch out	12	grain	side quinoa	(quinoa)/3	3					3	0,00	0,00	66,67	33,33	0,00	100,00
1103	lunch out	13	grain	side couscous	(cous_cous)/3	3					3	33,33	33,33	0,00	33,33	66,67	33,33
1104	lunch out	14	grain	pop corn	(pop_corn)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
1105	lunch out	15	starchy vegetable	fries/chips	(chips)/35 (fries)/18 (french_fries)/7 (curly_fries)/1 (sweet_potato_fries)/2 (Mc_Donalds_fries)/2 (poutine)/1	66			(ketchup)/8 (vinegar)/2 (salt)/1 (mayonnaise)/4 (tomato_sauce)/2 (chilli_con_carne)/1	18	56	49,11	49,11	1,79	0,00	98,21	1,79
1106	lunch out	16	starchy vegetable	crisps	(crisps)/12 (walkers_baked_salt_vingear_crisps)/1 (cheese_onion_crisps)/1 (salt_vinegar_crisps)/1	15					15	46,67	53,33	0,00	0,00	100,00	0,00
1107	lunch out	17	starchy vegetable	side potatoes	(potatoes)/5 (white_potato)/1 (sweet_potatoes)/3 (fried_potatoes)/2 (steamed_potatoes)/1 (boiled_potatoes)/1 (patatas_bravas)/1	14			(mayonnaise)/1 (salt)/1 (cheese)/1	3	14	17,86	32,14	42,86	7,14	50,00	50,00
1108	lunch out	18	starchy vegetable	mashed potato	(mashed_potato)/3	3					3	0,00	66,67	33,33	0,00	66,67	33,33
1109	lunch out	19	starchy vegetable	potato salad	(potato_salad)/2	2					2	0,00	0,00	50,00	50,00	0,00	100,00
1110	lunch out	20	starchy vegetable	potato scone	(potato_scone)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
1111	lunch out	21	starchy vegetable	potato bake	(potato_bake)/1	1			(cream_cheese)/1	1	1	0,00	100,00	0,00	0,00	100,00	0,00

all order	eating situation	eating situation order	general food category	basic food	types	type frequency	main ingredient type (meat, fish, vegetarian)	main ingredient subtype (chicken, prawns, tomatoes, curry)	accompaniments	accompaniments frequency	overall frequency (basic food)	% TF	% TO	% HF	% HO	% tasty	% healthy
1112	lunch out	22	meat protein	chicken	(chicken)/17 (chicken_breast)/1 (baked_chicken_breast)/1 (breaded_chicken)/2 (fried_chicken)/7 (deep_fried_chicken)/1 (roasted_chicken)/2 (grilled_chicken)/1 (Nando's_chicken)/1 (chicken_wings)/2 (chicken_nuggets)/2	37			(peri_peri_sauce)/1 (kethcup)/1 (salt)/1	3	30	28,89	16,11	32,78	22,22	45,00	55,00
1113	lunch out	23	meat protein	beef	(beef)/2 (steak)/15 (corn_beef)/1	18			(pepper_sauce)/1	1	18	27,78	22,22	16,67	33,33	50,00	50,00
1114	lunch out	24	meat protein	sausage	(sausages)/8 (fried_sausages)/1	9					9	44,44	44,44	11,11	0,00	88,89	11,11
1115	lunch out	25	meat protein	pork	(pork)/2 (pork_loin)/1 (pork_chop)/2 (pork_steak)/1 (crispy_pork_belly)/1 (pulled_pork)/1	8					8	37,50	50,00	0,00	12,50	87,50	12,50
1116	lunch out	26	meat protein	ham	(ham)/5 (cured_ham)/1	6					6	16,67	50,00	33,33	0,00	66,67	33,33
1117	lunch out	27	meat protein	salami	(salami)/3	3					3	66,67	0,00	0,00	33,33	66,67	33,33
1118	lunch out	28	meat protein	black pudding	(black_pudding)/3	3					3	66,67	0,00	0,00	33,33	66,67	33,33
1119	lunch out	29	meat protein	bacon	(bacon)/4	4					3	66,67	33,33	0,00	0,00	100,00	0,00
1120	lunch out	30	meat protein	lamb	(lamb)/1 (lamb_steak)/1 (roast_lamb)/1	3					3	33,33	33,33	33,33	0,00	66,67	33,33
1121	lunch out	31	meat protein	sheep	(haggis)/3	3					3	33,33	33,33	0,00	33,33	66,67	33,33
1122	lunch out	32	meat protein	chorizo	(chorizo)/2	2					2	50,00	50,00	0,00	0,00	100,00	0,00
1123	lunch out	33	meat protein	general meat	(red_meat)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
1124	lunch out	34	meat protein	ribs	(pork_ribs)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
1125	lunch out	35	meat protein	meatball	(meatballs)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
1126	lunch out	36	meat protein	donner meat	(donner_meat)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
1127	lunch out	37	meat protein	chicken balmoral	(chicken_balmoral)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
1128	lunch out	38	meat protein	turkey	(turkey)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
1129	lunch out	39	fish protein	general fish	(fish)/5 (white_fish)/1 (non-white_fish)/1 (fried_fish)/1 (battered_fish)/4 (fried_battered_fish)/1 (grilled_fish)/2 (canned_fish)/1 (grilled_seafood)/1	17			(salt)/1	1	14	21,43	14,29	39,29	25,00	35,71	64,29
1130	lunch out	40	fish protein	salmon	(salmon)/9 (steamed_salmon)/1 (smoked_salmon)/3	13					12	0,00	0,00	50,00	50,00	0,00	100,00
1131	lunch out	41	fish protein	tuna	(tuna)/6 (tuna_steak)/1	7					7	0,00	0,00	71,43	28,57	0,00	100,00
1132	lunch out	42	fish protein	prawn	(prawns)/5 (king_prawns)/1 (prawn_tempura)/1	7			(marie_rose_sauce)/1 (sweet_chilli_sauce)/1 (garlic)/1	3	7	14,29	0,00	28,57	57,14	14,29	85,71
1133	lunch out	43	fish protein	seabass	(seabass)/2	2					2	0,00	0,00	50,00	50,00	0,00	100,00
1134	lunch out	44	fish protein	trout	(trout)/2	2			(lemon_sauce)/1	1	2	0,00	0,00	50,00	50,00	0,00	100,00
1135	lunch out	45	fish protein	fish finger	(fish_fingers)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
1136	lunch out	46	fish protein	sashimi	(sashimi)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
1137	lunch out	47	fish protein	fish cake	(fish_cake)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
1138	lunch out	48	fish protein	snail	(snails)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
1139	lunch out	49	vegetarian protein	simple egg (no other ingredients)	(eggs)/6 (poached_eggs)/2 (scrambled_eggs)/1 (boiled_eggs)/1 (hard_boiled_eggs)1 (fried_eggs)/1	12			(pepper)/1 (hollandaise_sauce)/1	2	11	13,64	18,18	40,91	27,27	31,82	68,18
1140	lunch out	50	vegetarian protein	falafel	(falafel)/6	6					7	14,29	14,29	28,57	42,86	28,57	71,43
1141	lunch out	51	vegetarian protein	beans	(beans)/2 (baked_beans)/2	4					4	75,00	0,00	0,00	25,00	75,00	25,00
1142	lunch out	52	vegetarian protein	nuts	(nuts)/2 (peanuts)/1	3					3	0,00	0,00	100,00	0,00	0,00	100,00
1143	lunch out	53	vegetarian protein	seeds	(seeds)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
1144	lunch out	54	vegetarian protein	lentils	(lentils)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
1145	lunch out	55	vegetarian protein	chickpeas	(chickpeas)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
1146	lunch out	56	vegetarian protein	dhal	(dhal)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
1147	lunch out	57	vegetarian protein	tofu	(tofu)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
1148	lunch out	58	dairy protein/alternative	cheese	(cheese)/13 (fried_cheese)/2 (cheese_spread)/1 (cow's_milk_cheese)/1 (goats_cheese)/1 (feta_cheese)/3 (halloumi_cheese)/1 (grilled_halloumi)/1 (chilli_fried_halloumi)/1 (cramembert)/1	25					22	36,36	33,33	25,76	4,55	69,70	30,30
1149	lunch out	59	dairy protein/alternative	yogurt	(yogurt)/3 (goat_yogurt)/1 (fruit_yogurt)/1 (rice_yogurt)/1	6			(strawberries)/1	1	5	0,00	20,00	50,00	30,00	20,00	80,00
1150	lunch out	60	general vegetable	side salad	(salad)/42 (side_salad)/2 (salad_leaves)/3	47			(salt)/1 (pepper)/1 (dressing)/1	3	42	4,76	2,38	47,62	45,24	7,14	92,86
1151	lunch out	61	general vegetable	vegetable	(vegetables)/3 (steamed_vegetables)/1 (mixed_vegetables)/1 (pickled_vegetables)/1 (boiled_vegetables)/1 (grilled_vegetables)/1 (fried_vegetables)/1 (roasted_vegetables)/1	10					10	0,00	10,00	50,00	40,00	10,00	90,00
1152	lunch out	62	aboveground vegetable	tomatoes	(tomatoes)/15 (fried_tomato)/1	16					16	6,25	12,50	68,75	12,50	18,75	81,25
1153	lunch out	63	aboveground vegetable	lettuce	(lettuce)/10	10			(salad_cream)/1	1	10	0,00	0,00	70,00	30,00	0,00	100,00
1154	lunch out	64	aboveground vegetable	cucumber	(cucumber)/5	5					5	0,00	0,00	80,00	20,00	0,00	100,00
1155	lunch out	65	aboveground vegetable	spinach	(spinach)/5	5			(yogurt_dressing)/1	1	5	0,00	20,00	60,00	20,00	20,00	80,00
1156	lunch out	66	aboveground vegetable	avocado	(avocado)/5	5					5	0,00	20,00	80,00	0,00	20,00	80,00
1157	lunch out	67	aboveground vegetable	pepper	(peppers)/3 (bell_pepper)/1	4					4	0,00	0,00	50,00	50,00	0,00	100,00
1158	lunch out	68	aboveground vegetable	mushroom	(mushrooms)/2 (fried_mushrooms)/1	3					3	33,33	0,00	33,33	33,33	33,33	66,67
1159	lunch out	69	aboveground vegetable	broccoli	(broccoli)/3	3					3	0,00	0,00	100,00	0,00	0,00	100,00
1160	lunch out	70	aboveground vegetable	cabbage	(coleslaw)/3	3					3	33,33	33,33	33,33	0,00	66,67	33,33
1161	lunch out	71	aboveground vegetable	rocket	(rocket)/2	2					2	0,00	0,00	100,00	0,00	0,00	100,00

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1162	lunch out	72	aboveground vegetable	olive	(olives)/2	2					2	0,00	0,00	50,00	50,00	0,00	100,00
1163	lunch out	73	aboveground vegetable	sweet corn	(boiled_corns)/2	2					2	0,00	50,00	0,00	50,00	50,00	50,00
1164	lunch out	74	aboveground vegetable	asparagus	(asparagus)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
1165	lunch out	75	aboveground vegetable	cauliflower	(cauliflower)/1	1			(buffalo_sauce)/1	1	1	0,00	100,00	0,00	0,00	100,00	0,00
1166	lunch out	76	aboveground vegetable	peas	(peas)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
1167	lunch out	77	aboveground vegetable	butternut squash	(butternut_squash)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
1168	lunch out	78	aboveground vegetable	chilli pepper	(chipotle)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
1169	lunch out	79	aboveground vegetable	green beans	(green_beans)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
1170	lunch out	80	below ground vegetable	carrot	(carrots)/5	5					5	0,00	0,00	80,00	20,00	0,00	100,00
1171	lunch out	81	below ground vegetable	onion	(onion)/4	4					4	0,00	0,00	75,00	25,00	0,00	100,00
1172	lunch out	82	below ground vegetable	beetroot	(beetroot)/2	2					2	0,00	0,00	50,00	50,00	0,00	100,00
1173	lunch out	83	below ground vegetable	garlic	(garlic)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
1174	lunch out	84	below ground vegetable	turnip	(turnip)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
1175	lunch out	85	general fruit	fruit	(fruit)/7 (fresh_fruit)/2	9					9	0,00	0,00	77,78	22,22	0,00	100,00
1176	lunch out	86	general fruit	fruit salad	(fruit_salad)/3 (fruit_bowl)/1 (portion_fruit_slices)/1	5					5	0,00	0,00	60,00	40,00	0,00	100,00
1177	lunch out	87	berry fruit	strawberry	(strawberries)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
1178	lunch out	88	berry fruit	raspberry	(raspberries)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
1179	lunch out	89	pit/core fruit	apple	(apple)/7	7					7	0,00	0,00	57,14	42,86	0,00	100,00
1180	lunch out	90	melon fruit	watermelon	(watermelon)/2	2					2	0,00	0,00	0,00	100,00	0,00	100,00
1181	lunch out	91	melon fruit	melon	(melon)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
1182	lunch out	92	citrus fruit	grapes	(grapes)/2	2					2	0,00	0,00	0,00	100,00	0,00	100,00
1183	lunch out	93	citrus fruit	small orange	(tangerine)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
1184	lunch out	94	tropical fruit	banana	(banana)/5	5					5	0,00	0,00	80,00	20,00	0,00	100,00
1185	lunch out	95	tropical fruit	mango	(mango_pieces)/1	1			(lime)/1	1	1	0,00	0,00	0,00	100,00	0,00	100,00
1186	lunch out	96	general dessert	dessert	(dessert)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
1187	lunch out	97	baked dessert	cake	(cake)/7 (chocolate_cake)/7 (cheese_cake)/2 (chocolate_orange_cake)/1 (vegan_cake)/1	18					17	47,06	52,94	0,00	0,00	100,00	0,00
1188	lunch out	98	baked dessert	brownie	(brownie)/2 (brownie_dessert)/1 (raw_cacao_brownie)/1 (vegan_brownie)/1	5					5	0,00	80,00	0,00	20,00	80,00	20,00
1189	lunch out	99	baked dessert	muffin	(muffin)/3	3					4	0,00	100,00	0,00	0,00	100,00	0,00
1190	lunch out	100	baked dessert	tart	(strawberry_tart)/1 (bakewell_tart)/1	2					2	0,00	100,00	0,00	0,00	100,00	0,00
1191	lunch out	101	baked dessert	doughnut	(doughnut)/1 (jam_donought)/1	2					2	0,00	100,00	0,00	0,00	100,00	0,00
1192	lunch out	102	baked dessert	cookie	(cookies)/2	2					2	50,00	50,00	0,00	0,00	100,00	0,00
1193	lunch out	103	baked dessert	crème caramel	(crème_caramel)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
1194	lunch out	104	baked dessert	crumble	(apple_crumble)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
1195	lunch out	105	baked dessert	sweet pie	(pie)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
1196	lunch out	106	chilled dessert	ice cream	(ice_cream)/8 (vanilla_ice_cream)/1 (chocolate_ice_cream)/1 (strawberry_ice_cream)/1 (vegan_ice_cream)/1	12					11	22,73	77,27	0,00	0,00	100,00	0,00
1197	lunch out	107	chilled dessert	éclair	(chocolate_eclair)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
1198	lunch out	108	chilled dessert	tiramisu	(tiramisu)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
1199	lunch out	109	chilled dessert	pudding	(vegan_desert_pudding)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
1200	lunch out	110	chilled dessert	mousse	(chocolate_mousse)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
1201	lunch out	111	confectionary	chocolate	(chocolate)/3 (small_chocolate)/1 (chocolate_bar)/3 (Mars_bar)/1	8					8	12,50	87,50	0,00	0,00	100,00	0,00
1202	lunch out	112	confectionary	snack bar	(granola_bar)/1 (lemon_curd_flapjack)/1	2					2	0,00	100,00	0,00	0,00	100,00	0,00
1203	lunch out	113	confectionary	sweets	(strawberry_bon_bons)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
1204	lunch out	114	other	custard	(custard)/1 (portoguese_custard)/1	2					2	0,00	100,00	0,00	0,00	100,00	0,00
1205	lunch out	115	carbs based dish	pasta dish	(pasta)/45 (penne)/1 (macaroni)/8 (macaroni_pie)/1 (spaghetti)/6 (ravioli)/1 (pasta_salad)/1 (pasta_bake)/2 (lasagne)/12	75	(meat)/23 (fish)/1 (vegetarian)/28 (vegan)/1 (N/A)/23	(sauce)/1 (cheese_sauce)/1 (cheese)/9 (cheese_prosciutto)/1 (arrabbiata_sauce)/1 (tomato_sauce)/5 (tomato_sauce_tub)/1 (carbonara)/8 (fungi)/1 (cream)/1 (vegetables)/1 (mixed_vegetables)/1 (pumpkin)/1 (bolognese)/5 (tuna)/1 (pesto_sauce)/1 (white_sauce)/1			54	35,19	43,83	16,36	4,63	79,01	20,99
1206	lunch out	116	carbs based dish	pizza	(pizza)/52 (light_pizza)/1 (pizza_cone)/1 (pizza_slice)/1	55	(meat)/5 (vegetarian)/3 (vegan)/1 (N/A)/46	(margherita)/3 (beef_pepperoni_olives_meatball)/1 (salami)/1 (chicken)/1 (smoked_sausage_pepperoni)/1 (pepperoni)/1			51	44,12	50,98	3,92	0,98	95,10	4,90
1207	lunch out	117	carbs based dish	noodle dish	(noodles)/10 (wholewheat_noodles)/1 (fried_noodles)/1 (pad_thai)/1 (fresh_noodles)/1 (udon_noodles)/1	15	(meat)/3 (fish)/1 (vegetarian)/1 (N/A)/10	(chicken)/3 (tofu)/1	(thai_sauce)/1	1	15	13,33	26,67	26,67	33,33	40,00	60,00
1208	lunch out	118	carbs based dish	pastry/bake/pasty	(plait)/1 (bake)/3 (Greggs_bake)/3 (pasty)/1 (pastry_roll)/7 (Greggs_pastry_roll)/1	16	(vegetarian)/2 (meat)/14	(feta_spinach)/1 (steak)/6 (cheese_onion)/1 (sausage)/8			12	37,50	62,50	0,00	0,00	100,00	0,00
1209	lunch out	119	carbs based dish	rice dish	(rice)/1 (risotto)/1 (pilau_rice)/1 (fried_rice)/4 (paella)/1	8	(vegetarian)/1 (N/A)/7	(tofu_vegetables)/1			8	37,50	37,50	12,50	12,50	75,00	25,00
1210	lunch out	120	carbs based dish	dumpling	(dumplings)/2 (chineese_dumplings)/3 (char_siu_bun)/1 (steamed_dumplings)/1	7	(meat)/1 (vegetarian)/2 (N/A)/4	(pineapple)/1 (pork_chinese_leaves)/1	(vinegar)/1 (spicy_sauce)/1 (soy_sauce)/1 (chineese_vinegar)/1	4	7	42,86	28,57	14,29	14,29	71,43	28,57
1211	lunch out	121	carbs based dish	savoury pie	(pie)/6 (savoury_pie)/1	7	(meat)/3 (vegetarian)/2 (fish)/1 (N/A)/1	(feta_spinach)/1 (salmon_spinach)/1 (mince)/1 (steak)/2 (onion_cheese)/1			6	50,00	50,00	0,00	0,00	100,00	0,00

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1212	lunch out	122	carbs based dish	nachos	(nachos)/3 (vegan_nachos)/1	4	(N/A)/3 (vegan)/1				4	50,00	50,00	0,00	0,00	100,00	0,00
1213	lunch out	123	carbs based dish	quiche/tart	(quiche)/2 (savoury_tart)/1	3	(N/A)/3				3	66,67	33,33	0,00	0,00	100,00	0,00
1214	lunch out	124	carbs based dish	gnocchi dish	(gnocchi)/1	1	(N/A)/1				1	0,00	100,00	0,00	0,00	100,00	0,00
1215	lunch out	125	carbs based dish	couscous dish	(cous_cous)/1	1	(fish)/1	(salmon_vegetables)/1			1	0,00	0,00	100,00	0,00	0,00	100,00
1216	lunch out	126	carbs based dish	bulgur wheat dish	(pourgouri)/1	1	(vegetarian)/1				1	0,00	0,00	0,00	100,00	0,00	100,00
1217	lunch out	127	carbs based dish	focaccia	(focaccia)/1	1	(N/A)/1				1	100,00	0,00	0,00	0,00	100,00	0,00
1218	lunch out	128	carbs based dish	samosa	(samosa)/1	1	(vegetarian)/1	(vegetable)/1			1	0,00	0,00	100,00	0,00	0,00	100,00
1219	lunch out	129	carbs based dish	asian roll	(spring_rolls)/1	1	(N/A)/1				1	0,00	0,00	100,00	0,00	0,00	100,00
1220	lunch out	130	carbs based dish	jacket/baked potato	(baked_potato)/8 (jacket_potato)/1 (baked_egg)/1	9	(fish)/1 (vegetarian)/1	(cheese)/1 (tuna)/1									
1221	lunch out	131	protein based dish	egg dish	(omelette)/4 (tortilla)/1 (scrambled_eggs_on_toast)/1 (eggs_royale)/1	8	(fish)/1 (vegetarian)/4 (N/A)/3	(cheese)/1 (potatoes)/1 (vegetables)/1			7	21,43	7,14	42,86	28,57	28,57	71,43
1222	lunch out	132	protein based dish	fish and chips	(fish_chips)/5	5	(fish)/1		(tartar_sauce)/1 (salt)/1 (vinegar)/1	3	5	60,00	40,00	0,00	0,00	100,00	0,00
1223	lunch out	133	protein based dish	roast	(sunday_roast)/2	2	(meat)/2				2	0,00	100,00	0,00	0,00	100,00	0,00
1224	lunch out	134	protein based dish	kebab	(kebab)/1	1	(meat)/1				1	0,00	100,00	0,00	0,00	100,00	0,00
1225	lunch out	135	protein based dish	gyros	(gyros)/1	1	(meat)/1				1	100,00	0,00	0,00	0,00	100,00	0,00
1226	lunch out	136	vegetable based dish	vegeterian fry up	(veggie_fry_up)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
1227	lunch out	137	complex dish (could be either cabs, proteins, vegetables, or a mix of these)	burger and bun	(burger)/45 (hamburger)/6 (double_hamburger)/1 (cheese_burger)/9 (Mc_donalds_burger)/5 (Mc_donalds_big_mac)/1 (Burger_King_whopper_burger)/1	68	(meat)/61 (fish)/1 (vegetarian)/5	(chicken)/8 (organic_chicken)/1 (beef)/9 (pork)/1 (lamb)/2 (bacon)/1 (seitan)/1 (chicken)/4	(salsa)/1 (mayonnaise)/1 (mustard)/1 (ketchup)/1 (avocado)/1 (cheese)/1	3	56	42,86	55,36	1,79	0,00	98,21	1,79
1228	lunch out	138	complex dish (could be either cabs, proteins, vegetables, or a mix of these)	sandwich	(bread)/1 (sandwich)/46 (wholemeal_sandwich)/1 (store_sandwich)/1 (pre_made_sandwich)/1 (toasted_sandwich)/1 (baguette)/6 (Sainsbury's_sandwich)/1 (parmesan_oregano_Subway)/1 (Subway_sandwich)/5 (sub_style_sandwich)/3 (sub_roll)/1 (bagel)/2 (panini)/16 (peckhams_panini)/1 (toast)/2 (toastie)/4 (croissant)/1 (roll)/4 (McDonalds_sandwich)/1 (french_toast)/1 (hot_dog)/2 (bruschetta)/1	101	(meat)/27 (fish)/15 (vegetarian)/21 (vegan)/3 (N/A)/21	(grilled_chicken)/1 (chicken_bacon_lettuce_tomato)/1 (lemon_chicken_brie)/1 (chicken_stuffing)/1 (chicken_salad)/2 (fish_fingers)/1 (ham_cheese)/5 (tuna)/5 (tuna_cheese)/1 (tuna_cucumber)/2 (tuna_mayonnaise)/1 (tuna_onion)/1 (lettuce_pickles_olives)/1 (smoked_salmon_cream_cheese_spinach)/1 (egg)/1 (egg_mayonnaise)/1 (egg_cress)/1 (goat's_cheese_vegetable)/1 (tomato_mozzarella_pesto)/1 (tomato_mozzarella_basil)/1 (roast_beef)/1 (salmon)/2 (prawn_mayonnaise)/1 (turkey)/1 (avocado)/1 (avocado_salmon)/1 (halloumi)/1	(mayonnaise)/6 (onion)/1 (BBQ_sauce)/1 (red_sauce)/1 (brown_sauce)/1 (lemon)/1 (mustard)/2 (ketchup)/1	14	54	36,85	19,51	35,74	7,90	56,36	43,64
1229	lunch out	139	complex dish (could be either cabs, proteins, vegetables, or a mix of these)	soup	(soup)/43 (fresh_soup)/1 (creamy_soup)/1 (vietnamese_pho_soup)/1 (laksa)/1	47	(vegetarian)/19 (meat)/3 (N/A)/24	(vegetables)/7 (lentil)/3 (carrot_lentil)/1 (lentil_mushrooms)/1 (thai_chicken_chilli_vegetables_coconut_milk)/1 (minted_pea)/1 (pumpkin)/1 (butternut_squash)/1 (tomato)/3 (mushrooms)/1 (chicken)/1 (chicken_noodle)/1	(salt)/1 (pepper)/1	2	42	4,76	4,76	60,71	29,76	9,52	90,48
1230	lunch out	140	complex dish (could be either cabs, proteins, vegetables, or a mix of these)	wrap	(wrap)/10 (fajita_wrap)/1 (fajitas)/1 (tacos)/1 (burrito)/9 (corn_flour_tortilla)/1 (wheat_flour_tortilla)/1	24	(meat)/13 (fish)/1 (vegetarian)/5 (vegan)/1 (N/A)/2	(chicken)/2 (chicken_lettuce)/1 (vegetable_chilli)/2 (salmon_avocado)/1 (beef_chilli)/1 (beef)/1 (bean)/1 (beef_rice)/1 (falafel)/1 (falafel_hummus_halloumi)/1	(sour_cream)/2	2	18	31,94	30,56	5,56	31,94	62,50	37,50
1231	lunch out	141	complex dish (could be either cabs, proteins, vegetables, or a mix of these)	meal salad	(salad)/29 (super_salad)/1	30	(meat)/11 (fish)/3 (vegetarian)/15	(chicken)/6 (chicken_fajitas)/1 (chicken_bacon)/1 (pear_blue_cheese_crouton)/1 (chickpea_sweet_potato_parsnip)/1 (beef)/1 (ham)/1 (ham_egg)/1 (mozzarella_tomato)/1 (boiled_egg)/1 (salmon)/1 (smoked_salmon)/1 (hummus_olives)/1 (nuts)/1 (three_bean)/1 (tomato)/1 (vegetables)/1 (tofu)/1 (walnut_feta_cheese)/1 (cous_cous)/1 (lettuce_onion_cucumber)/1 (salad_leafs_tomato)/1 (tuna)/1	(dressing)/1 (sweet_chilli_dressing)/1 (mayonnaise)/1 (oil_dressing)/1 (salsa)/1 (soured_cream)/1 (guacamole)/1	7	18	1,11	0,00	43,33	55,56	1,11	98,89
1232	lunch out	142	complex dish (could be either cabs, proteins, vegetables, or a mix of these)	sushi	(sushi)/13 (sushi_roll)/1 (roll)/3 (rice_ball)/2	19	(fish)/15 (meat)/1 (vegetarian)/3	(tuna)/2 (tuna_sundried_tomato)/1 (smoked_salmon_cucumber)/1 (seaweed)/1 (chicken)/1 (vegetable)/1	(soy_sauce)/2	2	15	0,00	6,67	21,33	72,00	6,67	93,33

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1233	lunch out	143	complex dish (could be either cabs, proteins, vegetables, or a mix of these)	curry	(curry)/8 (thai_curry)/1 (thai_red_curry)/1 (indian_curry)/2 (curry_buffet)/1 (bhuna)/1 (indian_masala)/1 (tikka_masala)/1	16	(meat)/8 (vegetarian)/1 (vegan)/1 (N/A)/6	(chicken)/7 (lamb)/1 (coconut)/1 (vegetables)/1			14	25,00	53,57	7,14	14,29	78,57	21,43
1234	lunch out	144	complex dish (could be either cabs, proteins, vegetables, or a mix of these)	ramen	(ramen)/3	3	(meat)/2 (N/A)/1	(beef)/1 (pork)/1 (noodle)/1			3	0,00	66,67	0,00	33,33	66,67	33,33
1235	lunch out	145	complex dish (could be either cabs, proteins, vegetables, or a mix of these)	stir fry	(stir_fry)/4	4	(meat)/3 (N/A)/1	(chicken)/1 (beef)/2 (noodles)/1			3	33,33	33,33	33,33	0,00	66,67	33,33
1236	lunch out	146	complex dish (could be either cabs, proteins, vegetables, or a mix of these)	pate	(pate)/3	3	(meat)/1 (N/A)/2				3	33,33	33,33	0,00	33,33	66,67	33,33
1237	lunch out	147	complex dish (could be either cabs, proteins, vegetables, or a mix of these)	pakora	(pakora)/2	2	(vegetarian)/1 (N/A)/1	(vegetable)/1			2	0,00	100,00	0,00	0,00	100,00	0,00
1238	lunch out	148	complex dish (could be either cabs, proteins, vegetables, or a mix of these)	chilli	(chilli)/1	1	(vegetarian)/1				1	100,00	0,00	0,00	0,00	100,00	0,00
1239	lunch out	149	complex dish (could be either cabs, proteins, vegetables, or a mix of these)	enchilladas	(enchilladas)/1	1	(N/A)/1				1	100,00	0,00	0,00	0,00	100,00	0,00
1240	lunch out	150	complex dish (could be either cabs, proteins, vegetables, or a mix of these)	croquettes	(croquettes)/1	1	(N/A)/1				1	0,00	100,00	0,00	0,00	100,00	0,00
1241	lunch out	151	ethnic food	chinese	(chinese_style_dish)/1	1	(meat)/1	(beef)/1			1	100,00	0,00	0,00	0,00	100,00	0,00
1242	lunch out	152	fast food	KFC	(KFC)/1	1	(meat)/1				1	0,00	100,00	0,00	0,00	100,00	0,00
1243	lunch out	153	fast food	Mc Donalds	(Mc_Donalds)/1	1	(N/A)/1				1	0,00	100,00	0,00	0,00	100,00	0,00
1244	lunch out	154	cold drink	soft drink	(soft_drink)/3 (flizy_drink)/2 (Coca_Cola)/22 (Diet_Coke)/9 (Pepsi)/4 (Fanta)/2 (Fanta_fruit_twist)/1 (Sprite)/5 (7_Up)/1 (Soda)/1 (Irn_Bru)/6 (Diet_Irn_Bru)/1 (lemonade)/1	58			(lime)/1	1	41	41,46	52,03	4,07	2,44	93,50	6,50
1245	lunch out	155	cold drink	energy drink	(lucozade)/3	3					3	0,00	100,00	0,00	0,00	100,00	0,00
1246	lunch out	156	juice	fruit juice	(juice)/3 (fresh_juice)/1 (fresh_fruit_juice)/1 (store_fruit_juice)/1 (flizy_juice)/2 (fruit_juice)/6 (orange_juice)/10 (apple_juice)/3	27					24	4,17	4,17	60,42	31,25	8,33	91,67
1247	lunch out	157	juice	coconut water	(coconut_water)/2	2					2	0,00	0,00	0,00	100,00	0,00	100,00
1248	lunch out	158	blend	shake	(milk_shake)/5 (protein_shake)/1 (chocolate_milkshake)/1 (caramel_Frappuccino)/1	8					8	25,00	62,50	12,50	0,00	87,50	12,50
1249	lunch out	159	blend	smoothie	(smoothie)/2 (fruit_smoothie)/4 (pure_fruit_smoothie)/1 (Innocent_fruit_smoothie)/1	8					8	0,00	12,50	50,00	37,50	12,50	87,50
1250	lunch out	160	water/hot drink	water	(water)/38 (table_water)/1 (tap_water)/4 (still_water)/3 (sparkling_water)/4 (fizzy_water)/1	51					50	0,00	4,00	80,00	16,00	4,00	96,00
1251	lunch out	161	water/hot drink	coffee	(coffee)/24 (plain_coffee)/1 (black_coffee)/2 (cold_brew_filter_coffee)/1 (cappuccino)/2 (latte)/3 (mocha)/1	34			(sugar)/7 (milk)/6 (soy_milk)/1	14	30	42,22	31,67	18,33	7,78	73,89	26,11
1252	lunch out	162	water/hot drink	tea	(tea)/17 (green_tea)/4 (black_tea)/1 (english_breakfast_tea)/1 (herbal_tea)/3 (peppermint_tea)/1 (bubbled_tea)/1 (iced_tea)/1 (iced_tea_Nestle)/1	30			(milk)/4 (sugar)/3	7	27	14,81	5,56	57,41	22,22	20,37	79,63
1253	lunch out	163	water/hot drink	hot chocolate	(hot_chocolate)/2 (coconut_milk_hot_chocolate)/1	3			(cream)/1	1	3	0,00	100,00	0,00	0,00	100,00	0,00
1254	lunch out	164	alcoholic drink	beer	(beer)/24 (lager)/2 (budwiser)/1	27					27	40,74	59,26	0,00	0,00	100,00	0,00
1255	lunch out	165	alcoholic drink	wine	(wine)/10 (rose_wine)/2 (white_wine)/3 (red_wine)/3 (prosecco)/1	19					16	31,25	62,50	6,25	0,00	93,75	6,25
1256	lunch out	166	alcoholic drink	cocktail	(cocktail)/2 (margarita_cocktail)/1 (mai_tai_cocktail)/1 (hugo_cocktail)/1	5					4	0,00	75,00	25,00	0,00	75,00	25,00
1257	lunch out	167	alcoholic drink	cider	(cider)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
1258	lunch out	168	dairy drink/alternative	milk	(milk)/7 (chocolate_milk)/1	8					7	21,43	14,29	50,00	14,29	35,71	64,29
1259	lunch out	169	basic condiment	oil	(olive_oil)/3 (coconut_oil)/1	4					4	25,00	0,00	75,00	0,00	25,00	75,00
1260	lunch out	170	basic condiment	vinegar	(vinegar)/1 (balsamic_glaze)/1	2					2	50,00	50,00	0,00	0,00	100,00	0,00
1261	lunch out	171	basic condiment	sugar/sweetner	(sweetner)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
1262	lunch out	172	dressing/sauce	pesto	(pesto)/2 (basil_pesto)/1	3					3	33,33	33,33	33,33	0,00	66,67	33,33
1263	lunch out	173	dressing/sauce	peppercorn sauce	(peppercorn_sauce)/2	2					2	0,00	100,00	0,00	0,00	100,00	0,00
1264	lunch out	174	dressing/sauce	chilli sauce	(chilli_sauce)/1 (sweet_chilli_sauce)/1	2					2	0,00	100,00	0,00	0,00	100,00	0,00
1265	lunch out	175	dressing/sauce	soy sauce	(soy_sauce)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
1266	lunch out	176	dressing/sauce	southwest sauce	(south_west_sauce)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
1267	lunch out	177	dressing/sauce	HP sauce	(HP_sauce)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
1268	lunch out	178	dressing/sauce	BBQ sauce	(BBQ_sauce)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
1269	lunch out	179	dressing/sauce	gravy	(gravy)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
1270	lunch out	180	dressing/sauce	salad dressing	(honey_mustard_salad_dressing)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
1271	lunch out	181	dressing/sauce	curry sauce	(curry_sauce)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
1272	lunch out	182	spread/dip/topping	mayonnaise	(mayonnaise)/6 (vegan_mayonnaise)/1	7					7	14,29	71,43	14,29	0,00	85,71	14,29

all order	eating situation	eating situation order	general food category	basic food	types	type frequency	main ingredient type (meat, fish, vegetarian)	main ingredient subtype (chicken, prawns, tomatoes, curry)	accompaniments	accompaniments frequency	overall frequency (basic food)	% TF	% TO	% HF	% HO	% tasty	% healthy
1273	lunch out	183	spread/dip/topping	hummus	(hummus)/8	8					7	0,00	0,00	42,86	57,14	0,00	100,00
1274	lunch out	184	spread/dip/topping	ketchup	(ketchup)/5 (tomato_ketchup)/1	6					6	16,67	66,67	16,67	0,00	83,33	16,67
1275	lunch out	185	spread/dip/topping	mustard	(mustard)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
1276	lunch out	186	spread/dip/topping	tahini	(tahini)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
1277	lunch out	187	spread/dip/topping	baba ganoush	(baba_ganoush)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
1278	lunch out	188	spread/dip/topping	tzatziki	(tzatziki)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
1279	lunch out	189	spread/dip/topping	syrup	(syrup)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
1280	lunch out	190	other	cream	(cream)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
1281	dinner out	1	flour-based baked food	bread	(bread)/15 (white_bread)/3 (garlic_bread)/6 (pitta_bread)/3 (naan_bread)/11 (peshwari_naan_bread)/2 (brown_bread)/1 (bread_roll)/1	42					37	44,59	24,32	20,27	10,81	68,92	31,08
1282	dinner out	2	flour-based baked food	cracker	(crackers)/2 (prawn_crackers)/3	5					5	40,00	40,00	20,00	0,00	80,00	20,00
1283	dinner out	3	flour-based baked food	poppadom	(popadoms)/3	3			(spicy_onion_chutney)/2	2	3	33,33	33,33	0,00	33,33	66,67	33,33
1284	dinner out	4	flour-based baked food	yorkshire pudding	(yorkshire_puddings)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
1285	dinner out	5	flour-based fried food	sweet pancake	(pancakes)/2 (rice_dosa_pancake)/1	3					3	0,00	66,67	0,00	33,33	66,67	33,33
1286	dinner out	6	flour-based fried food	sweet crepe	(crepe)/1	1			(nutella)/1	1	1	0,00	100,00	0,00	0,00	100,00	0,00
1287	dinner out	7	grain	side rice	(rice)/33 (white_rice)/4 (boiled_rice)/2 (brown_rice)/1	40					40	25,00	15,00	42,50	17,50	40,00	60,00
1288	dinner out	8	grain	side quinoa	(quinoa)/3	3					3	0,00	0,00	0,00	100,00	0,00	100,00
1289	dinner out	9	grain	side couscous	(couscous)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
1290	dinner out	10	grain	tortilla chips	(tortilla_chips)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
1291	dinner out	11	starchy vegetable	fries/chips	(chips)/56 (fries)/20 (french_fries)/8 (fried_chips)/1 (sweet_potato_chips)/5 (oven_chips)/1 (chips_truffle)/1 (Mc_Donalds_fries)/1 (poutine)/1	94			(ketchup)/11 (tomato_sauce)/2 (mayonnaise)/6 (salt)/3 (mustard)/1 (brown_sauce)/1 (sauce)/1 (vinegar)/2 (cheese)/1	28	80	65,83	31,88	1,04	1,25	97,71	2,29
1292	dinner out	12	starchy vegetable	side potatoes	(potatoes)/12 (white_potatoes)/2 (sweet_potatoes)/4 (baked_potatoes)/2 (boiled_potatoes)/3 (roasted_potatoes)/5 (potato_wedges)/2 (fried_potatoes)/1	34			(sauce)/1	1	28	30,36	3,57	39,29	26,79	33,93	66,07
1293	dinner out	13	starchy vegetable	mashed potato	(mash_potatoes)/7	7					7	14,29	42,86	28,57	14,29	57,14	42,86
1294	dinner out	14	starchy vegetable	crisps	(crisps)/2	2			(nacho_sauce)/1 (vinegar)/1	2	2	50,00	50,00	0,00	0,00	100,00	0,00
1295	dinner out	15	starchy vegetable	potato bakes	(dauphinoise_potatoes)/2	2					2	0,00	100,00	0,00	0,00	100,00	0,00
1296	dinner out	16	starchy vegetable	potato scone	(potato_scone)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
1297	dinner out	17	meat protein	beef	(beef)/7 (grilled_beef)/1 (steak)/43 (steak_medium_rare)/1 (sirloin_steak)/1 (roast_beef)/2 (beef_satay)/1	56			(peppercorn_sauce)/2 (pepper_sauce)/3 (creamy_sauce)/1 (sauce)/1 (cheese_sauce)/1 (fondue)/1	9	53	33,96	27,36	20,75	17,92	61,32	38,68
1298	dinner out	18	meat protein	chicken	(chicken)/25 (fried_chicken)/11 (deep_fried_chicken)/2 (chicken_skewers)/1 (roast_chicken)/6 (battered_chicken)/1 (chicken_breast)/3 (grilled_chicken_breast)/1 (grilled_chicken)/2 (chicken_satay)/1 (chicken_nuggets)/5 (Mc_Donalds_chicken_nuggets)/1 (chicken_wings)/1	60			(periperi_sauce)/1 (teriaky_sauce)/1	2	52	16,99	29,49	37,18	16,35	46,47	53,53
1299	dinner out	19	meat protein	pork	(pork)/11 (roast_pork)/3 (pork_loin)/1 (gammon)/1	16			(sweet_and_sour)/2	2	16	18,75	37,50	18,75	25,00	56,25	43,75
1300	dinner out	20	meat protein	sausage	(sausages)/6 (italian_sausage)/1 (deep_fried_sausage)/1 (battered_sausage)/1 (pork_sausages)/1	10			(gravy)/1	1	10	40,00	50,00	10,00	0,00	90,00	10,00
1301	dinner out	21	meat protein	lamb	(lamb)/5 (lean_lamb)/1 (lamb_meat)/1 (roast_lamb)/2	9					9	11,11	22,22	22,22	44,44	33,33	66,67
1302	dinner out	22	meat protein	ham	(ham)/3 (baked_ham)/1 (prosciutto)/1 (ham_platter)/1	6					5	10,00	80,00	0,00	10,00	90,00	10,00
1303	dinner out	23	meat protein	bacon	(bacon)/5	5					5	60,00	40,00	0,00	0,00	100,00	0,00
1304	dinner out	24	meat protein	duck	(duck)/3 (roast_duck)/1 (duck_meat)/1	5					5	40,00	40,00	0,00	20,00	80,00	20,00
1305	dinner out	25	meat protein	ribs	(ribs)/2 (rack_of_ribs)/1 (grilled_beef_ribs)/1	4			(BBQ_sauce)/2	2	4	50,00	50,00	0,00	0,00	100,00	0,00
1306	dinner out	26	meat protein	meatball	(meatballs)/2 (pork_meatballs)/1	3			(marinara_sauce)/1	1	3	0,00	100,00	0,00	0,00	100,00	0,00
1307	dinner out	27	meat protein	salami	(salami)/2 (pepperoni)/1	3					2	0,00	100,00	0,00	0,00	100,00	0,00
1308	dinner out	28	meat protein	turkey	(turkey)/1 (roast_turkey)/1	2			(gravy)/1	1	2	0,00	0,00	50,00	50,00	0,00	100,00
1309	dinner out	29	meat protein	kofta	(kofta)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
1310	dinner out	30	meat protein	donner meat	(donner_meat)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
1311	dinner out	31	meat protein	pepperoni	(pepperoni)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
1312	dinner out	32	meat protein	chorizo	(red_wine_sauteed_chorizo)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
1313	dinner out	33	meat protein	goose	(foie_grass)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
1314	dinner out	34	meat protein	venison	(wild_venison)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
1315	dinner out	35	meat protein	sheep	(haggis)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00

all order	eating situation	eating situation order	general food category	basic food	types	type frequency	main ingredient type (meat, fish, vegetarian)	main ingredient subtype (chicken, prawns, tomatoes, curry)	accompaniments	accompaniments frequency	overall frequency (basic food)	% TF	% TO	% HF	% HO	% tasty	% healthy
1316	dinner out	36	fish protein	general fish	(fish)/15 (white_fish)/2 (red_fish)/1 (pink_fish)/1 (fresh_fish)/1 (fish_fillet)/1 (oven_cooked_fish)/1 (fried_fish)/4 (deep_fried_fish)/2 (grilled_fish)/2 (steamed_fish)/1 (baked_fish)/1 (breadcrumbed_fish)/1 (battered_fish)/11 (fried_battered_fish)/1 (seafood)/3 (steamed_seafood)/1 (fresh_seafood)/1 (grilled_seafood)/1 (tempura_seafood)/1	52			(tartar_sauce)/1 (butter_sauce)/1 (teriaki_sauce)/1	3	37	25,00	21,62	31,76	21,62	46,62	53,38
1317	dinner out	37	fish protein	salmon	(salmon)/19 (baked_salmon)/2 (smoked_salmon)/1	22			(butter)/1 (teriaki_sauce)/1	2	20	0,00	0,00	60,00	40,00	0,00	100,00
1318	dinner out	38	fish protein	prawn/shrimp/scampi	(prawns)/10 (baked_butterfly_prawns)/1 (prawn_cocktail)/1 (tempura_prawn)/1 (fried_shrimps)/1 (baked_shrimps)/1 (grilled_shrimps)/1 (scampi)/1	17			(tomato_sauce)/1 (sweet_chilli_sauce)/1	2	13	2,56	15,38	35,90	46,15	17,95	82,05
1319	dinner out	39	fish protein	seabass	(seabass)/5	5					5	0,00	0,00	60,00	40,00	0,00	100,00
1320	dinner out	40	fish protein	mussels	(mussels)/5	5			(garlic_sauce)/1 (red_wine)/1	2	5	20,00	20,00	40,00	20,00	40,00	60,00
1321	dinner out	41	fish protein	oyster	(oysters)/5	5					5	0,00	40,00	40,00	20,00	40,00	60,00
1322	dinner out	42	fish protein	scallop	(scallops)/5	5			(garlic)/1 (white_wine)/1	2	5	0,00	20,00	20,00	60,00	20,00	80,00
1323	dinner out	43	fish protein	tuna	(tuna)/1 (tuna_steak)/2 (cod)/1	3					3	0,00	0,00	33,33	66,67	0,00	100,00
1324	dinner out	44	fish protein	cod	(breadcrumbed_cod/1	2					2	0,00	0,00	0,00	100,00	0,00	100,00
1325	dinner out	45	fish protein	lobster	(lobster)/2	2			(butter)/1	1	2	0,00	50,00	0,00	50,00	50,00	50,00
1326	dinner out	46	fish protein	crab	(crab)/2	2					2	0,00	0,00	0,00	100,00	0,00	100,00
1327	dinner out	47	fish protein	squid	(squid)/1 (fried_calamari)/1	2					2	0,00	50,00	0,00	50,00	50,00	50,00
1328	dinner out	48	fish protein	fish cake	(fish_cake)/1	1			(sweet_chilli_sauce)/1	1	1	100,00	0,00	0,00	0,00	100,00	0,00
1329	dinner out	49	fish protein	sashimi	(sashimi)/1	1			(grated_daikon_radish)/1	1	1	0,00	0,00	0,00	100,00	0,00	100,00
1330	dinner out	50	fish protein	sole	(sole)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
1331	dinner out	51	fish protein	seabream	(seabream)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
1332	dinner out	52	fish protein	haddock	(haddock)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
1333	dinner out	53	fish protein	hake	(hake)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
1334	dinner out	54	fish protein	mackerel	(mackerel)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
1335	dinner out	55	fish protein	anchovie	(anchovies)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
1336	dinner out	56	vegetarian protein	dahl	(dahl)/3 (lentil_dahl)/3	4			(spinach)/1	1	4	0,00	0,00	75,00	25,00	0,00	100,00
1337	dinner out	57	vegetarian protein	falafel	(falafel)/3	3					3	0,00	33,33	33,33	33,33	33,33	66,67
1338	dinner out	58	vegetarian protein	tofu	(tofu)/3	3					3	0,00	0,00	66,67	33,33	0,00	100,00
1339	dinner out	59	vegetarian protein	simple egg (no extra ingredients)	(eggs)/2	2					2	0,00	0,00	50,00	50,00	0,00	100,00
1340	dinner out	60	vegetarian protein	beans	(beans)/1 (soya_beans)/1	2					2	0,00	0,00	50,00	50,00	0,00	100,00
1341	dinner out	61	vegetarian protein	lentils	(lentils)/2	2					2	0,00	0,00	100,00	0,00	0,00	100,00
1342	dinner out	62	vegetarian protein	nuts	(peanuts)/1 (cashew_nuts)/1	2					1	0,00	0,00	0,00	0,00	0,00	0,00
1343	dinner out	63	dairy protein/alternative	cheese	(cheese)/17 (fried_cheese)/1 (breaded_cheese)/1 (halloumi)/3 (grilled_halloumi)/1 (feta_cheese)/1 (goat's_cheese)/3 (cheese_platter)/2 (parmesan_cheese)/1 (mozzarella_cheese)/1 (yellow_cheese)/1 (brie)/1 (cheddar_cheese)/1 (paneer)/1 (palak_paneer)/1 (fondue)/1 (mozzarella_sticks)/1	38			(orange_marmalade_sauce)/1 (chasni_sauce)/1	2	33	22,73	43,94	25,76	7,58	66,67	33,33
1344	dinner out	64	general vegetable	side salad	(salad)/33 (green_salad)/2 (salad_leaves)/2 (salad_greens)/1 (mixed_salad)/1 (leafy_salad)/1	40					39	0,00	5,13	64,10	30,77	5,13	94,87
1345	dinner out	65	general vegetable	vegetable	(veges)/5 (veges_green)/1 (mixed_veges)/2 (roasted_veges)/3 (steamed_veges)/1 (pickled_veges)/1 (grilled_veges)/2 (baked_veges)/1 (sauteed_vegetables)/1	17					18	0,00	11,11	61,11	27,78	11,11	88,89
1346	dinner out	66	general vegetable	kimchi	(kimchi)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
1347	dinner out	67	general vegetable	ratatouille	(ratatouille)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
1348	dinner out	68	aboveground vegetable	tomatoes	(tomatoes)/14 (fried_tomatoes)/1 (grilled_tomatoes)/1	16					16	6,25	0,00	68,75	25,00	6,25	93,75
1349	dinner out	69	aboveground vegetable	mushroom	(mushrooms)/9 (portobello_mushrooms)/1 (fried_mushrooms)/1	11			(garlic)/1	1	11	18,18	18,18	27,27	36,36	36,36	63,64
1350	dinner out	70	aboveground vegetable	lettuce	(lettuce)/10	10					10	10,00	0,00	50,00	40,00	10,00	90,00
1351	dinner out	71	aboveground vegetable	pepper/capsicum	(pepper/capsicum)/7 (bell_pepper)/2 (roasted_peppers)/1	10					10	0,00	0,00	50,00	50,00	0,00	100,00
1352	dinner out	72	aboveground vegetable	broccoli	(broccoli)/7 (roasted_broccoli)/1 (boiled_broccoli)/1	9			(garlic)/1 (chilli)/1	2	8	12,50	0,00	75,00	12,50	12,50	87,50
1353	dinner out	73	aboveground vegetable	olive	(olives)/5	5					5	0,00	0,00	20,00	80,00	0,00	100,00
1354	dinner out	74	aboveground vegetable	aubergine	(aubergine)/3	3					3	0,00	0,00	33,33	66,67	0,00	100,00

all order	eating situation	eating situation order	general food category	basic food	types	type frequency	main ingredient type (meat, fish, vegetarian)	main ingredient subtype (chicken, prawns, tomatoes, curry)	accompaniments	accompaniments frequency	overall frequency (basic food)	% TF	% TO	% HF	% HO	% tasty	% healthy
1355	dinner out	75	aboveground vegetable	asparagus	(asparagus)/3	3					3	0,00	0,00	66,67	33,33	0,00	100,00
1356	dinner out	76	aboveground vegetable	cabbage	(red_cabbage)/1 (coleslaw)/2	3					3	33,33	0,00	33,33	33,33	33,33	66,67
1357	dinner out	77	aboveground vegetable	rocket	(rocket)/2	2					2	0,00	0,00	50,00	50,00	0,00	100,00
1358	dinner out	78	aboveground vegetable	spinach	(spinach)/2	2					2	0,00	0,00	50,00	50,00	0,00	100,00
1359	dinner out	79	aboveground vegetable	courgette	(courgette)/2	2					2	0,00	0,00	100,00	0,00	0,00	100,00
1360	dinner out	80	aboveground vegetable	green beans	(green_beans)/1	1					2	0,00	0,00	50,00	50,00	0,00	100,00
1361	dinner out	81	aboveground vegetable	chicory	(chicory)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
1362	dinner out	82	aboveground vegetable	artichoke	(artichoke)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
1363	dinner out	83	aboveground vegetable	caper	(capers)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
1364	dinner out	84	aboveground vegetable	cucumber	(cucumber)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
1365	dinner out	85	aboveground vegetable	cauliflower	(cauliflower)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
1366	dinner out	86	aboveground vegetable	peas	(peas)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
1367	dinner out	87	aboveground vegetable	mushy peas	(mushy_peas)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
1368	dinner out	88	aboveground vegetable	celery	(celery_sticks)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
1369	dinner out	89	aboveground vegetable	avocado	(avocado)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
1370	dinner out	90	aboveground vegetable	sweet corn	(corn_hob)/1 (onion)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
1371	dinner out	91	below ground vegetable	onion	(onion_rings)/5	6			(garlic_mayo)/1	1	5	80,00	0,00	0,00	20,00	80,00	20,00
1372	dinner out	92	below ground vegetable	carrot	(carrots)/3 (roasted_carrots)/1 (boiled_carrots)/1	5					4	0,00	0,00	75,00	25,00	0,00	100,00
1373	dinner out	93	below ground vegetable	parsnip	(parsnip)/1 (roasted_parsnips)/1	2					2	0,00	0,00	50,00	50,00	0,00	100,00
1374	dinner out	94	below ground vegetable	turnip	(mashed_turnip)/1 (fruit)/3	1					1	0,00	0,00	0,00	100,00	0,00	100,00
1375	dinner out	95	general fruit	fruit	(fresh_fruit)/1	4					2	0,00	0,00	100,00	0,00	0,00	100,00
1376	dinner out	96	general fruit	fruit platter	(fruit_platter)/1	1					2	0,00	0,00	50,00	50,00	0,00	100,00
1377	dinner out	97	berry fruit	red fruit	(red_fruits)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
1378	dinner out	98	berry fruit	strawberry	(strawberries)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
1379	dinner out	99	berry fruit	blueberry	(blueberries)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
1380	dinner out	100	citrus fruit	grapes	(grapes)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
1381	dinner out	101	citrus fruit	lemon	(lemon)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
1382	dinner out	102	melon fruit	melon	(melon)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
1383	dinner out	103	tropical fruit	pineapple	(pineapple)/3	3					3	0,00	0,00	0,00	100,00	0,00	100,00
1384	dinner out	104	tropical fruit	banana	(banana)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
1385	dinner out	105	general dessert	dessert	(dessert)/1 (chocolate_dessert)/3 (cake)/4	4					4	0,00	75,00	0,00	25,00	75,00	25,00
1386	dinner out	106	baked dessert	cake	(chocolate_cake)/10 (cheese_cake)/6 (chocolate_gateau)/1 (lemon_cake)/1 (carrot_cake)/1	23			(cream)/2	2	20	45,00	55,00	0,00	0,00	100,00	0,00
1387	dinner out	107	baked dessert	brownie	(brownies)/4 (chocolate_brownies)/1	5			(ice_cream)/1	1	5	60,00	40,00	0,00	0,00	100,00	0,00
1388	dinner out	108	baked dessert	sweet pie	(apple_pie)/2	2			(ice_cream)/1	1	2	50,00	50,00	0,00	0,00	100,00	0,00
1389	dinner out	109	baked dessert	sweet waffle	(waffles)/2	2					2	0,00	100,00	0,00	0,00	100,00	0,00
1390	dinner out	110	baked dessert	doughnut	(doughnuts)/2	2					2	0,00	100,00	0,00	0,00	100,00	0,00
1391	dinner out	111	baked dessert	crumble	(fruit_crumble)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
1392	dinner out	112	baked dessert	muffin	(muffins)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
1393	dinner out	113	baked dessert	cookie	(cookies)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
1394	dinner out	114	chilled dessert	ice cream	(ice_cream)/15 (ice_cream_sundae)/1 (chocolate_sundae)/1 (vegan_ice_cream)/1	18					17	29,41	70,59	0,00	0,00	100,00	0,00
1395	dinner out	115	chilled dessert	fruit salad	(fruit_salad)/1 (pudding)/1	1			(ice_cream)/1	1	7	0,00	14,29	0,00	85,71	14,29	85,71
1396	dinner out	116	chilled dessert	pudding	(chocolate_pudding)/2 (vegan_pudding)/1 (sticky_toffe_pudding)/2	6					6	33,33	66,67	0,00	0,00	100,00	0,00
1397	dinner out	117	chilled dessert	tiramisu	(tiramisu)/4	4					4	50,00	50,00	0,00	0,00	100,00	0,00
1398	dinner out	118	chilled dessert	crème brulee	(crème_brulee)/2	2					2	0,00	100,00	0,00	0,00	100,00	0,00
1399	dinner out	119	chilled dessert	profiterol	(chocolate_profiteroles)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
1400	dinner out	120	chilled dessert	banana split	(banana_split)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
1401	dinner out	121	chilled dessert	sorbet	(sorbet)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
1402	dinner out	122	other	mousse	(chocolate_mousse)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
1403	dinner out	123	confectionery	chocolate	(chocolate)/4 (chocolate_bar)/1	5					5	20,00	80,00	0,00	0,00	100,00	0,00
1404	dinner out	124	carbs based dish	pizza	(pizza)/78 (calzone_pizza)/1 (light_pizza)/1 (deep_fried_pizza)/1 (spicy_pizza)/1	82	(meat)/13 (seafood/fish)/1 (vegetarian)/7 (vegan)/1 (N/A)/61	(chicken)/2 (pepperoni_meatballs_olives)/1 (pepperoni)/8 (cheese)/1 (ham)/1 (margherita)/3 (four_cheese)/1 (vegetables)/1 (seafood)/1			77	57,79	36,36	4,55	1,30	94,16	5,84
1405	dinner out	125	carbs based dish	pasta dish	(pasta)/49 (penne)/4 (macaroni)/5 (macaroni_pie)/1 (pumpkin_ravioli)/1 (spaghetti)/12 (pasta_bake)/3 (lasagne)/20	95	(meat)/38 (fish/seafood)/3 (vegetarian)/31 (N/A)/21	(sauce)/1 (rich_sauce)/1 (sauce_chorizo)/1 (carbonara)/10 (arrabbiata)/1 (creamy_mushroom_sauce)/1 (bolognese)/9 (tomato_sauce)/11 (chicken_carbonara)/1 (cheese)/6 (cheese_prosciutto)/1 (pumpkin)/1 (pesto)/3 (cream_sauce)/2 (mushroom_sauce)/1 (mushrooms)/1 (seafood)/1 (clams)/1 (vegetable)/1	(cheese)/1	1	62	42,31	27,10	22,15	8,44	69,41	30,59
1406	dinner out	126	carbs based dish	noodle dish	(noodles)/13 (noodle_dish)/1 (chow_mein)/3 (pad_thai)/4 (singapore_noodles)/1 (fried_noodles)/1 (fresh_noodles)/1 (udon_noodles)/1 (wholewheat_noodles)/1 (plantain_noodles)/1	27	(meat)/5 (meat_fish)/1 (vegetarian)/2 (N/A)/19	(duck)/1 (chicken)/2 (chicken_veges)/1 (tofu)/1 (vegetable)/1 (prawns_beef_pork_chicken_broccoli)/1 (peanut_beef)/1	(BBQ_sauce)/1 (sweet_chilli_sauce)/1	2	23	26,09	26,09	30,43	17,39	52,17	47,83

all order	eating situation	eating situation order	general food category	basic food	types	type frequency	main ingredient type (meat, fish, vegetarian)	main ingredient subtype (chicken, prawns, tomatoes, curry)	accompaniments	accompaniments frequency	overall frequency (basic food)	% TF	% TO	% HF	% HO	% tasty	% healthy
1407	dinner out	127	carbs based dish	rice dish	(rice)/3 (bibimbap)/1 (risotto)/7 (jolloff_rice)/1 (fried_rice)/6 (egg_fried_rice)/2 (pilau_rice)/1 (paella)/3 (spanish_paella)/1 (rice_paella)/1 (rice_balls)/2	28	(meat)/1 (vegetarian)/7 (N/A)/20	(egg_meat_vegetable)/1 (vegetables)/2 (mushrooms)/1 (mushroom_spinach)/1 (black_sesame_filling)/1 (peanut_filling)/1			19	42,11	18,42	13,16	26,32	60,53	39,47
1408	dinner out	128	carbs based dish	savoury pie	(pie)/7 (shortcrust_pie)/1	9	(meat)/ (fish)/1 (N/A)/2	(steak)/3			8	37,50	50,00	12,50	0,00	87,50	12,50
1409	dinner out	129	carbs based dish	asian roll	(vietnamese_salad_roll)/1 (spring_roll)/6 (chinese_spring_roll)/1 (tofu_roll)/1	9	(vegetarian)/3 (N/A)/6	(tofu)/1 (vegetables)/2			8	0,00	56,25	37,50	6,25	56,25	43,75
1410	dinner out	130	carbs based dish	nachos	(nachos)/9	9	(vegetarian)/2 (N/A)/7	(guacamole_&_salsa)/1 (cheese)/2			7	0,00	100,00	0,00	0,00	100,00	0,00
1411	dinner out	131	carbs based dish	dumpling	(dumplings)/3 (chinese_dumplings)/3 (polish_dumplings)/2 (steamed_buns)/1 (asian_dumplings)/1	10	(vegetarian)/4 (meat)/3 (N/A)/3	(vegetables)/4 (chinese_leaves_pork)/1	(soy_sauce)/1 (spicy_sauce)/1	2	4	0,00	50,00	0,00	50,00	50,00	50,00
1412	dinner out	132	carbs based dish	gnocchi dish	(gnocchi)/3	4	(meat)/1 (N/A)/3	(sausage)/1			3	0,00	33,33	0,00	66,67	33,33	66,67
1413	dinner out	133	carbs based dish	pastry/bake/pasty	(pastries)/1 (pastry_roll)/2	3	(meat)/2 (N/A)/1	(sausage)/2			3	33,33	66,67	0,00	0,00	100,00	0,00
1414	dinner out	134	carbs based dish	baked/jacket potato	(baked_potato)/1 (potato_skins)/1	2	(fish)/1 (meat)/1	(tuna)/1 (bacon_cheese)/1			2	100,00	0,00	0,00	0,00	100,00	0,00
1415	dinner out	135	carbs based dish	dolma	(dolma)/1	1	(vegetarian)/1				1	0,00	0,00	0,00	100,00	0,00	100,00
1416	dinner out	136	carbs based dish	couscous dish	(cous_cous)/1	1	(vegetarian)/1	(peppers)/1			1	0,00	0,00	0,00	100,00	0,00	100,00
1417	dinner out	137	carbs based dish	quiche/tart	(quiche_lorraine)/1	1	(meat)/1				1	100,00	0,00	0,00	0,00	100,00	0,00
1418	dinner out	138	carbs based dish	samosa	(samosa)/1	1	(N/A)/1				1	0,00	0,00	0,00	100,00	0,00	100,00
1419	dinner out	139	protein based dish	kebab	(kebab)/10	10	(meat)/10	(lamb)/1 (chicken)/1 (donner_meat)/2	(sauce)/1	1	10	10,00	80,00	0,00	10,00	90,00	10,00
1420	dinner out	140	protein based dish	fish and chips	(fish_chips)/10	10	(fish)/10		(vinegar)/1 (ketchup)/1	2	9	55,56	44,44	0,00	0,00	100,00	0,00
1421	dinner out	141	protein based dish	egg dish	(omelette)/3 (spanish_tortilla)/3	6	(vegetarian)/4	(potato)/4			6	50,00	0,00	16,67	33,33	50,00	50,00
1422	dinner out	142	protein based dish	gyros	(gyros_pita)/2	2	(meat)/2				2	0,00	50,00	0,00	50,00	50,00	50,00
1423	dinner out	143	protein based dish	roast	(roast)/1	1	(meat)/1				1	100,00	0,00	0,00	0,00	100,00	0,00
1424	dinner out	144	protein based dish	shepherd/cottage pie	(cottage_pie)/1	1	(meat)/1				1	0,00	100,00	0,00	0,00	100,00	0,00
1425	dinner out	145	vegetable based dish	cauliflower cheese bake	(cauliflower_cheese_bake)/1	1	(vegetarian)/1	(cauliflower)/1	(blue_cheese_sauce)/1	1	1	0,00	0,00	0,00	100,00	0,00	100,00
1426	dinner out	146	complex dish (could be either carbs, proteins, vegetables, or a mix of these)	burger and bun	(burger)/54 (double_burger)/1 (hamburger)/6 (cheese_burger)/5 (veggie_burger)/11 (vegan_burger)/2 (Mc_Donalds_burger)/2 (QP_burger)/1	82	(meat)/69 (vegetarian)/11 (vegan)/2	(beef)/10 (organic_beef)/1 (beef_cheese)/1 (beef_cheese_tomatoes_onion)/1 (lamb)/1 (chicken)/9 (chicken_lettuce)/1 (organic_chicken)/1 (bacon)/1 (pork)/1 (seitan)/1 (tofu)/1 (halloumi)/1 (vegetable)/2 (falafel)/1	(sauce)/1 (cheese)/3 (ketchup)/2 (hot_sauce)/1 (mayonnaise)/2 (mustard)/1	10	64	56,51	30,47	8,59	4,43	86,98	13,02
1427	dinner out	147	complex dish (could be either carbs, proteins, vegetables, or a mix of these)	curry	(curry)/46 (creamy_curry)/1 (indian_curry)/2 (thai)/1 (thai_green)/3 (thai_red)/2 (chasni)/1 (masala)/2 (tikka_masala)/2 (korma)/2 (bhuna)/1 (laksa)/1	64	(meat)/28 (fish)/3 (vegetarian)/16 (vegan)/1 (N/A)/17	(beef)/1 (lamb)/5 (lamb_sweet_potato)/1 (chicken)/16 (chicken)/1 (beef)/2 (vegetable)/8 (chickpeas)/2 (chickpea_lentil)/1 (prawn)/1 (coconut)/1 (butter_chicken)/1 (salmon_green_red_peppers)/1 (tofu)/2	(katsu_sauce)/1	1	49	38,44	27,55	20,75	13,27	65,99	34,01
1428	dinner out	148	complex dish (could be either carbs, proteins, vegetables, or a mix of these)	soup	(soup)/30	30	(fish)/1 (meat)/3 (vegetarian)/9 (N/A)/17	(noodles)/2 (mussels)/1 (vietnamese_pho_beef)/1 (vegetables)/4 (lentil)/1 (mushroom)/1 (chicken)/1 (chicken_noodle)/1 (onion)/1 (tomato)/1 (minestrone)/1			26	3,85	0,00	49,36	46,79	3,85	96,15
1429	dinner out	149	complex dish (could be either carbs, proteins, vegetables, or a mix of these)	meal salad	(salad)/26 (super_salad)/1 (thai_salad)/1	28	(fish)/2 (vegetarian)/15 (meat)/11	(chicken)/5 (chicken_caesar)/4 (tofu)/1 (rocket_parmesan)/2 (goat's_cheese)/1 (tuna_nicoise)/1 (vegetables)/1 (chicken_mushroom_mozzarella)/1 (noodle)/1 (chickpea)/1 (lettuce_cucumber_onion_pepper)/1 (avocado)/1 (tomatoes)/2 (chicken_bacon)/1 (lettuce_red_onion)/1 (calamari_sweet_corn)/1	(honey_mustard_dressing)/2 (olive_oil)/1 (black_olives)/1	4	23	4,35	13,04	29,71	52,90	17,39	82,61
1430	dinner out	150	complex dish (could be either carbs, proteins, vegetables, or a mix of these)	sandwich	(sandwich)/6 (club_sandwich)/1 (toast)/3 (sesame_toast)/1 (panini)/1 (Subway_sandwich)/1 (hot_dog)/4 (roll)/1 (bread)/1 (poori)/1 (bruschetta)/6	26	(meat)/8 (fish)/5 (vegetarian)/5 (N/A)/8	(prawn)/3 (fish_fingers)/1 (tuna_melt)/1 (BMT:pepperoni_salami_ham_salad)/1 (vegetables)/1 (bacon_lettuce_tomato(BLT))/1 (wurstel)/4 (bacon)/1 (mushhrooms)/1 (goat's_cheese)/1 (mushroom_caper_bean)/1 (tomato)/1	(southwest_sauce)/1 (tomato_sauce)/2 (cheese)/1 (mustard)/1	5	21	47,62	30,95	7,14	14,29	78,57	21,43

all order	eating situation	eating situation order	general food category	basic food	types	type frequency	main ingredient type (meat, fish, vegetarian)	main ingredient subtype (chicken, prawns, tomatoes, curry)	accompaniments	accompaniments frequency	overall frequency (basic food)	% TF	% TO	% HF	% HO	% tasty	% healthy
1431	dinner out	151	complex dish (could be either carbs, proteins, vegetables, or a mix of these)	sushi	(sushi)/19 (kimbap_kimbap)/1	20	(fish)/15 (vegetarian)/3 (N/A)/2	(avocado)/1 (vegetables)/2 (salmon)/1	(soy_sauce)/2 (ginger)/1 (wasabi_sauce)/1	4	19	10,53	10,53	42,11	36,84	21,05	78,95
1432	dinner out	152	complex dish (could be either carbs, proteins, vegetables, or a mix of these)	wrap	(burrito)/5 (fajitas)/7 (wrap)/3 (tortilla_wrap)/2 (Mc_Donald_wrap)/1 (tacos)/2 (quesadillas)/1 (pancake)/1	22	(meat)/11 (vegetarian)/4 (N/A)/7	(vegetable_chilli)/1 (chicken)/7 (beef)/2 (pulled_pork)/1 (vegetables)/1 (crispy_duck)/1	(salsa)/1 (guacamole)/1 (soured cream)/2	4	19	39,47	38,60	9,65	12,28	78,07	21,93
1433	dinner out	153	complex dish (could be either carbs, proteins, vegetables, or a mix of these)	pakora	(pakora)/4 (pakora_battery)/1 (indian_pakora)/1 (chicken_pakora)/4 (fish_pakora)/1 (bhaji)/1	12	(vegetarian)/1 (meat)/4 (fish)/1 (N/A)/6	(chicken)/4 (onion)/1	(sauce)/1	1	11	27,27	72,73	0,00	0,00	100,00	0,00
1434	dinner out	154	complex dish (could be either carbs, proteins, vegetables, or a mix of these)	chilli	(chilli)/3	3	(meat)/2 (vegetarian)/1	(carne)/2 (vegetable)/1			3	0,00	0,00	0,00	100,00	0,00	100,00
1435	dinner out	155	complex dish (could be either carbs, proteins, vegetables, or a mix of these)	casserole	(casserole)/3	3	(meat)/2 (N/A)/1	(sausage)/1 (lamb)/1			3	66,67	0,00	33,33	0,00	66,67	33,33
1436	dinner out	156	complex dish (could be either carbs, proteins, vegetables, or a mix of these)	stir fry	(stir_fry)/4	4	(meat)/1 (vegetarian)/1 (N/A)/1	(chicken)/1 (vegetables)/1	(soy_sauce)/1	1	3	0,00	33,33	66,67	0,00	33,33	66,67
1437	dinner out	157	complex dish (could be either carbs, proteins, vegetables, or a mix of these)	moussakka	(moussakka)/2	2	(meat)/1 (vegetarian)/1				2	0,00	0,00	50,00	50,00	0,00	100,00
1438	dinner out	158	complex dish (could be either carbs, proteins, vegetables, or a mix of these)	stew	(stew)/1 (egg_stew)/1	2	(meat)/1 (vegetarian)/1	(chickpea_kale_beetroot)/1 (beef)/1			2	0,00	50,00	0,00	50,00	50,00	50,00
1439	dinner out	159	complex dish (could be either carbs, proteins, vegetables, or a mix of these)	ramen	(ramen)/1	1	(N/A)/1				1	0,00	0,00	0,00	100,00	0,00	100,00
1440	dinner out	160	complex dish (could be either carbs, proteins, vegetables, or a mix of these)	enchilladas	(enchilladas)/1	1	(N/A)/1				1	0,00	100,00	0,00	0,00	100,00	0,00
1441	dinner out	161	complex dish (could be either carbs, proteins, vegetables, or a mix of these)	fritters	(fritters)/1	1	(vegetarian)/1	(vegetarian_haggis)/1			1	0,00	100,00	0,00	0,00	100,00	0,00
1442	dinner out	162	complex dish (could be either carbs, proteins, vegetables, or a mix of these)	pate	(pate)/2	2	(N/A)/2				1	100,00	0,00	0,00	0,00	100,00	0,00
1443	dinner out	163	fast food	Mc Donalds	(Mc_Donalds)/1	1	(N/A)/1				4	50,00	50,00	0,00	0,00	100,00	0,00
1444	dinner out	164	fast food	KFC	(KFC)/2	2	(meat)/2				2	50,00	50,00	0,00	0,00	100,00	0,00
1445	dinner out	165	ethnic food	chinese	(chinese)/1 (Chineese_buffet)/1 (dim_sum)/1	3	(N/A)/3				3	33,33	33,33	0,00	33,33	66,67	33,33
1446	dinner out	166	ethnic food	indian	(spicy_indian_food)/1	1	(N/A)/1				1	100,00	0,00	0,00	0,00	100,00	0,00
1447	dinner out	167	ethnic food	korean	(spicy_korean_food)/1	1	(N/A)/1				1	100,00	0,00	0,00	0,00	100,00	0,00
1448	dinner out	168	other	vegan food	(vegan_food)/1	1	(vegan)/1				1	0,00	0,00	100,00	0,00	0,00	100,00
1449	dinner out	169	cold drink	soft drink	(soft_drink)/1 (soft_drink_zero_sugar)/1 (fizzy_drink)/4 (Coca_Cola)/22 (Diet_Coke)/9 (Sprite)/2 (7_Up)/1 (lemonade)/3 (Soda)/2 (Irn_Bru)/6 (elderflower_cordial)/1 (Pepsi)/1 (ginger_beer)/1 (tonic_water)/1	55			(ice)/1 (lemon)/1 (lime)/1		45	43,33	45,56	11,11	0,00	88,89	11,11
1450	dinner out	170	juice	fruit juice	(juice)/9 (apple_juice)/3 (orange_juice)/3 (fresh_orange_juice)/1 (cramberry_juice)/1 (fizzy_juice)/1 (oasis)/1	19					18	5,56	16,67	25,00	52,78	22,22	77,78
1451	dinner out	171	blend	shake	(milkshake)/5	5					5	0,00	100,00	0,00	0,00	100,00	0,00
1452	dinner out	172	blend	smoothie	(green_smoothie)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
1453	dinner out	173	water/hot drink	water	(water)/38 (fresh_water)/1 (tap_water)/5 (still_water)/3 (sparkling_water)/8 (mineral_water)/1	56					52	1,92	1,92	81,73	14,42	3,85	96,15
1454	dinner out	174	water/hot drink	tea	(tea)/7 (fruit_tea)/1 (herbal_tea)/3 (green_tea)/2 (peppermint_tea)/1	14			(sugar)/1	1	14	7,14	7,14	64,29	21,43	14,29	85,71
1455	dinner out	175	water/hot drink	coffee	(coffee)/5 (iced_coffee)/1 (cappuccino)/2 (mocha)/1	9			(milk)/2 (sugar)/1	3	9	22,22	44,44	33,33	0,00	66,67	33,33
1456	dinner out	176	water/hot drink	hot chocolate	(hot_chocolate)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
1457	dinner out	177	alcoholic drink	wine	(wine)/33 (white_wine)/11 (red_wine)/13 (prosecco)/2	59					52	47,76	43,59	3,85	4,81	91,35	8,65
1458	dinner out	178	alcoholic drink	beer	(beer)/39 (red_beer)/1 (dark_beer)/1 (lager)/2	43					42	69,05	30,95	0,00	0,00	100,00	0,00
1459	dinner out	179	alcoholic drink	spirit/liquor	(spirits)/1 (white_spirit)/1 (vodka)/2 (whisky)/5 (scotch_whisky)/1 (rum)/2 (cognac)/2 (tequila)/1 (grappa)/1	16					12	41,67	58,33	0,00	0,00	100,00	0,00
1460	dinner out	180	alcoholic drink	cocktail	(cocktails)/3 (fruit_cocktail)/1 (long_island_iced_tea)/1 (mojito)/3 (gin_tonic)/3	11			(lemon)/1	1	10	40,00	50,00	10,00	0,00	90,00	10,00
1461	dinner out	181	alcoholic drink	cider	(cider)/4 (flavoured_cider)/1	5					5	20,00	80,00	0,00	0,00	100,00	0,00
1462	dinner out	182	alcoholic drink	alcohol	(alcohol)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00

all order	eating situation	eating situation order	general food category	basic food	types	type frequency	main ingredient type (meat, fish, vegetarian)	main ingredient subtype (chicken, prawns, tomatoes, curry)	accompaniments	accompaniments frequency	overall frequency (basic food)	% TF	% TO	% HF	% HO	% tasty	% healthy
1463	dinner out	183	dairy drink/alternative	milk	(milk)/4 (chocolate_milk)/1	5					4	12,50	0,00	50,00	37,50	12,50	87,50
1464	dinner out	184	dairy drink/alternative	lassi	(lassi)/1 (mango_lassi)/2	3					3	0,00	100,00	0,00	0,00	100,00	0,00
1465	dinner out	185	dairy drink/alternative	plant based milk	(coconut_milk)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
1466	dinner out	186	basic condiment	oil	(olive_oil)/6	6					6	16,67	16,67	50,00	16,67	33,33	66,67
1467	dinner out	187	basic condiment	vinegar	(vinegar)/4	4					4	50,00	25,00	25,00	0,00	75,00	25,00
1468	dinner out	188	basic condiment	salt	(salt)/3	3					3	100,00	0,00	0,00	0,00	100,00	0,00
1469	dinner out	189	dressing/sauce	soy sauce	(soy_sauce)/3	3					3	0,00	66,67	33,33	0,00	66,67	33,33
1470	dinner out	190	dressing/sauce	peppercorn sauce	(peppercorn_sauce)/3	3					3	66,67	33,33	0,00	0,00	100,00	0,00
1471	dinner out	191	dressing/sauce	tartar sauce	(tartar_sauce)/2	2					2	50,00	0,00	0,00	50,00	50,00	50,00
1472	dinner out	192	dressing/sauce	barbeque sauce	(BBQ_sauce)/2	2					2	50,00	50,00	0,00	0,00	100,00	0,00
1473	dinner out	193	dressing/sauce	french dressing	(french_dressing)/2	2					2	0,00	50,00	50,00	0,00	50,00	50,00
1474	dinner out	194	dressing/sauce	curry sauces	(curry_sauce)/1 (butter_masala_sauce)/1	2					2	50,00	50,00	0,00	0,00	100,00	0,00
1475	dinner out	195	dressing/sauce	hot sauce	(hot_sauce)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
1476	dinner out	196	dressing/sauce	chili sauce	(chili_sauce)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
1477	dinner out	197	dressing/sauce	brown sauce	(brown_sauce)/1	1					1	100,00	0,00	0,00	0,00	100,00	0,00
1478	dinner out	198	dressing/sauce	bemaise sauce	(bemais_sauce)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
1479	dinner out	199	dressing/sauce	jack daniel's sauce	(jack_daniel_sauce)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
1480	dinner out	200	dressing/sauce	salad cream	(salad_creme)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
1481	dinner out	201	dressing/sauce	white wine sauce	(white_wine_sauce)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00
1482	dinner out	202	dressing/sauce	balsamic dressing	(balsamic_dressing)/1	1					1	0,00	0,00	100,00	0,00	0,00	100,00
1483	dinner out	203	dressing/sauce	salad dressing	(salad_dressing)/1	1					1	0,00	0,00	0,00	0,00	0,00	0,00
1484	dinner out	204	dressing/sauce	tomato sauce	(tomato_sauce)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
1485	dinner out	205	spread/dip/topping	hummus	(hummus)/8	8					8	0,00	0,00	12,50	87,50	0,00	100,00
1486	dinner out	206	spread/dip/topping	mayonnaise	(mayonnaise)/8	8					8	87,50	12,50	0,00	0,00	100,00	0,00
1487	dinner out	207	spread/dip/topping	ketchup	(ketchup)/6	6					6	66,67	33,33	0,00	0,00	100,00	0,00
1488	dinner out	208	spread/dip/topping	mustard	(mustard)/3	3					3	66,67	0,00	33,33	0,00	66,67	33,33
1489	dinner out	209	spread/dip/topping	baba ganoush	(baba_ganoush)/2	2					2	0,00	0,00	0,00	100,00	0,00	100,00
1490	dinner out	210	spread/dip/topping	chutney	(onion_chutney)/1 (mango_chutney)/1	2					2	0,00	0,00	0,00	100,00	0,00	100,00
1491	dinner out	211	spread/dip/topping	butter	(butter)/2	2					2	50,00	50,00	0,00	0,00	100,00	0,00
1492	dinner out	212	spread/dip/topping	honey	(honey)/2	2					2	50,00	50,00	0,00	0,00	100,00	0,00
1493	dinner out	213	spread/dip/topping	guacamole salsa	(guacamole)/1	1					1	0,00	0,00	0,00	100,00	0,00	100,00
1494	dinner out	214	other	cream	(cream)/1	1					1	0,00	100,00	0,00	0,00	100,00	0,00

References

Abrahamse, W. (2020). How to Effectively Encourage Sustainable Food Choices: A Mini-Review of Available Evidence. *Frontiers in Psychology*, *11*. https://www.frontiersin.org/articles/10.3389/fpsyg.2020.589674

Adriaanse, M. A., van Oosten, J. M. F., de Ridder, D. T. D., de Wit, J. B. F., & Evers, C. (2011). Planning What Not to Eat: Ironic Effects of Implementation Intentions Negating Unhealthy Habits. *Personality and Social Psychology Bulletin*, *37*(1), 69–81. https://doi.org/10.1177/0146167210390523

Aggarwal, A., Rehm, C. D., Monsivais, P., & Drewnowski, A. (2016). Importance of taste, nutrition, cost and convenience in relation to diet quality: Evidence of nutrition resilience among US adults using National Health and Nutrition Examination Survey (NHANES) 2007–2010. *Preventive Medicine*, *90*, 184–192. https://doi.org/10.1016/j.ypmed.2016.06.030

Ágoston, C., Urbán, R., Király, O., Griffiths, M. D., Rogers, P. J., & Demetrovics, Z. (2018). Why Do You Drink Caffeine? The Development of the Motives for Caffeine Consumption Questionnaire (MCCQ) and Its Relationship with Gender, Age and the Types of Caffeinated Beverages. *International Journal of Mental Health and Addiction*, *16*(4), 981–999. https://doi.org/10.1007/s11469-017-9822-3

Ajilore, O., Amialchuk, A., & Egan, K. (2016). Alcohol consumption by youth: Peers, parents, or prices? *Economics & Human Biology*, *23*, 76–83. https://doi.org/10.1016/j.ehb.2016.07.003

Albery, I. P., Collins, I., Moss, A. C., Frings, D., & Spada, M. M. (2015). Habit predicts in-the-moment alcohol consumption. *Addictive Behaviors*, *41*, 78–80. https://doi.org/10.1016/j.addbeh.2014.09.025

Al-Ghussain, L. (2019). Global warming: Review on driving forces and mitigation. *Environmental Progress & Sustainable Energy*, *38*(1), 13–21. https://doi.org/10.1002/ep.13041

Allcott, H., Lockwood, B. B., & Taubinsky, D. (2019). Should We Tax Sugar-Sweetened Beverages? An Overview of Theory and Evidence. *Journal of Economic Perspectives*, *33*(3), Article 3. https://doi.org/10.1257/jep.33.3.202

Allender, S., & Rayner, M. (2007). The burden of overweight and obesity-related ill health in the UK. *Obesity Reviews*, *8*(5), 467–473. https://doi.org/10.1111/j.1467-789X.2007.00394.x

Anderson, K. G., Briggs, K. E. L., & White, H. R. (2013). Motives to Drink or Not to Drink: Longitudinal Relations Among Personality, Motives, and Alcohol Use Across Adolescence and Early Adulthood. *Alcoholism: Clinical and Experimental Research*, *37*(5), 860–867. https://doi.org/10.1111/acer.12030

Appleton, K. M., Krumplevska, K., Smith, E., Rooney, C., McKinley, M. C., & Woodside, J. V. (2018). Low fruit and vegetable consumption is associated with low knowledge of the details of the 5-a-day fruit and vegetable message in the UK: Findings from two cross-sectional questionnaire studies. *Journal of Human Nutrition and Dietetics*, *31*(1), 121–130. https://doi.org/10.1111/jhn.12487

Arnold, T. A., Johnston, C. S., Lee, C. D., & Garza, A. M. (2015). Eating in the absence of hunger in college students. *Appetite*, *92*, 51–56. https://doi.org/10.1016/j.appet.2015.05.010

Askari Majabadi, H., Solhi, M., Montazeri, A., Shojaeizadeh, D., Nejat, S., Khalajabadi Farahani, F., & Djazayeri, A. (2016). Factors Influencing Fast-Food Consumption Among Adolescents in Tehran: A Qualitative Study. *Iranian Red Crescent Medical Journal*, *18*(3), e23890. https://doi.org/10.5812/ircmj.23890

Bannigan, K., & Watson, R. (2009). Reliability and validity in a nutshell. *Journal of Clinical Nursing*, *18*(23), 3237–3243. https://doi.org/10.1111/j.1365-2702.2009.02939.x

Barsalou, L. W. (2008). Grounded Cognition. *Annual Review of Psychology*, *59*(1), 617–645. https://doi.org/10.1146/annurev.psych.59.103006.093639

Barsalou, L. W. (2020). Challenges and Opportunities for Grounding Cognition. *Journal of Cognition*, *3*(1), Article 1. https://doi.org/10.5334/joc.116

Beaulieu, D., Vézina-Im, L.-A., Turcotte, S., Guillaumie, L., Boucher, D., Douville, F., & Simard, D. (2020). Correlates of sugar-sweetened beverages consumption among adolescents. *Public Health Nutrition*, *23*(12), 2145–2154. https://doi.org/10.1017/S1368980019005147

Beavers, A., Lounsbury, J., Richards, J., Huck, S., Skolits, G., & Esquivel, S. (2019). Practical Considerations for Using Exploratory Factor Analysis in Educational Research. *Practical Assessment, Research, and Evaluation*, *18*(1). https://doi.org/10.7275/qv2q-rk76

Best, M., Barsalou, L. W., & Papies, E. K. (2018). Studying human eating behaviour in the laboratory: Theoretical considerations and practical suggestions. *Appetite*, *130*, 339–343. https://doi.org/10.1016/j.appet.2018.06.001

Birt, C., Buzeti, T., Grosso, G., Justesen, L., Lachat, C., Lafranconi, A., Mertanen, E., Rangelov, N., & Sarlio-Lähteenkorva, S. (2017). *Healthy and sustainable diets for European countries*. http://hdl.handle.net/1854/LU-8521128

Bisogni, C. A., Connors, M., Devine, C. M., & Sobal, J. (2002). Who We Are and How We Eat: A Qualitative Study of Identities in Food Choice. *Journal of Nutrition Education and Behavior*, *34*(3), 128–139. https://doi.org/10.1016/S1499-4046(06)60082-1

Blevins, C. E., Abrantes, A. M., & Stephens, R. S. (2018). The relationship between situational determinants of use and drinking motives. *Addiction Research & Theory*, *26*(1), 28–34. https://doi.org/10.1080/16066359.2017.1309033

Block, J. P., Chandra, A., McManus, K. D., & Willett, W. C. (2010). Point-of-Purchase Price and Education Intervention to Reduce Consumption of Sugary Soft Drinks. *American Journal of Public Health*, *100*(8), 1427–1433. https://doi.org/10.2105/AJPH.2009.175687

Block, J. P., Gillman, M. W., Linakis, S. K., & Goldman, R. E. (2013). "If It Tastes Good, I'm Drinking It": Qualitative Study of Beverage Consumption Among College Students. *Journal of Adolescent Health*, *52*(6), 702–706. https://doi.org/10.1016/j.jadohealth.2012.11.017

Boggiano, M. M., Wenger, L. E., Turan, B., Tatum, M. M., Sylvester, M. D., Morgan, P. R., Morse, K. E., & Burgess, E. E. (2015). Real-time sampling of reasons for hedonic food consumption: Further validation of the Palatable Eating Motives Scale. *Frontiers in Psychology*, *6*. https://www.frontiersin.org/articles/10.3389/fpsyg.2015.00744

Bravo, A. J., Prince, M. A., & Pearson, M. R. (2015). Does the How Mediate the Why? A Multiple Replication Examination of Drinking Motives, Alcohol Protective Behavioral Strategies, and Alcohol Outcomes. *Journal of Studies on Alcohol and Drugs*, *76*(6), 872–883. https://doi.org/10.15288/jsad.2015.76.872

Brouwer, A. M., & Mosack, K. E. (2015). Motivating Healthy Diet Behaviors: The Self-as-Doer Identity. *Self and Identity*, *14*(6), 638–653. https://doi.org/10.1080/15298868.2015.1043335

Brown, K. F., Rumgay, H., Dunlop, C., Ryan, M., Quartly, F., Cox, A., Deas, A., Elliss-Brookes, L., Gavin, A., Hounsome, L., Huws, D., Ormiston-Smith, N., Shelton, J., White, C., & Parkin, D. M. (2018). The fraction of cancer attributable to modifiable risk factors in England, Wales, Scotland, Northern Ireland, and the United Kingdom in 2015. *British Journal of Cancer*, *118*(8), Article 8. https://doi.org/10.1038/s41416-018-0029-6

Brown, R., Gray, A. R., Chua, M. G., Ware, L., Chisholm, A., & Tey, S. L. (2021). Is a Handful an Effective Way to Guide Nut Recommendations? *International Journal of Environmental Research and Public Health*, *18*(15), Article 15. https://doi.org/10.3390/ijerph18157812

Brown, R., & Murphy, S. (2020). Alcohol and social connectedness for new residential university students: Implications for alcohol harm reduction. *Journal of Further and Higher Education*, *44*(2), 216–230. https://doi.org/10.1080/0309877X.2018.1527024

Brug, J., de Vet, E., de Nooijer, J., & Verplanken, B. (2006). Predicting Fruit Consumption: Cognitions, Intention, and Habits. *Journal of Nutrition Education and Behavior*, *38*(2), 73–81. https://doi.org/10.1016/j.jneb.2005.11.027

Burgess, E. E., Turan, B., Lokken, K. L., Morse, A., & Boggiano, M. M. (2014). Profiling motives behind hedonic eating. Preliminary validation of the Palatable Eating Motives Scale. *Appetite*, *72*, 66–72. https://doi.org/10.1016/j.appet.2013.09.016

Cadario, R., & Morewedge, C. K. (2022). Why do people eat the same breakfast every day? Goals and circadian rhythms of variety seeking in meals. *Appetite*, *168*, 105716. https://doi.org/10.1016/j.appet.2021.105716

Calle, E. E., & Kaaks, R. (2004). Overweight, obesity and cancer: Epidemiological evidence and proposed mechanisms. *Nature Reviews Cancer*, *4*(8), Article 8. https://doi.org/10.1038/nrc1408

Campbell, K. J., Crawford, D. A., Salmon, J., Carver, A., Garnett, S. P., & Baur, L. A. (2007). Associations Between the Home Food Environment and Obesity-promoting Eating Behaviors in Adolescence. *Obesity*, *15*(3), 719–730. https://doi.org/10.1038/oby.2007.553

Carfora, V., Caso, D., & Conner, M. (2016). The role of self-identity in predicting fruit and vegetable intake. *Appetite*, *106*, 23–29. https://doi.org/10.1016/j.appet.2015.12.020

Carroll, S. J., Turrell, G., Dale, M. J., & Daniel, M. (2021). Associations between supermarket availability and body size in Australia: A cross-sectional

observational study comparing state and territory capital cities. *BMC Public Health*, *21*(1), 407. https://doi.org/10.1186/s12889-021-10458-9

Charters, S., & Pettigrew, S. (2008). Why Do People Drink Wine? A Consumer-Focused Exploration. *Journal of Food Products Marketing*, *14*(3), 13–32. https://doi.org/10.1080/10454440801985894

Chen, J., Papies, E. K., & Barsalou, L. W. (2016). A core eating network and its modulations underlie diverse eating phenomena. *Brain and Cognition*, *110*, 20–42. https://doi.org/10.1016/j.bandc.2016.04.004

Choudhury, D., Singh, S., Seah, J. S. H., Yeo, D. C. L., & Tan, L. P. (2020). Commercialization of Plant-Based Meat Alternatives. *Trends in Plant Science*, *25*(11), 1055–1058. https://doi.org/10.1016/j.tplants.2020.08.006

Claassen, M. A., Lomann, M., & Papies, E. K. (2022). *Situational shifts in habitual consumption: A longitudinal analysis of the effect of a COVID-19 lockdown on sugar-sweetened beverage consumption in England*. PsyArXiv. https://doi.org/10.31234/osf.io/wdx5k

Cohen, D. A., & Babey, S. H. (2012). Contextual influences on eating behaviours: Heuristic processing and dietary choices. *Obesity Reviews*, *13*(9), 766–779. https://doi.org/10.1111/j.1467-789X.2012.01001.x

Cohen, P., & Spiegelman, B. M. (2016). Cell biology of fat storage. *Molecular Biology of the Cell*, *27*(16), 2523–2527. https://doi.org/10.1091/mbc.E15-10-0749

Connor, S. (2020). Underreporting of Dietary Intake: Key Issues for Weight Management Clinicians. *Current Cardiovascular Risk Reports*, *14*(10), 16. https://doi.org/10.1007/s12170-020-00652-6

Cooper, M. L. (1994a). Motivations for alcohol use among adolescents: Development and validation of a four-factor model. *Psychological Assessment*, *6*, 117–128. https://doi.org/10.1037/1040-3590.6.2.117

Cooper, M. L. (1994b). Motivations for alcohol use among adolescents: Development and validation of a four-factor model. *Psychological Assessment*, *6*, 117–128. https://doi.org/10.1037/1040-3590.6.2.117

Costello, A., & Osborne, J. (2019). Best practices in exploratory factor analysis: Four recommendations for getting the most from your analysis. *Practical Assessment, Research, and Evaluation*, *10*(1). https://doi.org/10.7275/jyj1-4868

Cousino Klein, L., Corwin, E. J., & Ceballos, R. M. (2004). Leptin, hunger, and body weight: Influence of gender, tobacco smoking, and smoking abstinence. *Addictive Behaviors*, *29*(5), 921–927. https://doi.org/10.1016/j.addbeh.2004.02.023

Cummings, D. E., Frayo, R. S., Marmonier, C., Aubert, R., & Chapelot, D. (2004). Plasma ghrelin levels and hunger scores in humans initiating meals voluntarily without time- and food-related cues. *American Journal of Physiology. Endocrinology and Metabolism*, *287*(2), E297-304. https://doi.org/10.1152/ajpendo.00582.2003

Davis, C. G., Thake, J., & Vilhena, N. (2010). Social desirability biases in self-reported alcohol consumption and harms. *Addictive Behaviors*, *35*(4), 302–311. https://doi.org/10.1016/j.addbeh.2009.11.001

Dutriaux, L., Clark, N., Papies, E. K., Scheepers, C., & Barsalou, L. (2021). *The Situated Assessment Method (SAM²): Establishing Individual Differences in Habitual Behavior*. PsyArXiv. https://doi.org/10.31234/osf.io/k3mqj

El Ansari, W., Adetunji, H., & Oskrochi, R. (2014). Food and Mental Health: Relationship between Food and Perceived Stress and Depressive Symptoms among University Students in the United Kingdom. *Central European Journal of Public Health*, *22*(2), 90–97. https://doi.org/10.21101/cejph.a3941

Espinoza-Ortega, A., Martínez-García, C. G., Thomé-Ortiz, H., & Vizcarra-Bordi, I. (2016). Motives for food choice of consumers in Central México. *British Food Journal*, *118*(11), 2744–2760. https://doi.org/10.1108/BFJ-04-2016-0143

Evers, C., Dingemans, A., Junghans, A. F., & Boevé, A. (2018). Feeling bad or feeling good, does emotion affect your consumption of food? A meta-analysis of the experimental evidence. *Neuroscience & Biobehavioral Reviews*, *92*, 195–208. https://doi.org/10.1016/j.neubiorev.2018.05.028

Firth, J., Gangwisch, J. E., Borsini, A., Wootton, R. E., & Mayer, E. A. (2020). Food and mood: How do diet and nutrition affect mental wellbeing? *BMJ*, *369*, m2382. https://doi.org/10.1136/bmj.m2382

Gallenti, G., Troiano, S., Marangon, F., Bogoni, P., Campisi, B., & Cosmina, M. (2019). Environmentally sustainable versus aesthetic values motivating millennials' preferences for wine purchasing: Evidence from an experimental analysis in Italy. *Agricultural and Food Economics*, *7*(1), 12. https://doi.org/10.1186/s40100-019-0132-x

Gardner, B. (2015). A review and analysis of the use of 'habit' in understanding, predicting and influencing health-related behaviour. *Health Psychology Review*, *9*(3), 277–295. https://doi.org/10.1080/17437199.2013.876238

Gardner, B., de Bruijn, G.-J., & Lally, P. (2011). A Systematic Review and Meta-analysis of Applications of the Self-Report Habit Index to Nutrition and Physical Activity Behaviours. *Annals of Behavioral Medicine*, *42*(2), 174–187. https://doi.org/10.1007/s12160-011-9282-0

Gardner, B., Lally, P., & Rebar, A. L. (2020). Does habit weaken the relationship between intention and behaviour? Revisiting the habit-intention interaction hypothesis. *Social and Personality Psychology Compass*, *14*(8), e12553. https://doi.org/10.1111/spc3.12553

Gardner, B., Richards, R., Lally, P., Rebar, A., Thwaite, T., & Beeken, R. J. (2021). Breaking habits or breaking habitual behaviours? Old habits as a neglected factor in weight loss maintenance. *Appetite*, *162*, 105183. https://doi.org/10.1016/j.appet.2021.105183

Gayle M. Timmerman, G. J. A. (2001). The Relationship Between Basic Need Satisfaction and Emotional Eating. *Issues in Mental Health Nursing*, *22*(7), 691–701. https://doi.org/10.1080/01612840119628

Gibson, A. A., Hsu, M. S. H., Rangan, A. M., Seimon, R. V., Lee, C. M. Y., Das, A., Finch, C. H., & Sainsbury, A. (2016). Accuracy of hands v. Household measures as portion size estimation aids. *Journal of Nutritional Science*, *5*, e29. https://doi.org/10.1017/jns.2016.22

Gibson, R. S., Charrondiere, U. R., & Bell, W. (2017). Measurement Errors in Dietary Assessment Using Self-Reported 24-Hour Recalls in Low-Income Countries and Strategies for Their Prevention. *Advances in Nutrition*, *8*(6), 980–991. https://doi.org/10.3945/an.117.016980

Gibson, S. (2008). Sugar-sweetened soft drinks and obesity: A systematic review of the evidence from observational studies and interventions. *Nutrition Research Reviews*, *21*(2), 134–147. https://doi.org/10.1017/S0954422408110976

Glindemann, K. E., Wiegand, D. M., & Geller, E. S. (2007). Celebratory Drinking and Intoxication: A Contextual Influence on Alcohol Consumption. *Environment and Behavior*, *39*(3), 352–366. https://doi.org/10.1177/001391650290949

Grandjean, A. C., & Grandjean, N. R. (2007). Dehydration and Cognitive Performance. *Journal of the American College of Nutrition*, *26*(sup5), 549S-554S. https://doi.org/10.1080/07315724.2007.10719657

Grant, V. V., Stewart, S. H., O'Connor, R. M., Blackwell, E., & Conrod, P. J. (2007). Psychometric evaluation of the five-factor Modified Drinking Motives Questionnaire—Revised in undergraduates. *Addictive Behaviors*, *32*(11), 2611–2632. https://doi.org/10.1016/j.addbeh.2007.07.004

Greaves, C., Poltawski, L., Garside, R., & Briscoe, S. (2017). Understanding the challenge of weight loss maintenance: A systematic review and synthesis of qualitative research on weight loss maintenance. *Health Psychology Review*, *11*(2), 145–163. https://doi.org/10.1080/17437199.2017.1299583

Groesz, L. M., McCoy, S., Carl, J., Saslow, L., Stewart, J., Adler, N., Laraia, B., & Epel, E. (2012). What is eating you? Stress and the drive to eat. *Appetite*, *58*(2), 717–721. https://doi.org/10.1016/j.appet.2011.11.028

Halim, A., Hasking, P., & Allen, F. (2012). The role of social drinking motives in the relationship between social norms and alcohol consumption. *Addictive Behaviors*, *37*(12), 1335–1341. https://doi.org/10.1016/j.addbeh.2012.07.004

Hammarberg, A., Öster, C., & Nehlin, C. (2017). Drinking motives of adult patients seeking treatment for problematic alcohol use. *Journal of Addictive Diseases*, *36*(2), 127–135. https://doi.org/10.1080/10550887.2017.1291052

Haughton, C. F., Waring, M. E., Wang, M. L., Rosal, M. C., Pbert, L., & Lemon, S. C. (2018). Home Matters: Adolescents Drink More Sugar-Sweetened Beverages When Available at Home. *The Journal of Pediatrics*, *202*, 121–128. https://doi.org/10.1016/j.jpeds.2018.06.046

Health Survey for England 2019 [NS]. (2020). NHS Digital. https://digital.nhs.uk/data-and-information/publications/statistical/health-survey-for-england/2019

Herman, C. P., Roth, D. A., & Polivy, J. (2003). Effects of the Presence of Others on Food Intake: A Normative Interpretation. *Psychological Bulletin*, *129*(6), 873–886. https://doi.org/10.1037/0033-2909.129.6.873

Higgins, S. C., Gueorguiev, M., & Korbonits, M. (2007). Ghrelin, the peripheral hunger hormone. *Annals of Medicine*, *39*(2), 116–136. https://doi.org/10.1080/07853890601149179

Higgs, S. (2015). Social norms and their influence on eating behaviours. *Appetite*, *86*, 38–44. https://doi.org/10.1016/j.appet.2014.10.021

Higgs, S., Robinson, E., & Lee, M. (2012). Learning and Memory Processes and Their Role in Eating: Implications for Limiting Food Intake in Overeaters.

Current Obesity Reports, *1*(2), 91–98. https://doi.org/10.1007/s13679-012-0008-9

Hofmann, W., Friese, M., & Wiers, R. W. (2008). Impulsive versus reflective influences on health behavior: A theoretical framework and empirical review. *Health Psychology Review*, *2*(2), 111–137. https://doi.org/10.1080/17437190802617668

Honkanen, P., & Frewer, L. (2009). Russian consumers' motives for food choice. *Appetite*, *52*(2), 363–371. https://doi.org/10.1016/j.appet.2008.11.009

Hopwood, C. J., Rosenfeld, D., Chen, S., & Bleidorn, W. (2021). An Investigation of Plant-based Dietary Motives Among Vegetarians and Omnivores. *Collabra: Psychology*, *7*(1), 19010. https://doi.org/10.1525/collabra.19010

Houben, K., Nederkoorn, C., Wiers, R. W., & Jansen, A. (2011). Resisting temptation: Decreasing alcohol-related affect and drinking behavior by training response inhibition. *Drug and Alcohol Dependence*, *116*(1), 132–136. https://doi.org/10.1016/j.drugalcdep.2010.12.011

Ignarro, L. J., Balestrieri, M. L., & Napoli, C. (2007). Nutrition, physical activity, and cardiovascular disease: An update. *Cardiovascular Research*, *73*(2), 326–340. https://doi.org/10.1016/j.cardiores.2006.06.030

Jiang, H., & Livingston, M. (2015). The Dynamic Effects of Changes in Prices and Affordability on Alcohol Consumption: An Impulse Response Analysis. *Alcohol and Alcoholism*, *50*(6), 631–638. https://doi.org/10.1093/alcalc/agv064

Källmén, H., Berman, A. H., Elgán, T. H., & Wennberg, P. (2019). Alcohol habits in Sweden during 1997–2018: A repeated cross-sectional study. *Nordic Journal of Psychiatry*, *73*(8), 522–526. https://doi.org/10.1080/08039488.2019.1660912

Keller, C., & Siegrist, M. (2015). Does personality influence eating styles and food choices? Direct and indirect effects. *Appetite*, *84*, 128–138. https://doi.org/10.1016/j.appet.2014.10.003

Kersten-van Dijk, E. T., Westerink, J. H. D. M., Beute, F., & IJsselsteijn, W. A. (2017). Personal Informatics, Self-Insight, and Behavior Change: A Critical Review of Current Literature. *Human–Computer Interaction*, *32*(5–6), 268–296. https://doi.org/10.1080/07370024.2016.1276456

Koo, T. K., & Li, M. Y. (2016). A Guideline of Selecting and Reporting Intraclass Correlation Coefficients for Reliability Research. *Journal of Chiropractic Medicine*, *15*(2), 155–163. https://doi.org/10.1016/j.jcm.2016.02.012

Lafay, L., Mennen, L., Basdevant, A., Charles, M. A., Borys, J. M., Eschwège, E., & Romon, M. (2000). Does energy intake underreporting involve all kinds of food or only specific food items? Results from the Fleurbaix Laventie Ville Santé (FLVS) study. *International Journal of Obesity*, *24*(11), Article 11. https://doi.org/10.1038/sj.ijo.0801392

Lally, P., van Jaarsveld, C. H. M., Potts, H. W. W., & Wardle, J. (2010). How are habits formed: Modelling habit formation in the real world. *European Journal of Social Psychology*, *40*(6), 998–1009. https://doi.org/10.1002/ejsp.674

Lane, M. M., Gamage, E., Travica, N., Dissanayaka, T., Ashtree, D. N., Gauci, S., Lotfaliany, M., O'Neil, A., Jacka, F. N., & Marx, W. (2022). Ultra-Processed Food Consumption and Mental Health: A Systematic Review and Meta-Analysis of Observational Studies. *Nutrients*, *14*(13), Article 13. https://doi.org/10.3390/nu14132568

Langrial, S., & Oinas-Kukkonen, H. (2012). Less Fizzy Drinks: A Multi-method Study of Persuasive Reminders. In M. Bang & E. L. Ragnemalm (Eds.), *Persuasive Technology. Design for Health and Safety* (pp. 256–261). Springer. https://doi.org/10.1007/978-3-642-31037-9_23

Laran, J. (2016). Consumer goal pursuit. *Current Opinion in Psychology*, *10*, 22–26. https://doi.org/10.1016/j.copsyc.2015.10.015

Lebois, L. A. M., Hertzog, C., Slavich, G. M., Barrett, L. F., & Barsalou, L. W. (2016). Establishing the situated features associated with perceived stress. *Acta Psychologica*, *169*, 119–132. https://doi.org/10.1016/j.actpsy.2016.05.012

Lee, C. M., Geisner, I. M., Lewis, M. A., Neighbors, C., & Larimer, M. E. (2007). Social Motives and the Interaction Between Descriptive and Injunctive Norms in College Student Drinking. *Journal of Studies on Alcohol and Drugs*, *68*(5), 714–721. https://doi.org/10.15288/jsad.2007.68.714

Leib, D. E., Zimmerman, C. A., & Knight, Z. A. (2016). Thirst. *Current Biology*, *26*(24), R1260–R1265. https://doi.org/10.1016/j.cub.2016.11.019

Li, Y., Wen, Z., Hau, K.-T., Yuan, K.-H., & Peng, Y. (2020). Effects of Cross-loadings on Determining the Number of Factors to Retain. *Structural Equation Modeling: A Multidisciplinary Journal*, *27*(6), 841–863. https://doi.org/10.1080/10705511.2020.1745075

Lin, P.-Y., Wood, W., & Monterosso, J. (2016). Healthy eating habits protect against temptations. *Appetite*, *103*, 432–440. https://doi.org/10.1016/j.appet.2015.11.011

Livingston, M., & Callinan, S. (2015). Underreporting in Alcohol Surveys: Whose Drinking Is Underestimated? *Journal of Studies on Alcohol and Drugs*, *76*(1), 158–164. https://doi.org/10.15288/jsad.2015.76.158

Luoma, J., Guinther, P., Potter, J., & Cheslock, M. (2017). Experienced-Based Versus Scenario-Based Assessments of Shame and Guilt and Their Relationship to Alcohol Consumption and Problems. *Substance Use & Misuse*, *52*(13), 1692–1700. https://doi.org/10.1080/10826084.2017.1305416

Macdiarmid, J. I., Douglas, F., & Campbell, J. (2016). Eating like there's no tomorrow: Public awareness of the environmental impact of food and reluctance to eat less meat as part of a sustainable diet. *Appetite*, *96*, 487–493. https://doi.org/10.1016/j.appet.2015.10.011

Mäkiniemi, J.-P., & Vainio, A. (2014). Barriers to climate-friendly food choices among young adults in Finland. *Appetite*, *74*, 12–19. https://doi.org/10.1016/j.appet.2013.11.016

Malek, L., Umberger, W. J., & Goddard, E. (2019). Committed vs. uncommitted meat eaters: Understanding willingness to change protein consumption. *Appetite*, *138*, 115–126. https://doi.org/10.1016/j.appet.2019.03.024

Marteau, T. M., Hollands, G. J., & Fletcher, P. C. (2012). Changing Human Behavior to Prevent Disease: The Importance of Targeting Automatic Processes. *Science*, *337*(6101), 1492–1495. https://doi.org/10.1126/science.1226918

Martins, V. J. B., Toledo Florêncio, T. M. M., Grillo, L. P., Do Carmo P. Franco, M., Martins, P. A., Clemente, A. P. G., Santos, C. D. L., Vieira, M. de F. A., & Sawaya, A. L. (2011). Long-Lasting Effects of Undernutrition. *International Journal of Environmental Research and Public Health*, *8*(6), Article 6. https://doi.org/10.3390/ijerph8061817

McCarthy, M. B., Collins, A. M., Flaherty, S. J., & McCarthy, S. N. (2017). Healthy eating habit: A role for goals, identity, and self-control? *Psychology & Marketing*, *34*(8), 772–785. https://doi.org/10.1002/mar.21021

McGreen, J., Kemps, E., & Tiggemann, M. (2022). Beyond thirst: Cravings for non-alcoholic beverages including soft drink. *Eating Behaviors*, *46*, 101662. https://doi.org/10.1016/j.eatbeh.2022.101662

McKinley, M. J., & Johnson, A. K. (2004). The Physiological Regulation of Thirst and Fluid Intake. *Physiology*, *19*(1), 1–6. https://doi.org/10.1152/nips.01470.2003

McLaren, L. (2007). Socioeconomic Status and Obesity. *Epidemiologic Reviews*, *29*(1), 29–48. https://doi.org/10.1093/epirev/mxm001

McNaughton, S. A., Pendergast, F. J., Worsley, A., & Leech, R. M. (2020). Eating occasion situational factors and sugar-sweetened beverage consumption in young adults. *International Journal of Behavioral Nutrition and Physical Activity*, *17*(1), 71. https://doi.org/10.1186/s12966-020-00975-y

Molaodi, O. R., Leyland, A. H., Ellaway, A., Kearns, A., & Harding, S. (2012). Neighbourhood food and physical activity environments in England, UK: Does ethnic density matter? *International Journal of Behavioral Nutrition and Physical Activity*, *9*(1), 75. https://doi.org/10.1186/1479-5868-9-75

Monteiro, S., Sullivan, G. M., & Chan, T. M. (2019). Generalizability Theory Made Simple(r): An Introductory Primer to G-Studies. *Journal of Graduate Medical Education*, *11*(4), 365–370. https://doi.org/10.4300/JGME-D-19-00464.1

Moran, C., & Saliba, A. (2012). Reasons for drinking wine and other beverages – comparison across motives in older adults. *International Journal of Wine Research*, 25. https://doi.org/10.2147/IJWR.S33323

Müller, T. D., Nogueiras, R., Andermann, M. L., Andrews, Z. B., Anker, S. D., Argente, J., Batterham, R. L., Benoit, S. C., Bowers, C. Y., Broglio, F., Casanueva, F. F., D'Alessio, D., Depoortere, I., Geliebter, A., Ghigo, E., Cole, P. A., Cowley, M., Cummings, D. E., Dagher, A., … Tschöp, M. H. (2015). Ghrelin. *Molecular Metabolism*, *4*(6), 437–460. https://doi.org/10.1016/j.molmet.2015.03.005

Musingarimi, P. (2009). Obesity in the UK: A review and comparative analysis of policies within the devolved administrations. *Health Policy*, *91*(1), 10–16. https://doi.org/10.1016/j.healthpol.2008.11.004

Neelakantan, N., Park, S. H., Chen, G.-C., & van Dam, R. M. (2022). Sugar-sweetened beverage consumption, weight gain, and risk of type 2 diabetes and cardiovascular diseases in Asia: A systematic review. *Nutrition Reviews*, *80*(1), 50–67. https://doi.org/10.1093/nutrit/nuab010

O'Donnell, R., Richardson, B., Fuller-Tyszkiewicz, M., Liknaitzky, P., Arulkadacham, L., Dvorak, R., & Staiger, P. K. (2019). Ecological momentary assessment of drinking in young adults: An investigation into

social context, affect and motives. *Addictive Behaviors*, *98*, 106019. https://doi.org/10.1016/j.addbeh.2019.06.008

Ohtomo, S. (2013). Effects of habit on intentional and reactive motivations for unhealthy eating. *Appetite*, *68*, 69–75. https://doi.org/10.1016/j.appet.2013.04.014

Ohtomo, S. (2017). Exposure to diet priming images as cues to reduce the influence of unhealthy eating habits. *Appetite*, *109*, 83–92. https://doi.org/10.1016/j.appet.2016.11.022

O'Mara, F. P. (2011). The significance of livestock as a contributor to global greenhouse gas emissions today and in the near future. *Animal Feed Science and Technology*, *166–167*, 7–15. https://doi.org/10.1016/j.anifeedsci.2011.04.074

Onwezen, M. C., Bouwman, E. P., Reinders, M. J., & Dagevos, H. (2021). A systematic review on consumer acceptance of alternative proteins: Pulses, algae, insects, plant-based meat alternatives, and cultured meat. *Appetite*, *159*, 105058. https://doi.org/10.1016/j.appet.2020.105058

Ostroff, C. (1993). Comparing correlations based on individual-level and aggregated data. *Journal of Applied Psychology*, *78*(4), 569–582. https://doi.org/10.1037/0021-9010.78.4.569

Palascha, A., van Kleef, E., de Vet, E., & van Trijp, H. C. M. (2021). Self-reported sensitivity to physiological signals of satiation and hunger: Assessment of construct validity. *Personality and Individual Differences*, *182*, 111054. https://doi.org/10.1016/j.paid.2021.111054

Palfai, T. P. (2006). Activating Action Tendencies: The Influence of Action Priming on Alcohol Consumption Among Male Hazardous Drinkers. *Journal of Studies on Alcohol*, *67*(6), 926–933. https://doi.org/10.15288/jsa.2006.67.926

Papies, E. (2013a). Tempting food words activate eating simulations. *Frontiers in Psychology*, *4*. https://www.frontiersin.org/articles/10.3389/fpsyg.2013.00838

Papies, E. (2013b). Tempting food words activate eating simulations. *Frontiers in Psychology*, *4*. https://www.frontiersin.org/articles/10.3389/fpsyg.2013.00838

Papies, E. K., & Barsalou, L. W. (2015). Grounding desire and motivated behavior: A theoretical framework and review of empirical evidence. In *The psychology of desire* (pp. 36–60). The Guilford Press.

Papies, E. K., Barsalou, L. W., & Rusz, D. (2020). Understanding Desire for Food and Drink: A Grounded-Cognition Approach. *Current Directions in Psychological Science*, *29*(2), 193–198. https://doi.org/10.1177/0963721420904958

Papies, E. K., Best, M., Gelibter, E., & Barsalou, L. W. (2017). The Role of Simulations in Consumer Experiences and Behavior: Insights from the Grounded Cognition Theory of Desire. *Journal of the Association for Consumer Research*, *2*(4), 402–418. https://doi.org/10.1086/693110

Papies, E. K., Claassen, M. A., Rusz, D., & Best, M. (2022). Flavors of desire: Cognitive representations of appetitive stimuli and their motivational implications. *Journal of Experimental Psychology: General*, *151*, 1919–1941. https://doi.org/10.1037/xge0001157

Papies, E., Tatar, B., Keesman, M., Maisy, B., Lindner, K., Barsalou, L., Rusz, D., & Dutriaux, L. (2020). Measuring and interpreting cognitive representations of foods and drinks: A procedure for collecting and coding feature listing data. *Under Review*. https://doi.org/10.31219/osf.io/ufpx8

Paulus, D. J., Heggeness, L. F., Raines, A. M., & Zvolensky, M. J. (2021). Difficulties regulating positive and negative emotions in relation to coping motives for alcohol use and alcohol problems among hazardous drinkers. *Addictive Behaviors*, *115*, 106781. https://doi.org/10.1016/j.addbeh.2020.106781

Pechey, R., Monsivais, P., Ng, Y.-L., & Marteau, T. M. (2015). Why don't poor men eat fruit? Socioeconomic differences in motivations for fruit consumption. *Appetite*, *84*, 271–279. https://doi.org/10.1016/j.appet.2014.10.022

Pedersen, C., Scheepers, C., Werner, J., & Barsalou, L. W. (2022). Learning effects in better understanding eustress and distress during the covid pandemic. *[Manuscript in Preparation]. School of Psychology and Neuroscience, University of Glasgow*.

Peltier, M. R., Verplaetse, T. L., Mineur, Y. S., Petrakis, I. L., Cosgrove, K. P., Picciotto, M. R., & McKee, S. A. (2019). Sex differences in stress-related alcohol use. *Neurobiology of Stress*, *10*, 100149. https://doi.org/10.1016/j.ynstr.2019.100149

Pfeiler, T. M., & Egloff, B. (2020). Personality and eating habits revisited: Associations between the big five, food choices, and Body Mass Index in a representative Australian sample. *Appetite*, *149*, 104607. https://doi.org/10.1016/j.appet.2020.104607

Phan, U. T. X., & Chambers, E. (2016a). Application of An Eating Motivation Survey to Study Eating Occasions. *Journal of Sensory Studies*, *31*(2), 114–123. https://doi.org/10.1111/joss.12197

Phan, U. T. X., & Chambers, E. (2016b). Motivations for choosing various food groups based on individual foods. *Appetite*, *105*, 204–211. https://doi.org/10.1016/j.appet.2016.05.031

Phan, U. T. X., & Chambers, E. (2018). Motivations for meal and snack times: Three approaches reveal similar constructs. *Food Quality and Preference*, *68*, 267–275. https://doi.org/10.1016/j.foodqual.2018.03.018

Pollard, T. M., Steptoe, A., & Wardle, J. (1998). MOTIVES UNDERLYING HEALTHY EATING: USING THE FOOD CHOICE QUESTIONNAIRE TO EXPLAIN VARIATION IN DIETARY INTAKE. *Journal of Biosocial Science*, *30*(2), 165–179. https://doi.org/10.1017/S0021932098001655

Reichenberger, J., Schnepper, R., Arend, A.-K., & Blechert, J. (2020). Emotional eating in healthy individuals and patients with an eating disorder: Evidence from psychometric, experimental and naturalistic studies. *Proceedings of the Nutrition Society*, *79*(3), 290–299. https://doi.org/10.1017/S0029665120007004

Reipurth, M. F. S., Hørby, L., Gregersen, C. G., Bonke, A., & Perez Cueto, F. J. A. (2019). Barriers and facilitators towards adopting a more plant-based diet in a sample of Danish consumers. *Food Quality and Preference*, *73*, 288–292. https://doi.org/10.1016/j.foodqual.2018.10.012

Renner, B., Sproesser, G., Strohbach, S., & Schupp, H. T. (2012a). Why we eat what we eat. The Eating Motivation Survey (TEMS). *Appetite*, *59*(1), 117–128. https://doi.org/10.1016/j.appet.2012.04.004

Renner, B., Sproesser, G., Strohbach, S., & Schupp, H. T. (2012b). Why we eat what we eat. The Eating Motivation Survey (TEMS). *Appetite*, *59*(1), 117–128. https://doi.org/10.1016/j.appet.2012.04.004

Riet, J. van't, Sijtsema, S. J., Dagevos, H., & De Bruijn, G.-J. (2011). The importance of habits in eating behaviour. An overview and recommendations for future research. *Appetite*, *57*(3), 585–596. https://doi.org/10.1016/j.appet.2011.07.010

Rise, J., Sheeran, P., & Hukkelberg, S. (2010). The Role of Self-identity in the Theory of Planned Behavior: A Meta-Analysis. *Journal of Applied Social Psychology*, *40*(5), 1085–1105. https://doi.org/10.1111/j.1559-1816.2010.00611.x

Rodger, A., & Papies, E. K. (2022). “I don’t just drink water for the sake of it”: Understanding the influence of value, reward, self-identity and early life on water drinking behaviour. *Food Quality and Preference*, *99*, 104576. https://doi.org/10.1016/j.foodqual.2022.104576

Rodger, A., Wehbe, L. H., & Papies, E. K. (2021). “I know it’s just pouring it from the tap, but it’s not easy”: Motivational processes that underlie water drinking. *Appetite*, *164*, 105249. https://doi.org/10.1016/j.appet.2021.105249

Rohsenow, D. J., & Monti, P. M. (1999). Does Urge To Drink Predict Relapse After Treatment? *Alcohol Research & Health*, *23*(3), 225–232.

Rosenfeld, D. L. (2020). Gender differences in vegetarian identity: How men and women construe meatless dieting. *Food Quality and Preference*, *81*, 103859. https://doi.org/10.1016/j.foodqual.2019.103859

Sabaté, J., & Soret, S. (2014). Sustainability of plant-based diets: Back to the future. *The American Journal of Clinical Nutrition*, *100*(suppl_1), 476S-482S. https://doi.org/10.3945/ajcn.113.071522

Salemink, E., & Wiers, R. W. (2014). Alcohol-related memory associations in positive and negative affect situations: Drinking motives, working memory capacity, and prospective drinking. *Psychology of Addictive Behaviors*, *28*, 105–113. https://doi.org/10.1037/a0032806

Schmidt, F. L., & Hunter, J. E. (1996). Measurement error in psychological research: Lessons from 26 research scenarios. *Psychological Methods*, *1*, 199–223. https://doi.org/10.1037/1082-989X.1.2.199

Schönbrodt, F. D., & Perugini, M. (2013). At what sample size do correlations stabilize? *Journal of Research in Personality*, *47*(5), 609–612. https://doi.org/10.1016/j.jrp.2013.05.009

Scott-Sheldon, L. A. J., Terry, D. L., Carey, K. B., Garey, L., & Carey, M. P. (2012). Efficacy of expectancy challenge interventions to reduce college student drinking: A meta-analytic review. *Psychology of Addictive Behaviors*, *26*, 393–405. https://doi.org/10.1037/a0027565

Shrout, P. E., & Fleiss, J. L. (1979). Intraclass correlations: Uses in assessing rater reliability. *Psychological Bulletin*, *86*(2), 420–428. https://doi.org/10.1037/0033-2909.86.2.420

Smeets, P. A. M., Dagher, A., Hare, T. A., Kullmann, S., van der Laan, L. N., Poldrack, R. A., Preissl, H., Small, D., Stice, E., & Veldhuizen, M. G. (2019). Good practice in food-related neuroimaging. *The American*

Journal of Clinical Nutrition, *109*(3), 491–503. https://doi.org/10.1093/ajcn/nqy344

Smyth, A., Dehghan, M., O'Donnell, M., Anderson, C., Teo, K., Gao, P., Sleight, P., Dagenais, G., Probstfield, J. L., Mente, A., & Yusuf, S. (2015). Healthy eating and reduced risk of cognitive decline: A cohort from 40 countries. *Neurology*, *84*(22), 2258–2265. https://doi.org/10.1212/WNL.0000000000001638

Spencer, S. J., Korosi, A., Layé, S., Shukitt-Hale, B., & Barrientos, R. M. (2017). Food for thought: How nutrition impacts cognition and emotion. *Npj Science of Food*, *1*(1), Article 1. https://doi.org/10.1038/s41538-017-0008-y

Sproesser, G., Strohbach, S., Schupp, H., & Renner, B. (2011). Candy or apple? How self-control resources and motives impact dietary healthiness in women. *Appetite*, *56*(3), 784–787. https://doi.org/10.1016/j.appet.2011.01.028

Steenhuis, I. (2009). Guilty or not? Feelings of guilt about food among college women. *Appetite*, *52*(2), 531–534. https://doi.org/10.1016/j.appet.2008.12.004

Steptoe, A., Pollard, T. M., & Wardle, J. (1995). Development of a Measure of the Motives Underlying the Selection of Food: The Food Choice Questionnaire. *Appetite*, *25*(3), 267–284. https://doi.org/10.1006/appe.1995.0061

Strachan, S. M., & Brawley, L. R. (2009). Healthy-eater Identity and Self-efficacy Predict Healthy Eating Behavior: A Prospective View. *Journal of Health Psychology*, *14*(5), 684–695. https://doi.org/10.1177/1359105309104915

Striley, C. L. W., Griffiths, R. R., & Cottler, L. B. (2011). Evaluating Dependence Criteria for Caffeine. *Journal of Caffeine Research*, *1*(4), 219–225. https://doi.org/10.1089/jcr.2011.0029

Stroebele-Benschop, N., Dieze, A., & Hilzendegen, C. (2018). Students' adherence to dietary recommendations and their food consumption habits. *Nutrition and Health*, *24*(2), 75–81. https://doi.org/10.1177/0260106018772946

Tal, A., Gvili, Y., & Amar, M. (2022). To protect and support: Why would consumers find foods tastier if these foods help support a desired self-identity. *Psychology & Marketing*, *39*(4), 701–714. https://doi.org/10.1002/mar.21614

Thompson, C., Cummins, S., Brown, T., & Kyle, R. (2013). Understanding interactions with the food environment: An exploration of supermarket food shopping routines in deprived neighbourhoods. *Health & Place*, *19*, 116–123. https://doi.org/10.1016/j.healthplace.2012.10.003

Tobler, C., Visschers, V. H. M., & Siegrist, M. (2011). Eating green. Consumers' willingness to adopt ecological food consumption behaviors. *Appetite*, *57*(3), 674–682. https://doi.org/10.1016/j.appet.2011.08.010

Traversy, G., & Chaput, J.-P. (2015). Alcohol Consumption and Obesity: An Update. *Current Obesity Reports*, *4*(1), 122–130. https://doi.org/10.1007/s13679-014-0129-4

Vainio, A., Niva, M., Jallinoja, P., & Latvala, T. (2016a). From beef to beans: Eating motives and the replacement of animal proteins with plant proteins among Finnish consumers. *Appetite*, *106*, 92–100. https://doi.org/10.1016/j.appet.2016.03.002

Vainio, A., Niva, M., Jallinoja, P., & Latvala, T. (2016b). From beef to beans: Eating motives and the replacement of animal proteins with plant proteins among Finnish consumers. *Appetite*, *106*, 92–100. https://doi.org/10.1016/j.appet.2016.03.002

van Bergen, G., Zandstra, E. H., Kaneko, D., Dijksterhuis, G. B., & de Wijk, R. A. (2021). Sushi at the beach: Effects of congruent and incongruent immersive contexts on food evaluations. *Food Quality and Preference*, *91*, 104193. https://doi.org/10.1016/j.foodqual.2021.104193

van den Eijnden, R., van de Mheen, D., Vet, R., & Vermulst, A. (2011). Alcohol-Specific Parenting and Adolescents' Alcohol-Related Problems: The Interacting Role of Alcohol Availability at Home and Parental Rules. *Journal of Studies on Alcohol and Drugs*, *72*(3), 408–417. https://doi.org/10.15288/jsad.2011.72.408

van Strien, T., Gibson, E. L., Baños, R., Cebolla, A., & Winkens, L. H. H. (2019). Is comfort food actually comforting for emotional eaters? A (moderated) mediation analysis. *Physiology & Behavior*, *211*, 112671. https://doi.org/10.1016/j.physbeh.2019.112671

Verain, M. C. D., Snoek, H. M., Onwezen, M. C., Reinders, M. J., & Bouwman, E. P. (2021). Sustainable food choice motives: The development and cross-country validation of the Sustainable Food Choice Questionnaire (SUS-FCQ). *Food Quality and Preference*, *93*, 104267. https://doi.org/10.1016/j.foodqual.2021.104267

Verain, M. C. D., van den Puttelaar, J., Zandstra, E. H., Lion, R., de Vogel-van den Bosch, J., Hoonhout, H. C. M., & Onwezen, M. C. (2022). Variability of Food Choice Motives: Two Dutch studies showing variation across meal moment, location and social context. *Food Quality and Preference*, *98*, 104505. https://doi.org/10.1016/j.foodqual.2021.104505

Verhoeven, A. A. C., Adriaanse, M. A., Evers, C., & de Ridder, D. T. D. (2012). The power of habits: Unhealthy snacking behaviour is primarily predicted by habit strength. *British Journal of Health Psychology*, *17*(4), 758–770. https://doi.org/10.1111/j.2044-8287.2012.02070.x

Wahl, D. R., Villinger, K., Blumenschein, M., König, L. M., Ziesemer, K., Sproesser, G., Schupp, H. T., & Renner, B. (2020a). Why We Eat What We Eat: Assessing Dispositional and In-the-Moment Eating Motives by Using Ecological Momentary Assessment. *JMIR MHealth and UHealth*, *8*(1), e13191. https://doi.org/10.2196/13191

Wahl, D. R., Villinger, K., Blumenschein, M., König, L. M., Ziesemer, K., Sproesser, G., Schupp, H. T., & Renner, B. (2020b). Why We Eat What We Eat: Assessing Dispositional and In-the-Moment Eating Motives by Using Ecological Momentary Assessment. *JMIR MHealth and UHealth*, *8*(1), e13191. https://doi.org/10.2196/13191

Wehbe, L. H., Banas, K., & Papies, E. K. (2022). It's Easy to Maintain When the Changes Are Small: Exploring Environmentally Motivated Dietary Changes From a Self-control Perspective. *Collabra: Psychology*, *8*(1), 38823. https://doi.org/10.1525/collabra.38823

Weinstein, G., Vered, S., Ivancovsky-Wajcman, D., Ravona-Springer, R., Heymann, A., Zelber-Sagi, S., Shahar, D. R., & Beeri, M. S. (2022). Consumption of Ultra-Processed Food and Cognitive Decline among Older Adults With Type-2 Diabetes. *The Journals of Gerontology: Series A*, glac070. https://doi.org/10.1093/gerona/glac070

Werner, J., Papies, E. K., Gelibter, Elena, & Barsalou, L. W. (2022). *Why do you eat? Establishing Individual consumption motives and their stability across eating situations*.

Willett, W. C. (1994). Diet and Health: What Should We Eat? *Science*, *264*(5158), 532–537. https://doi.org/10.1126/science.8160011

Wing, R. R., & Phelan, S. (2005). Long-term weight loss maintenance. *The American Journal of Clinical Nutrition*, *82*(1), 222S-225S. https://doi.org/10.1093/ajcn/82.1.222S

Wood, W., & Neal, D. T. (2009). The habitual consumer. *Journal of Consumer Psychology*, *19*(4), 579–592. https://doi.org/10.1016/j.jcps.2009.08.003

World Health Organization. (2003). *Diet, Nutrition, and the Prevention of Chronic Diseases: Report of a Joint WHO/FAO Expert Consultation*. World Health Organization.

Xu, C., Siegrist, M., & Hartmann, C. (2021). The application of virtual reality in food consumer behavior research: A systematic review. *Trends in Food Science & Technology*, *116*, 533–544. https://doi.org/10.1016/j.tifs.2021.07.015

Zhang, X., Luo, Y., Liu, Y., Yang, C., & Chen, H. (2019). Lack of conflict during food choice is associated with the failure of restrained eating. *Eating Behaviors*, *34*, 101309. https://doi.org/10.1016/j.eatbeh.2019.101309