Investigating Incidents of Emotion in Daily Life Using the Technique of Structured Diaries

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Abstract

I present a method of recording emotions in structured diaries. For each incident of emotion that is sufficiently salient to notice in the course of daily life people are asked to note its characteristics on a page structured like a questionnaire. In the first study, which saw, the launch of the diary a total of 57 students each recorded five incidents of emotion, looking out specifically for happiness, sadness, anger and fear. In a second study in which I addressed some of the problems that were encountered in the first study 47 people randomly selected from two occupational groups each recorded four incidents of emotion, looking out happiness, sadness, anger, fear and on this occasion also disgust. Happiness was the most frequent emotion for the students, but anger was the most frequent for employed people. There were few differences in emotions as a function of gender. Emotions were typically caused by goal-relevant events. In agreement with Oatley and Johnson-Laird's (1987) theory, around 1 in 20 incidents of four basic emotions (happiness, sadness, anger and fear) occurred for reasons that the experiencer was not aware of. Emotions that depend for their definition on knowing something about the context, like embarrassment, shame and jealousy were not experienced without the subject knowing what caused them. This was established in a study utilizing a different version of the diary where the incidence of anger, a basic emotion was compared to that of the complex emotions named above.

In all studies reports of mixtures of emotions were common, occurring in more than a third of all incidents.

In one of several applied projects, diaries were administered to a sample of psychiatric patients and a comparison sample of patients with organic gastro-intestinal disease. The diaries were administered followed by semi-structured interviews to obtain more details about each incident of emotion. In comparison with the organic gastro-intestinal patients, psychiatric patients had more episodes of emotion that they were not able fully to understand, and more incidents that reminded them of comparable emotion incidents in the past. Using the same methods the obtained emotions of these organic gastro-intestinal patients were compared to non-organic gastro-intestinal patients to test the proposal that a different pattern would emerge in these two groups as to how they experienced anxiety and anger. There were few quantitative differences, in such elements as duration, intensity, but qualitative differences were apparent, with respect to the effects of emotions on the self-image of the non-organic patients.

This thesis also includes a study solely devoted to investigating the characteristics of hatred and disgust. One reason for a study of this nature is that there is a dearth of psychological literature concerning these emotions. Secondly, there were relatively few episodes of disgust or hatred recorded by my subjects using the diary method. Thus a semi-structured interview method was employed to inform of the nature of these emotions and stimulate further research.

Although diaries need to be validated by other methods based on behavioral observation and physiological responses, self-reports are useful, perhaps essential, for understanding emotions. Structured diaries offer a way of beginning to investigate the epidemiology of normal and abnormal emotions. Diaries allow recording of incidents of emotion of the kind that people discuss, and give causal status to, in their explanations of their own and others' behaviour.

Preface

Organization and Content of Thesis

Chapter 1

In the introductory chapter, I survey some of the previous research on emotions which has used retrospective recall of actual emotion incidents, and judgements of single emotion terms or specially constructed vignettes. In particular the introduction concerns the work of appraisal theorists as this will enable comparisons to be made with the diary data on theoretical issues. I also briefly outline the criticism surrounding self-report methods.

Chapter 2

The development and content of the structured diary and other Interview Schedules used in this research are outlined.

Thereafter a series of studies are presented in which subjects were asked to record their episodes of emotions in the structured diary. Among other things I will, throughout these studies test hypotheses from a cognitive theory of emotions presented by Oatley and Johnson-Laird (1987).

Chapter 3

In this chapter the first two studies are presented. The first sees the launch of the diary and explains the problems encountered. The second study addressed these problems and confirmed findings of the first.

Chapter 4

This chapter details an investigation into the occurrence of non-basic or complex emotions. For this study a slightly altered version of theoriginal diary was utilised. The study invetigates the frequency with which complex emotions, such as shame and embarrassment can occur without the indivdual consciously knowing why. It is hypothesised that the very nature of the complex emotion demands that there must be a propositional content based around ones view of self in relation to others. This is in direct opposition to proposals made by, amongst others, Ortony and Clore who postulate that it is possible to find ourselves saying, "I feel embarrassed but I don't know why.

Chapter 5

Here I present two studies where the diary was applied in a clinical setting. Firstly I present a preliminary study investigating the daily emotions of psychiatric patients. For this purpose a semi-structured interview was developed to accompany the diary. It is investigated how emotions of psychiatric patients may differ from those of a non-psychiatric patient sample.

Extracts from the semi-structured interviews with psychiatric patients serve to highlight the degree of confusion experienced by these patients in their everyday emotional lives.

In the second of the studies in a clinical setting the diary and semi-structured interview investigate the emotions of organic and non-organic gastro-enterology patients.

The proposal being that these two groups would differ in their experiences of anxiety and anger. Specifically that the non-organic patients would experience have more episodes of anxiety than the organic patients and that the organic patients would display a pattern of behaviour consistent with denial of anger. If such hypotheses are borne out then there will be serious implications for the aetiology and maintenance of disorders of the intestinal tract.

Chapter 6

Presented here is a study which was undertaken to increase psychological knowledge of hatred and disgust. This time an interview schedule was devised and piloted for the sole purpose of collecting as much information as possible about two emotions which have been relatively neglected in emotion literature.

Chapter 7

The conclusion surveys the most important findings of these studies and addresses the major criticisms levelled at a method that rely on peoples judgements of emotion incidents.

The question of validity and reliability of information obtained from self-reports is addressed.

For clarity of presentation each study follows a similar pattern. A synopsis precedes each study, an introduction to orientate the reader follows, and finally the results and their implications are given.

Results are presented in tables usually containing absolute values, unless otherwise stated. The terms in these tables are directly linked to those used in the structured diaries, but some terms have been abbreviated in order that they will be accommodated. In this case I make reference to the small Glossary of Terms and Abbreviations which precede the Appendices. Please also consult this glossary for the definition of the terms 'mixed emotions', and 'serialization of emotions' as used in this thesis.

The terms 'emotion diary' and 'structured diary' are one and the same but throughout this thesis I will usually use the term structured diary as it denotes the technique I have used to collect emotion episodes.

My hope is that with each study the realization that the diary has some advantages over other methods of emotion incidents research should become apparent; and although there may be some way to go I feel that the diary will have proved itself a useful tool for investigating the epidemiology of normal and abnormal emotions

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I would like to express my thanks to a number of individuals without whom this thesis might not have been possible.

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Keith Oatley was and still is a source of inspiration. He was the guiding light through all of this work, listening patiently to my ideas; and on reflection I realise that he kept me working without me being aware of the effort. Under his guidance I grew more sure of the direction the thesis was to take and I am glad he allowed me scope to develop an idea that eventually became the last study presented here. For this thanks are extended.

I would also like to thank several students of the University of Glasgow who collected data using the diaries for their undergraduate theses, supervised by Keith Oatley: Tristan Aitken, Grant Carson, Lisa Cooper, Laurenne Stevenson, Melody Terras and Sharon Wayne.

I found it a great pleasure to work with these students, and their findings, some of which are outlined here, were of great importance.

The execution of these studies would not have been possible without the cooperation of many people and teams.

I would firstly, like to thank the consultants and staff of several clinics and departments at the Southern General Hospital, Glasgow for their kindness and cooperation. In the first instance I would like to thank Dr. John Taylor and Maggie Aughton of the Clinical Psychology Department for granting me access to their patients. Without their faith in the research these studies would not have been possible.

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Through all stages of the thesis I am of course indebted to Keith Oatley for his seemingly endless enthusiasm in reading many drafts of my work.

I am also grateful to Professor Simon Garrod, Paddy O'Donnell (Head of Department) and Dr. Anne Anderson, from the Department of Psychology of the University of Glasgow for their advice and guidance in the latter stages of writing this thesis. I am also deeply indebted to Grant Carson for his diligent proof reading of the final draft of the thesis. I also thank Elke Rotheiler for her constructive criticism of the final study on hatred and disgust.

I must also take this opportunity to express my deepest thanks to my mother for her support and helpful suggestions throughout.

Of course none of this research would have been possible without the cooperation of the subjects in their willingness to record and describe incidents in their emotional lives, incidents which were often very personal and painful to relate.

Mere mention here does not seem adequate to convey the deep gratitude I feel towards all of these people and to my family, friends and colleagues, who often listened to the various problems and complexities of the research and gave of freely their support and advice. I only hope that I have done justice in presenting this thesis as a testimony to that support.

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Declaration

The studies reported in this thesis are original and were done in close collaboration with my supervisor Professor Keith Oatley. He invented the structured diary on which most of the studies were based, and together we collected data for the first of these studies. Thereafter we worked together on improvements to the method, and on piloting the method of semi-structured interviewing. The data collection for these later studies was carried out by myself. The final study presented in this thesis was my own concept and design and I was solely responsible for the execution and completion of this study. The theoretical conclusions, though influenced by Keith Oatley, are my own.

I also wish to draw to the attention of the reader that some of the work herein has been published in collaboration with Keith Oatley.

Duncan, E. and Oatley, K. (1991). *The experience of emotion in everyday life.* The Psychologist, 4, British Psychological Society 1991 Abstracts, p. 28.

Oatley, K. and Duncan, E. (1991). *The experience of emotion in everyday life.* (to appear in Cognition and Emotion 1992).

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CHAPTER 1

Introduction

The topic of emotion, which was swept off centre stage in psychology a few decades ago, has now returned with a vengeance and is capturing the limelight again. Whilst novels and poems were, and are, full of descriptions of intense emotion states, like sorrow, hatred, and passion, psychologists from all disciplines tended to avoid going further in emotion research than mere observations of visceral reactions. These reactions were usually elicited in artificial, not near natural, situations. However, in the past few decades findings from studies such as those by Ekman (e.g 1979), Averill (1984), Wallbott and Scherer (1986), and Frijda (e.g 1986), to name but a few, and theoretical developments from these, have once again stimulated research in emotions.

Personality and social psychologists would, quite rightly, remind us that close relationships are the crucible in which powerful emotions are formed. Emotions are not just strange events experienced because something is going on in our body. Emotions are, in fact, directly related to events in our everyday lives. Until recently, however, there was a dearth of literature about how emotions occurred in the course of everyday life. Many experiments did not investigate the circumstances of everyday emotions which seem to preoccupy us and demand our attention, concentrating instead on induced emotion states so that physiological correlates could be found between expression of emotion and bodily perturbations. Examples of induction techniques are seen in the early studies carried out by Landis (1924, 1926). In his experiments, confined within the laboratory, he induced specific emotions, like fear, in his

subjects by employing rather grizzly practices, such as, the decapitation of mice in front of his subjects, or imposing some stressor on them, such as having to find the solution to arithmetical problems within a time limit.

Experiments such as these do, however, produce somewhat contrived results. The emotions displayed as a result of these practices are not entirely accurate representations of everyday emotions or moods. Manipulating the antecedent of the emotion does not give a true picture of the wide range of situations we encounter in daily life that could trigger emotions.

Further, laboratory experiments are, by definition, of very little help in understanding social regulation and control. The laboratory situation is a rather special one with a large number of very specific normative constraints. Thus it is unlikely that the operation of normal social rules concerning both feeling and expression can be expected to occur within the confines of a laboratory. It must also take into consideration that differences in the way subjects perceive the laboratory situation exists. Some may be suspicious of the psychologists supposed ability to analyse their innermost secrets and as a result be uncooperative. Alternatively others will seek to please and go over-board with their display of emotion. As Orne noted (1962), people sometimes do things in the name of science that they would not normally do. In other words, experiments may not only give researchers the chance to observe behaviour, but they actually produce it! Thus reactivity can be an unfortunate source of contamination of experimental data. Orne noted that subjects entering an

experiment, where they knew they would be observed, have some notion of what to expect and are usually trying to figure out the specific purpose of the experiment. Participant reaction may limit the generality of the results of the experiment. In other words, the results produced solely by the participants perception of the experimental situation will not generalize to other situations.

A research strategy, which at first seems plausible, is the naturalistic field study. The idea being that naturally occurring situations should be identified, situations which are conducive to certain emotions being experienced. Even although emotions are often private events it is possible to find settings where emotions can be observed. Leisure activities, achievement situations, and sport situations are examples of settings where naturally occurring emotions can be observed. But emotions are not simply a matter of outward expression. They have a subjective element, which will only be known if researchers are prepared to ask the subject directly. Characteristics of an emotion which can be identified objectively may give an account completely different from that which the experiencer will give. The experiencer evaluates a situation in relation to themselves and others and will react according to what they had originally expected.

Given the shortcomings of laboratory experiments and field observations it seems reasonable to make assessments about emotions by asking people to relate their emotional experiences. In asking people for their emotional experiences, two methods have been used. These are, firstly, where the subject is asked to recall a recent episode of

emotion, making retrospective judgements about characteristics of the emotion, and secondly a method where subjects are asked to keep structured diaries of their own, or other people's emotions, as experienced in the course of everyday life.

Therefore the possible nature of the information gained would be that which is not necessarily accessible by methods other than self reports, such as the frequency, duration and antecedents of emotions. In addition we could also investigate whether women perhaps experience more of a particular type of emotion than men. These are all valuable data generated by simply having people record their emotional experiences. As I can demonstrate, this method has supplied a great deal about the features of everyday emotions, and I feel has opened new avenues for possible future research on the epidemiology of emotions in the course of everyday life. Secondly, information pertinent to the formation of a cognitive theory of emotions can be obtained. In the following studies I present data directly related to a cognitive theory of emotions proposed by Oatley and Johnson-Laird (1987).

Previous Research on Emotions using Retrospective Judgements and Incident Diaries

Retrospective judgements of emotion episodes.

Appraisal theorists such as Roseman, Spindel & Jose (1990) have made use of retrospective judgements about emotions. They had subjects write down details of a recently experienced emotion and to rate the event that had been the precursor to the emotion. Other researchers who have concentrated their research on emotions from remembered incidents are Ellsworth and Smith (1988a, 1988b), Frijda, Kuipers and ter Schure (1989), Wallbott and Scherer (1986). To get some perspective on the intensity of an emotion episode as it occurs over time Frijda, Mesquita, Sonnemans and van Goozen (1991), as well as asking for recall of incidents, had their subjects' draw a graph representative of the time course of the changing intensities of each emotion.

This method can be compared to studies that have asked subjects to make judgements of single emotion terms (e.g. by Russell, 1989; Frijda, 1987; Shaver, Schwartz, Kirson & O'Conner 1987; Clore, Ortony & Foss, 1988) or specially constructed vignettes or stories in which a central character is involved in a situation which evokes specific emotions (e.g. Weiner & Graham, 1989; Roseman, 1991). Research on emotion terms and vignettes is explicitly about people's folk theories. The theoretical basis of these methods are similar and it begs the question that perhaps when we ask about particular actual emotion experiences we are not gaining anything more than what we could have from directly asking people to sketch a situation in which say happiness could be experienced.

Appraisal theorists, who base their suppositions on data from subjects remembered emotion incidents, propose some basic hypotheses. For instance Ellsworth and Smith (1988a, 1988b) used nine features: these being pleasantness, anticipated effort, attentional activity, certainty, human agency, situational control, perceived obstacle, importance, and predictability. Any specific emotion could potentially be described by a combination of any of these features. These characteristics would be known to people in English speaking cultures, and if some judgement about happiness had to be made they would come readily to mind. This, therefore, would be the basis of a folk-theoretical understanding of emotions. The implication of appraisal theorists is that if one knows the ratings on a set of appraisal features, then the emotion that occurs can be predicted with high probability. Scherer (1990) has demonstrated this principle of predictability by creating an expert system, a computer programme that requests a person to remember an emotion which given the feature values can suggest what the emotion was.

Another important finding came from studies, again, of remembered emotion incidents, conducted by Wallbott and Scherer (1986) in a survey of 27 countries mostly from Europe but with five from Black African states, two from the Near East, three from the Far East, one from Australia, one from New Zealand, one from Brazil, and one from USA. Questionnaires were distributed to student subjects, to be completed in their native language on situations in which they had vividly felt each of seven emotions, namely 'joy', 'fear', 'anger', 'sadness', 'disgust', 'shame', and guilt. From the

responses on each questionnaire Wallbott and Scherer performed factorial analyses of variance on emotion variables such as recency, duration, intensity and controllability of the incident, looking for variance attributable to the type of emotion and to the country.

It was found that there were significant differences across the seven emotions on each of the variables above. In general the variance explained by country was smaller than that explained by emotion type, though that explained by country was greater for intensity. The authors' conclusion was that these results indicated that neither the view that emotions are entirely biological nor entirely socially determined is tenable.

This is somewhat akin to the proposals of Oatley and Johnson-Laird (1987). They argue that events are appraised in relation to the individuals plans and goals, but instead of nine feature dimensions, there are only four or five generic elicitors corresponding to specific emotion modes. Again the argument goes that if a third person rates a given emotion situation in terms of these principles then the emotion experienced can be predicted.

Ortony and Turner (1990) propose that emotion is a multifaceted experience made up of several components. An angry emotion for instance would be made up of components such as a furrowed brow signalling frustration, and heightened visual attention. Each component can be thought of as being directly linked to a single feature in an appraisal process, (Smith 1989).

Emotion-producing situations have been monitored as a source of information on the features of emotions by appraisal theorists. Metalsky, Abramson, Seligman, Semmel & Peterson (1982) had students make mood ratings before, during and after an examination. They found that attributional style, such as the tendency to make internal and global attributions, predicted lowered mood when students' exam results turned out to be poorer than they had expected. In a similar research strategy Folkman and Lazarus in 1985, and Smith and Ellsworth in 1987 found that subjects were reporting blends of two or more emotions. A major finding of the diary studies presented here by the author illustrate that mixtures of emotions, often contradictory in nature, were somewhat more common than was first anticipated.

A Review of Studies Employing Emotion Diaries

Daily Mood Assessments

People often keep their own personal diary of daily events. Within these there is usually not just a timetable of the daily happenings. What is written is laced with adjectives describing various emotion states, feelings about one's self and others, and hopes for the future. Although there were a few preliminary explorations of diary material in the early twentieth century it is only recently that they have been applied by researchers on emotions. Structured diaries are a special case in the recalling of emotion episodes. Subjects are primed to notice particular kinds of incidents in advance in the hope that they will record more accurately their internal states. Typically, also with diaries, there is less delay between an event and the recording of that event and its features, though this is not the case with the work on appraisal during exams. Intentional remembering of this nature is more reliable, or at least less subject to distortion, than incidental memory. The delay between event and recording is of the order of an hour or so, rather than the several days that are typical of studies of remembered events.

One of the earliest studies, employing a diary method was that carried out by Gates (1926) in which she asked subjects to keep a diary of incidents of anger for a week. Her subjects rated the intensity of their anger on a five point scale and listed meticulously all actions performed in anger, including any bodily postures adopted. Field (1934) kept note of her

episodes of happiness, attempting to relate them to her goals. Since these tentative beginnings the structured diary has been used not only to record daily emotional incidents of stable individuals but it has also been a valuable tool in understanding emotional experience in patients with a psychological disorder. In fact they have become a major feature of cognitive therapy, being used extensively by Beck, (Beck, 1976; Burns, 1980). This then begs the question, that if a theory, well respected, and a method exercised to match it exists for the understanding and treatment of depression should we not consider such methods as being useful in the comprehension of emotions as they occur in everyday life?

Our understanding of memory tells us that there is indeed a bias for remembering particularly negative experiences, such as anger, as they seem to be the most salient. The diary improves on this methodology in that there are guidelines set for the subjects and an indication that several types of emotions can be recorded. There have been variations on the theme of recording emotions since these early beginnings, either recording incidents of particular emotional happenings or of recording moods or emotions at specific set intervals during a given day. The sampling intervals vary widely from study to study. Researchers who have concentrated on recording emotions at hourly intervals, and then charting the intensities of these emotions demonstrated that there is extreme variability even within emotions connected with one incident. In one such study Malatesta-Magai and Culver (1991) charted the emotions of a female subject for a month and discovered that the chart illustrated, typically, spiky patterns of emotions like fear and anger prevailing over a

backdrop of sustained mood level. Presumably this woman reported fairly even moods, of low intensity, but with occasions of very noticeable reactions to events such as fear and/or anger, but once the situation was resolved her mood would return to a baseline level.

Recording of mood at four-hourly intervals was employed by Hedges, Jandrof and Stone (1985) when they asked 21 adult community residents to rate their moods. Peak mood at these intervals best predicted absolute levels of mood rated over the whole day, but the average of each day's four-hourly ratings had the best overall correlation with daily mood.

A great deal of research has been carried out on daily mood ratings utilizing students, and they have usually recorded moods for periods ranging from one month to three months. It has been found that it is not the intensity of positive or negative moods but the frequency of these that predicts whether a person is generally happy, (e.g. Wessman & Ricks, 1966; Diener, Larsen, Levine & Emmons, 1985; Diener & Iran-Nejad, 1986; Diener, Sandvik & Pavot, 1991; Emmons & Diener, 1986). Using this method, also, Larsen and Kasimatis (1990) have found a strong weekly variation of mood in students. Like Stone, Hedges, Neale and Satin (1985) who studied married men, they found more positive mood at weekends, but no evidence that mood was lower on Mondays than on other weekdays.

Csikszentmihalyi and Larson (1984) used daily assessment methods (1987) but were nevertheless somewhat sceptical of

their ability to obtain records of moods which were free of bias (1984b). They decided upon using signalling devices, or pagers, like those doctors are equipped with in an attempt to exert more experimental control in the daily assessment method. They found that the results from their student sample, when set against those of a comparison group of adults, showed that adolescents had more severe mood swings than the adults. In a review of the use of signalling devices, a colleague of Larsons', Diener felt that to remind subjects to fill in their questionnaire by having them wear electronic "beepers", which go off at quasi-autonomous times is an intrusion the subject could do well without. I can agree with Diener on the second point, not only because one considers them to be an irritative intrusion but also because the randomness which is so important in so many psychological methods need have little to do with the timing of emotion episodes that people experience.

While I do not disagree entirely with the use of preset signalling times for such devices as this, I feel that they do not give a true picture of the emotional patterns experienced as salient by the person. In other words, this method yields data based on the reactions to signals and not particularly to emotion eliciting events. Though this method allows sampling of mood across the day, and will no doubt generate useful data, in the studies that follow a complementary method was employed, in which the salience of the emotion itself was the stimulus for reporting upon it.

Besides recording moods at specific intervals there is a growing field of research using methods akin to those used by

Gates (1926). For instance, Wickless and Kirsch, (1988), asked students to record experiences of particular emotions in some detail. They found that anger was associated with thoughts of transgression, anxiety by thoughts of threat, and sadness by thoughts of loss.

Probably the most important research using a diary method was that carried out by Averill (1982), in his study on anger. He collected structured diaries from 80 randomly chosen married community subjects and 80 students. In an ambitious questionnaire subjects recorded an intense instance of anger. He also requested that subjects report an instance of annoyance to contrast this with anger.

Averill found that anger was most often provoked by people with whom his subjects were in a continuing relationship. In another facet to the study he recruited students to keep diaries to describe what happened when they were the target of anger. On more than 85% of occasions targets recognized the anger from the tone of voice, or from the content of what was said. What is more on over half the occasions they knew that the incident would make the other person angry. In fact if we contrast this with the data from our studies with couples it is seen that behaviors are often deliberately adopted to invoke anger in a partner. This is probably a factor mainly restricted to close partnerships where the anger is a vehicle for a reassessment of stance or opinion.

In Averills study two thirds of angry people found the angry incident negative. But in 62% of the angry people and 70% of the targets the incident was regarded as beneficial. Indeed in

a study by Jenkins, Smith and Graham (1989) interviewing a sample consisting of 139 families who described marital quarrels they found that 79% of women thought that at least some good came from such incidents. It seems confrontation can be constructive.

Averill's study alone achieved a view of the functions of anger, and what makes it different from its related phenomenon annoyance, that had never before been presented. The fact that reports by the targets of anger concorded with the experiencers' accounts has done much to validate the use of an emotion diary in itself. If emotion reports from two different perspectives, that is the target of the anger and the experiencer have been shown to be in accordance with each other then we can see the emergence of data that is contrary to the idea that self report methods allow for elaboration of emotion accounts.

With the growth in studying the impact of major life events on peoples emotional state, it was thus understandable that a body of research concentrating on using the diary method on a daily basis would ask people to relate their moods and emotions in connection with major events that were occurring. The following is an example of a study carried out by, Larsen, Diener and Emmons (1986) to assess daily mood in relation to specific life events. They had 62 people record two events a day for 56 days, and rate their emotional reaction to them. They found that some people rated their reactions to events very intensely both for positive and negative emotions. In addition it was also found that those who rated their reactions as being more intense for all types of events, positive or

negative, continued this trend when they were asked to rate the possible intensity of their reactions to hypothetical life events. Thus some concordance existed between the real situations and the hypothetical situations, giving at least some consistency to support the information from the subjects diaries. In a similar study by Stein (1987), male subjects were asked to look out for specific life events in the areas of work, spouse, children, family-leisure, friends-relatives and so forth, rating these on various scales, and rating mood over the whole day. There were 79 men who completed 84 days of recording which involved mailing in their responses each day. The two main areas strongly associated with intense mood ratings were desirable family-leisure events, and undesirable work-related events. Unfortunately the direction of effect was not determined in this study.

Thus we have a possible relationship between overall daily mood and the type of positive and negative events occurring. Clark and Watson (1988) in an attempt to unravel this relationship and relate types of events to moods had 18 Japanese students record the relationships between events and positive affect and negative affect, this time over a three-month period. They conclude that positive and negative affect should be measured separately. Positive affect was robustly related to social activities; negative affect was not, and was more strongly associated with physical problems.

It is therefore apparent from this expose of previous studies employing a diary method that they have provided data on particular emotions such as anger, data about the relationship between mood and events in daily life, and an insight into

individual differences in emotional reaction that would have been difficult to collect by any other means. But this is by no means the full story. There are questions unanswered about the epidemiology of normal emotion incidents as they occur in the course of everyday life. The results of the studies to follow will show that much has been done to increase the psychological knowledge of everyday emotional experiences, and that the diary can be used effectively to yield data relevant to cognitive theories of emotions.

Self-Report Methods and the Study of Everyday Emotional Situations.

Although the previous survey of literature shows interesting results that have stimulated research, I should acknowledge that there exists a body of opinion that seeks to caution against the use of self-report methods for the study of emotions. I will merely outline the nature of this criticism and a counter to this criticism. I do not wish, at this point, to present a defence case without having, as it were, presented the evidence that may support that case. In other words I feel it would be more fruitful to present the studies I have carried out, establish what they say, and then hopefully dispel some of the criticism.

The criticism levelled at the idea of asking people to relate their emotion experiences focuses on the degree of retrospective elaboration and distortion that can occur when asking people to be observers of their own mental states, of what caused them, and what followed from them.

When we look specifically at the use of the emotion diary the criticism here is that the information recorded for a persons' emotion episode would be no more valid than if we had simply asked them to give a typical situation where happiness may be experienced and asked for the characteristics of the emotion. Further, if diary data and those from questionnaires converge, this could indicate merely that people's folk theories about emotions are rather standardized.

It is no doubt very clear that methods such as the structured diary, retrospective assessments, or judgements of prototypical vignettes all require subjects who are asked to utilize them to be able to consciously reflect on and accurately record the phenomenology, causation and effects of their emotions. Add to this the prevailing argument that on the whole people are not good at introspection and thus fail to properly identify causal patterns for emotion so accessing schematic knowledge instead, (Nisbett and Wilson 1977 and Nisbett and Ross 1980) and it seems that it does not matter whether you ask people about emotions in general or about their own emotions the criticism stays. So we are left to ponder whether people have the wrong folk beliefs about emotions and their causation, and whether all a psychologist will obtain from self reports is material generated from folk theories — reports that have no scientific value.

If this is the case then recent research on the phenomenology of emotions is fundamentally flawed. But I do not believe that we can dismiss as elaboration or error the experiences that people describe. There is much to be gained from a direct approach of asking people to report their emotions in a diary. I feel the diary method presented here is necessary in the investigation of elements of emotional experiences that may not be accessible by any other means.

I should, however, qualify this statement by saying that I am not suggesting that all other methods are subject to error and are inappropriate. The ultimate goal is that researchers should strive to include various measures, subjective and

objective together in investigations of everyday emotions.

For the time being I will partly answer these critics by pointing out that it is essential to note that there is a subtle difference between the diary method used in the studies that follow and methods previously used. The subjects were not asked to recall any random episode of emotion but were in fact asked to record actual emotion episodes day to day, being encouraged to do so as soon as possible after the occurrence of the emotion experience.

It is also the case that the stance taken by Nisbett, Ross and Kahneman is a theoretical position that needs to be explored further. There is yet no definitive evidence to say that the data generated from asking people about their emotions has no scientific value, just as there is not enough to say that they have.

In conclusion we should not abandon self-reports of emotional experiences, but improve on the methods by which we do such research. I think these steps have been taken in the methods employed herein.

Before I leave this debate, albeit temporarily, I feel a few last words will set the tone for the presentation of the studies to follow. Averill (1982) was somewhat uncertain that the criticism forced on self-report questionnaires was wholly justified.

After reviewing the handful of previous surveys of the everyday experience of anger, he concluded:-

> *"One reason for the paucity of surveys of the everyday experience of anger is the concern with the validity of self-report data. To a certain extent the concern is quite justified. It would seem however, that a healthy scepticism and caution about self-report have resulted in an unhealthy form of self-censorship, in which psychologists have cut themselves off from potentially useful sources of information".*
> (Averill 1982, page 150).

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CHAPTER 2

Design and Implementation of Schedules Used in These Studies

Introduction

The following is an introduction to the questionnaires devised and implemented in all or most of the studies in this thesis. The structured diary was utilized in all studies except the final study on hatred and disgust. A variation of this diary was used to investigate complex and basic emotions. Details of this version will be outlined in that study. The Semi-Structured Interview, Psychiatric Symptom Interview and the Pain-Timetable were used to study the emotions in various patient samples. At this point the interview schedule devised for the final study on hatred and disgust will not be detailed, but will be outlined within that study.

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The Structured Diary for recording Episodes of Emotion.

The following is a description of the diary format as it is used in the studies conducted by the author. May I remind the reader that the diary was devised by Keith Oatley and his contribution should not be overlooked even though the pronoun I is used in the following text. The structured diary is presented in Figures 1 to 4 in Appendix 1a. I hereby give permission for the reproduction and use of this diary by others for the purposes of academic research, with due acknowledgement to Keith Oatley and the present author Elaine Duncan.

There were some minor alterations to questions and layout within each study. These alterations were made on the basis of feedback from subjects during each study. Any alterations from the basic pattern described below will be outlined within each study within the methods section.

The structured diary consists of a Cover-Page, on which some general instructions are given and personal details are gathered. This is followed by four diary pages, one for each emotion incident. (The diary pages can be increased according to the number of incidents required). Then there is a final page, with debriefing questions, and questions to women about their menstrual cycles. The pages are made up as little booklets on European size A5 paper.

These diaries have gone through five versions, and have been tested out on several hundred subjects. Glancing through the questions and layout will give the reader an understanding of the results that I will present.

The Cover Page (Figure 1) of the diary serves two functions. One is to lodge in the subjects' minds a definition of an emotion that can be easily remembered, and allow them to recognize emotions. The current version defines emotions as discrete states, and moods as longer lasting states. I believe that (a) providing a clear definition of emotion incidents, and (b) asking the subjects to look out for these incidents so that they will be noticed and their characteristics attended to, are keys to the success of this method. The second function of the first page is to gather some simple demographic data.

The Diary Pages (Figure 2) themselves, start by asking people to name and classify the emotion incident, to give information about its subjective intensity (Item 5), its physiological accompaniments (Item 6), intrusive thoughts (Item 7) and actions or urges to act (Item 8). I am still not totally satisfied with the wording of Item 5, but have found that neither the phrase "inner feeling" nor "subjective feeling" really makes for the kind of clarification I would like. Items 5 to 8 do, I believe, define in terms what can be noticed by subjects the occurrence of events that can be properly thought of as emotions and moods. In other words for research purposes we define an emotion as having any of the following four characteristics: (a) a consciously recognized subjective emotional tone, (b) autonomic accompaniments, (c) intrusive thoughts, or (d) an urge or an actual emotional act. According to this definition, and as we know from the work of Lang (1988), different aspects of emotion do not necessarily co-occur in particular incidents. So an emotion need not be conscious — it might for instance be noticed behaviorally by someone else but denied by the person whose behavioral signs of emotion are being noticed. I will return to this question later. For now it can be noted that these four characteristics of emotion (a to d) operationally define some of the borders of emotion, differentiating emotions from, for instance, sleepiness which has none of these characteristics. In my samples I defined an emotion as occurring if the person gave the state a name that could be recognized from the list of 590 English emotion terms (Johnson-Laird & Oatley, 1989) and has at least one of the four characteristics of emotion (a to d).

The second side of the Diary-Page (Figure 3) asks people to make some judgements about the emotion, in particular its causation (Items 10 and 12). Content analyses were conducted on the responses to Item 12 in order to see what kinds of goal-relevant events caused the emotion.

On the Final Page (Figure 4) I asked people to give some feedback by which a coarse estimate of each subjects' problems with the diaries could be obtained. The diary also asks that women report whether their emotions and moods were affected by their menstrual

The Semi-Structured Interview

Why was an Interview Schedule Necessary?

This interview was designed to accompany the Structured Diary. It was first implemented in the study with Psychiatric and Non-psychiatric patients. Design of the interview was based on the need firstly for more quantitative information about the intensity, duration and frequency of the five types of emotion, and secondly the need for information of a qualitative nature as to how the emotions experienced by psychiatric patients in their everyday life affect, such things as their plans and self-image.

The structured diary method was sufficient for the recording of occurrences of the five emotion types, but information such as that above would only come to light in a more detailed

interview schedule, where the subject was allowed to talk at length about the circumstance and consequence of each emotion episode. The diary then allowed the subject to make note of an occurrence immediately and then to use the diary as a reference point when being questioned during the interview.

The Rationale of a Semi-Structured Interview.

Semi-structured interviews have structure in that there is a schedule, including space for the subjects' own words as well as rating scales, and categories to assign subjects' responses to. There are also some optional parts, called probes, which the interviewer can use as prompts to clarify a question, or if the subject has difficulty in responding. The unstructured aspect is that the subject can say whatever occurs to him or her. This can include things that were quite unexpected for the interviewer, but can be written down. In questionnaires or structured diaries, each item is defined by what is on the page. The subjects themselves make the ratings and researchers have to deal statistically with the ambiguities that necessarily occur in each subject's interpretation of each item. By contrast a semi-structured interview is more like a conversation: the interviewer talks to the subject until he or she knows the subject understands what is being asked. The conversation continues until the response can be assigned unambiguously to one of the categories required by the research. These categories, and the purposes of the research are in the minds of the interviewer. They do not have to be guessed at by the subject with uncertain ideas about what the

researcher is asking for, helped only by a printed page.

Semi-structured interviews are thus more accurate than questionnaires and structured diaries, if more time consuming. They can be used to help validate the diaries, to gain extra detail and extra accuracy, and to extend the results.

Piloting the Semi-Structured Interview Schedule.

An initial draft of the interview was designed and the first pilot studies carried out. The subjects were colleagues of myself and Keith Oatley. From some nine pilot stages there were a number of items requiring alteration, not least the probes given to the subjects, and the general layout was altered to make it assume a more logical order.

Standardization of the Interview Schedule.

It is essential to ensure that any interview schedule, such as that being used in these experiments, has been standardized. This is important when it comes to the execution of the interview, as one has to ensure consistency when asking each individual subject the questions therein.

Two pilot study interviews were taped. This was done by first asking for volunteers to fill in a diary. The subject was then interviewed and given time to speak length about their experience. The questions and responses were taped with the consent of the interviewee. The delivery of the questions was

examined to ensure a style of questioning that did not lead the subject too much in their responses.

An Outline of the Questions

Since this schedule was used to interview patients, information about their condition was required. Thus the interview consisted of a cover-page for personal details; whether the patient had had any therapy such as relaxation exercises, were they presently receiving medication for their disorder; and how long the patient had been seeking treatment. For a full appreciation of the interview please refer to Appendix 3.

In the interview, subjects were asked: "Please tell me what happened in this emotion incident. Relate as much of the incident as you can remember. Tell me the consequences of your action or inaction and describe how you felt."

The next questions follow the outline of the diary, asking the subject for their name for each emotion, if it was a kind of happiness, sadness, anger, fear or disgust, and how certain they are about this categorization. Next the subject was asked to describe, if they have not already done so in their initial statement, what started the emotion. Among other purposes this statement is used to assign responses to goal relevant elicitors. Subjects were also asked if they had felt more than one emotion at the same time in connection with the event. For instance did they feel angry and sad, or happy and anxious. These states, if you like, are termed mixed emotions, were it is evident that two or more emotions are experienced

simultaneously. In addition subjects were also asked if their original feeling had broken down into another emotion type later. In this case what one was exploring is a serialization of emotions, where the subject changes their interpretation of a situation. In addition to a detailed listing of the bodily sensations the subjects also rated the intensity or severity of any autonomic disturbances.

The diary itself required the subject to tick categories that adequately summarized the type of thoughts going through their mind during the episode. In the interview the subject is then allowed to elaborate on this theme, and a picture of the thought processes was achieved. Here there were probes to help the subject make sense of their thoughts. They included, for happy thoughts: "Did you think that things were going well? Were you optimistic about life at this time?" For sad thoughts: "Did you think that you were useless? Did you think that your life looked very bleak? Just feeling down-hearted/grumpy." For anxious thoughts: "Worried about the future / or those close to you." For angry thoughts: "Thinking about revenge. Angry at yourself / someone." For thoughts of disgust or hatred: "You thought someone or some thing was repulsive. You hoped that you'd never see that person again."

Following the question on thoughts connected with the actual incident the subjects were asked to think of the whole emotion episode and give their thoughts on the emotion itself. Again examples were given: "You may have thought that your thoughts or actions were inconsistent with your usual behaviour. Or you know you shouldn't have felt the way you did." The effect of the emotion on how the subject viewed

themselves is asked in this way "Did the way you think about or see yourself change as a result of this incident?" Again prompts were used to guide the subject: "Did it make you change or question the way you think about yourself? Did it make you wonder about how you ought to think about yourself?" Next I asked about any secondary emotions arising from the original one, for example guilt about being angry. Next the actions and urges prompted by the emotion were listed and, intensities for each obtained.

The following are important elements in the interview schedule and set it apart from other questionnaires asking about emotions. "Did this emotion remind you of an incident or emotion in the past?" If so, the subject was asked to describe this incident. Then came such variables as the duration of thoughts, whether they recurred, and whether they kept the subject awake at night. The effect on the subject's plans or goals was examined and finally I asked the subject: "Did you understand this emotion?", and if not to describe what aspect of the episode they did not understand.

The Psychiatric Symptom Interview (PSI)

This interview was developed for use with the psychiatric patients only. Each patient seen at the Psychological Medicine Unit of the Southern General Hospital was referred by their own G.P, who gave a brief formulation of their patients problem.

As I was researching into the occurrence of emotion in

everyday life, specifically happiness, sadness, anger, fear, and disgust, it seemed plausible to design a study where normal and abnormal occurrences of these emotions could be compared.

In patients with emotional disorders extremes of affect are experienced. In keeping with the aims of the research, to investigate the five above mentioned emotions, I was therefore looking for the clinical extreme of these emotions.

The clinical extreme of happiness is thus hypomania; of sadness, depression; of anger, paranoia; of fear, obsessions and phobias, and of disgust anorexia.

The PSI helped one to form diagnoses such as that above in order that the clinical extreme could be compared to a normal experience of emotion. This would be extremely useful in determining whether a patient suffering from anxiety and/or phobias, for example, would indeed experience anxiety more frequently than subjects who did not have a psychological disorder. Items for the interview were adapted from the Present State Examination, The Research Diagnostic Criteria and the American Diagnostic and Statistical Manual (3rd edition).

Each question in the PSI consisted of a set of probes to help the patients with their responses. An extreme form of a disorder was given a value of (2), in a way that is consistent with the ratings on Wing et als (1976) Present State Examination, and this was considered the 'case' level. For moderate symptoms (1) was the appointed value and (0) for when the patient was

clear of any disorder. (A copy of PSI can be found in Appendix 3).

Pain-Timetable

A pain-chart was designed to establish a link between the occurrence of emotion and the onset of pain. The table was sectioned into hourly intervals containing boxes in which the subjects indicated the severity of their pain by means of one tick if the pain was of a low intensity, two ticks if the pain was moderate and three ticks if the pain was severe. Next to the hourly interval boxes was another in which the patient indicated if they had taken any painkillers. The timetable was sufficient in size for the patient to record pain over seven successive days. At the bottom of each column for each day was a box for the patient to record whether the pain kept them awake. (A copy of this Pain-Timetable can be viewed in Appendix 3)

Additional Questionnaires by other Authors

Hospital Anxiety and Depression Scale (HADscale)

This instrument was devised by Zigmond and Snaith (1983). This questionnaire was used in its original form to assess the mood of the patient.

The HAD scale is a self-assessment scale designed to detect the mood of depression and anxiety in non-psychiatric

populations attending hospital departments. Its application has gone beyond these realms to become of equal use in community or general practice settings. It is a scale for use by adults. It was designed at the request of physicians who wished to be able to discriminate between patients who were unhappy or demoralized on the account of their illness or for some other reason, and those patients who are 'depressed' in the sense of a biogenic mood disorder likely to respond to antidepressant drug treatment. Five of the seven items composing the Depression Scale are anhedonic statements. This is appropriate as anhedonia (loss of pleasure) is considered an important factor in mood disorder. Therefore a high D score on the HAD suggests that antidepressant drug therapy or some viable alternative may be beneficial.

The HAD Scale has various advantages over other scales, not least the fact that it can be briefly and easily completed by a patient whilst they are waiting to see the clinician. It is also acceptable to the patient as there are no implications of psychiatric disorder contained in the terms used.

It was also of value from the fact that confusing symptoms were not included as can appear in other self assessments scales. Since bodily illness affects the scores on items of many mood scales, e.g insomnia, every effort was made by Zigmond and Snaith to remove such items, and it also helps to further separate the concepts of anxiety state and depressive disorder.

If you refer to Appendix 3 for a copy of the HAD Scale you will

observe that there are two columns of questions. The groups of responses are assigned set values of 0, 1, 2, and 3. The total score for the 'anxiety side' of the questionnaire and the 'depression side' is potentially 21. The originators declared that a score of 0 to 7 would denote a non-case, that 8 to 10 would be deemed a doubtful case, and that a score of 11 or greater signified case level.

In an attempt to keep the conditions of the study consistent I administered the HAD Scale to the psychiatric patients as well as the non-psychiatric patients. However it was felt that the HAD Scale was not sufficient for the psychiatric patients as there would be no indication of sleep loss or appetite loss from this, hence the construction and use of the PSI.
(A copy of the HAD Scale can be found in Appendix 3).

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CHAPTER 3

Studies 1 and 2

Preface to Studies 1 and 2

I feel a little explanation as to how these early studies are presented is needed. Each study will be treated in turn but, where it is necessary, some results from Studies 1 and 2 will be presented in tandem and will be in the section following Study 2. This applies specifically to the results of the section in the Final-Page of the diary on the menstrual cycle and its possible effects on daily emotions and moods. For this analysis it was felt to be more constructive if the results from the sample of women in the first study and those of the second study were pulled together thus achieving a larger sample. Although in all of the studies that follow several hypotheses from a cognitive theory of emotion will be tested there will be more attention paid to this issue in these first two studies and thereafter in the other studies results bearing on these hypotheses will be presented in such a way as to re-affirm the findings of these first two studies. In the second study I will briefly explore the perennial issue of whether women's emotions are different from those experienced by men. In order to do this the intensity and frequency of the emotion episodes from these first early studies are compared, and a brief implication of the effect of the menstrual cycle on women's emotions is presented.

Study 1

Incidents of emotion recorded by a sample of students.

Synopsis

The purpose of this study was to investigate emotions as they are experienced in everyday life. This study saw the launch of the Structured Diary. Four specific emotions were looked at:-

Happiness/joy
Sadness/grief
Anger/irritation
Fear/anxiety

The aim of the study was to investigate the antecedents, frequency, duration and consequences of emotional experiences as well as possible sex difference in emotions.

Where possible it is also intended to cross-validate data gathered by Scherer and his colleagues (1984) and to test hypotheses derived from a cognitive theory of emotions developed by Oatley and Johnson-Laird (1987).

The hypotheses were (i) that specific emotions are normally triggered by recognizable and recurring types of event in relation to goals, (ii) that emotions can occasionally occur without there being any noticeable eliciting event and (iii) that emotions usually occur singly, with mixtures being rare.

Subjects

There were 57 subjects, 16 male and 41 female psychology undergraduates at Glasgow University. The ratio of men to women reflects the proportions of men and women studying psychology at the university. The mean ages of subjects was 22, range 17 to 37. We asked for volunteers so subjects were not paid to participate and there was no pressure exerted on the students to complete the diary. The first version of the diary was completed by 27 subjects. A second version, was distributed to 35 people, of whom 20 returned it. A third version was completed by 10 volunteers from a small tutorial class of first year students. All subjects, were contacted only once after the initial distribution, where upon they were asked, to return the completed diary personally or by depositing it in an envelope in a designated deposit point of the Psychology Department.

Method

For this initial experiment, in which the diary was launched I chose a relatively small sample of students, rather than distribute the diary to members of the general population. (In the second study some of the problems of sampling discovered in this study were attended to). It was made clear to the subjects that their task was to keep an emotion diary for at least one week, or until the five episodes were recorded. The subjects were directed to the instructions printed on the diary's Cover-Page and a brief outline of the questions in the diary was given.

Subjects were asked to complete a dairy page each time they experienced one of the following:

Happiness/joy
Sadness/grief
Anger/irritation
Fear/anxiety

and to continue until they had collected five emotions, irrespective of kind. Versions 1, 2, and 3 of the diary asked subjects to record five episodes of the four, considered basic emotions as shown above. Although, version 3 asked subjects to include episodes of hatred/disgust there were not enough episodes collected for analysis. From revised early versions of the diary, altered with helpful comments from subjects themselves a fifth version of the diary now exists that I feel can be understood by a wide range of people.

In order that subjects recorded significant episodes and not just weak affects, a criterion for identifying an emotion episode was adopted. Since emotional episodes usually have three components - physiological reactions, cognitions, and actions performed as a result of the emotion the criteria were built around this. Subjects were asked to complete a page whenever an emotion occurred which was sufficiently noticeable to be accompanied by:

a bodily sensation (e.g. heart beating faster), thoughts coming into your mind that are hard to stop, or acting or feeling the urge to act in an emotional way like laughing, feeling you want to hit someone, or

withdrawing. In this way subjects were primed to pay special attention to features of the emotion. This facilitates early recording of emotion episodes. Thus it is more likely that accurate ratings of the intensity of the emotion and its accompanying bodily perturbations will be gained. This is a considerable advantage over studies which ask for more retrospective stories about emotional experience: stories, which it can be argued, are subject to the fading memory for particular elements of the emotion experienced.

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RESULTS OF STUDY 1

Analysis of recorded emotion incidents.

According to expectations, there was wide reporting of physiological, cognitive and behavioral elements accompanying each emotion episode. From all the episodes 77% of emotions included a bodily sensation, 81% were accompanied by persistent thoughts coming to mind and 90% of all emotions involved an action or an urge to act emotionally.

It seems that emotions are also accompanied by a strong subjective element. Subjects reported that 77% of emotions included an "inner feeling" of the emotion and subjects were able to describe their feelings in elaborate detail. Only 8% of episodes involved no such subjective element. The mean time to record five emotions was 6.9 days. This compares rather nicely with the view from other researchers, on the frequency of emotions, who say that most people will probably experience at least one significant emotion in any given day (Averill, 1982, Wallbott and Scherer 1986).

There were 246 episodes classified as happiness/joy, sadness/grief, anger/irritation and anxiety/fear (hereafter referred to as happiness, sadness, anger and fear). There were 16 emotion episodes classified as 'mixed' i.e. they could not be assigned to one of the four main emotions and there were 23 instances of what we named as miscellaneous emotions. Those episodes assigned as 'mixed' or miscellaneous were not analysed. Instances like this appeared as a result of the first version of the diary where the subjects

were asked to name the emotion, but did not indicate which of the four specific emotions it was. Subsequent versions of the diary ask subjects to tick which basic emotion occurred. The term 'mixed', as used above, refers only to occasions where the subject described their emotion state using more than one word, (for example, "I felt tired, poorly, under the weather"), making it difficult to class the state as happiness or sadness and so on. The use of the word 'mixed' here should not be confused with its use within the realms of the hypotheses from the cognitive theory of emotions. Here the term mixed refers to occasions where subjects describe two or more emotion occurring simultaneously, such as happiness and anxiety, or anger and sadness. For a definition of important terms, as they are used in this thesis, please refer to the Glossary of Terms and Abbreviations on page 354.

On analysis of the time lapse between experience of the emotion and the recording of it one found some positive and pleasing results. Most emotion episodes were recorded soon after they occurred, with 53% being recorded within two hours, and 88% of episodes being recorded within 24 hours of occurrence.

This shows that the diary is a more immediate method, for reporting day to day emotions and avoids distortion due to memory lapses which could be said to be a fault of retrospective self-report methods.

It was found that happiness was the most frequent emotion, with fear the next. There were no sex differences in frequencies of happiness, sadness or anger, but women

experienced significantly more episodes of fear than men ($t = 2.2$, df 55, $p < 0.05$).

Table 1, below, shows the mean frequency of the four main emotions by sex. There was a significant difference in the frequency of different emotions ($F = 7.3$ on a related measures anova; df 3,165; $p < 0.0001$) with happiness being the most frequent.

Although the main effect of sex was not significant, the interaction of sex x type of emotion was significant, ($F = 2.7$; 3,165; $p < 0.05$). Most of this interaction can be accounted for by women having proportionally more episodes of fear/anxiety than men.

Table 1 The number of episodes of each emotion in 16 male and 41 female students.

	Frequency of emotion type recorded		
	Male	Female	
Emotion type			Totals
Happy	29	45	(74)
Sad	12	21	(33)
Anger	19	40	(59)
Fear	13	58	(71)
Totals	(73)	(164)	(237)

Table 2 below shows the distribution of bodily sensations for each of the four main emotions. Fear was the emotion with most bodily sensations of all kinds. Some sensations were particular to an emotion, like coldness with fear. Pounding of the heart and feelings in the stomach were the most frequently experienced sensations associated with emotions, particularly happiness and fear. The fact that sadness is often described as a flat feeling associated with lack of activity could explain why there were very few bodily sensations reported.

Table 2 The frequency of specific bodily sensations as a function of emotion type recorded by 16 male and 41 female students.

	Number of sensations for each emotion				
	Happy	Sad	Anger	Fear	
Sensation type					Totals
Tenseness	3	11	43	31	(88)
Trembling	2	9	7	20	(38)
Stomach	19	12	15	36	(82)
Heart	29	9	27	39	(104)
Sweating	5	0	1	9	(15)
Hot	22	5	11	9	(47)
Cold	1	3	1	6	(11)
Totals	(81)	(49)	(105)	(150)	(385)

The antecedents, or triggers of these emotion episodes can be viewed from two perspectives. The first being where the subjects had to choose from a list given in the diary what type of event had triggered their emotion. The other perspective is that which is relevant to the hypothesis that events are triggered by recognizable and recurring types of eliciting events.

For the first perspective: in response to question 8 of the diary subjects had to decide whether the elicitor had been 'another person's action or inaction', 'their own action or inaction, something remembered', 'something imagined', 'something read or seen in a book, tv etc', or indeed if the emotion seemed to arise for 'no particular reason'. Table 3, on the following page, illustrates the number of occasions on which a specific elicitor was chosen from the list in the diary. It can be seen from this table that the majority of emotions were triggered by the action or inaction of someone else. Notably most occasions of fear were triggered by thoughts of something that may happen in the future, or about a specific event that was about to happen that was causing the subject to feel insecure. Surprisingly there were 18 occasions from all four emotions were the subjects could not identify a particular eliciting event. This result has direct bearing on the hypothesis formed by Oatley and Johnson-Laird and will discussed later.

Table 3 Frequency of antecedents as a function of emotion type.

	Number of episodes of each emotion type				
	Happy	Sad	Anger	Fear	
Elicitor					Totals
Other person	35	14	47	15	(126)
Self	14	2	9	14	(39)
Remembered	8	2	1	9	(20)
Imagined	4	3	1	15	(23)
Read, seen	4	5	1	3	(13)
No cause	5	3	1	9	(18)
Other	9	4	2	6	(21)
Totals	(80)	(33)	(62)	(71)	(260)

As you can see from Table 3 the categories given in the diary for antecedents of emotion did not cover the full range of possibilities, as shown by the figures 9, 4, 2, and 6 respectively in the "other elicitor" row.

On the duration of each emotion episode it was found that only 6% of episodes of emotion lasted less than a minute, 27% lasted between one and five minutes, 34% lasted five to thirty minutes, and 33% lasted more than thirty minutes. There were significant differences in duration as a function of the type of emotion (chi square 36.1, $p = 0.0001$). The order of

duration was as follows: sadness (with 97% of episodes lasting more than five minutes), happiness (71% > 5 min.), anger (61% > 5 min.), and fear (56% > 5 min.). The most frequent duration of episodes of happiness and sadness was more than 30 minutes, and the most frequent duration of episodes of anger and fear was five to thirty minutes.

There were also a number of instances of each type of emotion being described as part of a longer lasting mood. Whether there is a qualitative or quantitative difference between emotions and moods is a question that cannot be answered from this data, but addressed further in future studies. Suffice to say that 61% of happy episodes were reported as being part of a sustained mood, 47% of sad episodes, 32% of fearful episodes and 25% of angry episodes.

Looking at how stable each emotion episode was, that is, did the subject experience any alternations between one emotion and another, it was found that a minority, (30%) of emotions changed in type during the course of an episode. Happiness was the most stable, with 88% of episodes staying as happiness. Between 37% and 42% of episodes of all the other three emotion types were on occasions unstable. The most common change was between anger and sadness – with 33% of all episodes for which changes were recorded.

It was also found that different emotions had differing effects on individuals' performance in planned activities and in their general life plans. From a count of all episodes for those who answered this question it was found that anger (71% of episodes), sadness (61%), and fear (54%) all hindered later

plans. These being dysphoric emotions we might have expected therefore that happiness would help plans. And in 33% of all episodes happiness did indeed aid plans, but in 51% it had no effect at all.

Living arrangements seemed to have a bearing on the frequency of certain types of emotions experienced by this student sample. It was found that, cohabiting or living in a room or flat of ones own was associated with more episodes of happiness. Living alone enabled subjects to record 50% of their episodes as happy with cohabiting not far behind at 47%.

By contrast, students living with their parents had 29% of incidents that were happy, and those sharing with friends had 22%. The difference in the number of happy emotions as a function of living condition was significant, ($F = 4.0$: df 4, 51: $p < 0.01$).

Testing Hypotheses from a Cognitive Theory of Emotion.

One of the primary aims in the design of the diaries was to test Oatley and Johnson-Laird's (1987) cognitive theory of emotions against other cognitive theories. The proposal is that emotions function in the control of action. Each goal and plan, active and dormant, is monitored, and an emotion is caused if an event is detected that changes the probability of achieving a goal. Goal-relevant events are defined as achievements, losses, frustrations, goal conflicts and toxic events. When any of these occurs it triggers a basic emotion with a distinctive emotional tone, and sets the system into a distinctive mode appropriate to the kind of event that has been detected.

Thus achievement of a sub-goal sends out a signal we experience as happiness, and it prompts the system to continue with the plan that was in progress. A loss is experienced as sadness, and it prompts discontinuation and possible search for new plans. Frustration or blockage of a goal is experienced as anger; and thus it prompts the individual to readjust goals, become more determined and perhaps act aggressively. A conflict of goals, as when a danger threatens, or some limitation of resources is realized, is experienced as fear or anxiety; the system interrupts the current plan, the environment is carefully checked and the motor system is prepared for flight or fight. If a toxic substance or person is detected this may be experienced as disgust, and lead to avoidance behaviour and withdrawal from situations and/or others. The result is a change in the

cognitive system, that is an action mode that is distinctive and has somewhat evolved as an appropriate response to the impact of the event on a goal. The response is not entirely conditioned even although the signal may not have a meaning. Along with the non-propositional signal is usually an association with propositional or semantic information about what caused the emotion. Thus we experience a distinctive non-semantic tone of the emotion, and we also know its semantics in terms of what was achieved, what was lost, or what the threat was, and so on. There will be more on these signals in a study herein that investigates basic and complex emotions.

It seems then that the function of the emotion mechanism is to draw attention to goal priorities and set a distinctive kind of action readiness, Frijda (1986). The emotion serves to elicit action and thought towards the question of what to do next when a goal has been threatened or achieved and so on. Although we may have no actual answer for the unexpected at least we are assuming appropriate action quickly and promptly. We don't display fixed patterns of behaviour but we do act in a way that is functional and partially rational. This mechanism is the system of basic emotions.

In order to examine if emotions are triggered by goal-relevant events as described above the responses from the subjects to the question, "Where did the emotion occur, who were you with, what happened, what were you doing?" were rated. The responses were classified by assigning them to generic kinds of elicitor, namely, Achievement, Loss, Frustration, and Threat. (Please refer to the second study, pages 88 to 91 for a full

account of how emotion situations were classified). Not all episodes were accompanied by a full account of what happened, but from all episodes, 166 were able to be classified in this system, obviously excluding those episodes which were labelled as mixed emotions or miscellaneous, (a problem encountered by the fact that the specific name of the emotion was not asked for in this diary format).

It should be made clear at this point that the classification of these episodes was not a blind analysis. The classification was carried out informally by myself. I was, therefore, privy to the actual emotions experienced and could have been influenced in the decision-making process. As a consequence the results below should be viewed as preliminary. In Study 2 the emotion situations were classified by raters blind to the actual emotion. Table 4 to follow suggests the relationship between generic eliciting event and emotion type.

Table 4 Number of episodes caused by four generic types of eliciting event, as a function of emotion type

	Number of episodes of each emotion type			
	Happy	Sad	Anger	Fear
Generic Elicitor				
Achievement	52	0	5	10
Loss	1	13	4	2
Frustration	2	4	32	6
Threat	2	1	0	32

Although statistics were performed on these figures they should be viewed with caution. As these results stand there was a significant association between emotion type and generic elicitor, (chi-square = 262.027, p = 0.0001). Notice, however, that entries along the main diagonal (top left to bottom right) were those expected on theoretical grounds, whereas other entries would not be so readily expected. For instance there were 13 occasions in which anger was associated with loss, and 10 occasions on which fear was associated with an achievement.

That emotions can arise for no particular reason is a factor of the theory which as far as is known distinguishes Oatley and Johnson-Laird's from any other theory.

It can be said that happiness, sadness, anger and fear occurred without apparent cause on 5, 3, 1 and 9 occasions respectively. (refer back to Table 3, page 60). Overall, non-attributable emotions constituted 6.3% of episodes recorded in this study. A finding which, although admittedly in its infancy, does nevertheless point to the existence of tentative evidence in favour of one of the main cornerstones of the Oatley & Johnson-Laird theory.

Far from being rare, as the cognitive theory of emotions suggests, mixtures of emotions were very common. That is when the emotion experienced, perhaps happiness, was accompanied by another emotion experience, perhaps anxiety, at precisely the same time. Forty seven percent of subject responded to this item of the dairy and it was found that in

37% of these responses that episodes of happiness, sadness, anger, and fear were described as being accompanied, or mixed with, another emotion. There were significant differences among the emotions as to which would more likely to be paired with another emotion, (chi square = 16.1, p = 0.0001). Sadness most frequently included another emotion mixed with it (77% of episodes for those answering this item), fear next (53%), happiness next (38%), and anger least commonly (35%). There were no instances where happiness was mixed with anger and the most common mixture was that of anger and fear.

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Discussion

From these results it is clear that preliminary data has been discovered about the frequency, duration, and antecedents of four specific emotion types. It was seen that in most cases it was the action or inaction of other people which triggered changes in affective state, (especially in episodes of happiness and anger) and caused the individual to re-evaluate the situation and re-establish goals. Anxiety was usually triggered by ruminating on what the future could hold and the pressure of work. The nature of the anxiety in a student sample will clearly be different from that perhaps to be found in other samples. Students are under pressure to meet deadlines day to day and of course are a proportion of the population who may for the first time have left the parental home and are now on their own, and among new people. It would be interesting to compare the type of events that result in experiences of anxiety in other samples of the population more closely.

Emotion has a communicative function. Anger has specific verbal and non-verbal signals which others perceive and act upon, as do the other emotion types, but social norms often dictate whether the emotion is expressed or not. More negative emotions, such as anger and sadness are often suppressed rather than expressed, whilst the acceptable face of happiness is shown in very exaggerated expressions and increased activity.

The most common bodily sensations accompanying the emotional experiences for this sample were seen to be

sweating, increased heart-beat, trembling, tenseness and stomach cramping. Typically fear and anger were accompanied by all or most of these above.

On the aspect of emotion duration it was found that anger was a relatively unsustained state, whereas, happiness, anxiety, and sadness were part of longer moods. Perhaps when anger is expressed it is such a strong emotion that it burns out quickly. That is to say that the outward expression of the anger diffuses the feeling. But there could be a case for proposing that if the emotion is not expressed then re-occurrences of the angry thoughts could occur later. It would be useful in future studies to ask if any thoughts about an emotion episode did re-occurred later. Some adjustment on the reasoning of the duration of emotion episodes would then be needed.

One of the other aims, set out at the beginning of this study, was also to cross-validate data from an earlier study by Wallbott and Scherer (1986). They hypothesized and found that anger and joy were more frequent than sadness and fear. In my diary study although it was also found that happiness was one of the more frequent emotions it was fear not anger that was the next most frequent emotion. The fact that Scherer and colleagues found anger to be more frequent could be due, to their use of more retrospective methods of assessment, where anger perhaps has more salience in memory.

They hypothesized and found that the duration of emotions were in the following order: sadness the longest, then joy, then anger and then fear. Again, the results of the present study

match this. A parallel can also be drawn form the results of effects of emotion on plans in this study and that found in Wallbott and Scherer's study. This was that plans were hindered least by happiness, and most by anger and sadness. This study has also confirmed that anger is experienced primarily as being caused by other people. This is in slight disagreement with Wallbott and Scherer, as they found that it was happiness that was more often associated with other people than with actions of the self. This discrepancy might have been due to the appropriate question in the diary having a number of categories (of memory, imagination etc) that would have been included in their category, "the self".

As to the predictions of the theory of Oatley & Johnson-Laird (1987), a few surprises arose here. The hypothesis that mixtures of emotions would be a rarity was wholly refuted. Of the 47% of the episodes for which the relevant item in the diary was completed 37% of episodes involved mixtures. Maybe emotion mixtures can exist, but far from being a confusing aspect for the individual, he or she can experience two differing emotions simultaneously but be aware that they are inherently different. Perhaps it is a bit naive to suggest that feelings cannot be jumbled together. Instead we will have to accept that mixtures of emotions are a feature of human emotions. Previous studies carried out by Folkman and Lazarus (1987), and Smith and Ellsworth (1985) found that there was often contradictory emotions reported by their subjects in response to major events, in this case with students in their sample sitting crucial exams.

If we look at studies of emotion in children there is evidence

that these ambivalent feelings are present. Harris (1989) documents studies that show that childrens behaviour indicates ambivalent feelings are present even although the child themselves fail, until about the age of seven or eight, to recognize these feelings explicitly. Harris cites two studies which indicate ambivalence in childrens preschool years. One such study was that carried out by Ainsworth and her colleagues (1978) on mother-child attachment. They observed one-year-old children experiencing a series of short separations from their mothers. A proportion of the children displayed an overtly ambivalent reaction to their mother when they were eventually reunited with her. It seemed to be that these children whilst seeking contact with their mother would then resist contact when it was offered by the mother. Follow-up studies have confirmed the presence of this ambivalent pattern in other samples of children. For example when Campos et al (1983) reviewed five different American studies of one-year-olds they concluded that about one in six babies showed resistant or ambivalent pattern at 12 months. Even more surprising is that when these children were retested six to seven months later they continued to act in this manner (Campos, Barrett, Lamb, Goldsmith and Sternberg, 1983).

It is thus quite clear from these and other pre-school studies that ambivalent feelings can be a feature of childrens emotional life. As to the origin of these feelings there can be only speculation but what is quite clear is that ambivalent emotional reactions toward the mother are not uncommon at 12 and 18 months.

It seems that these behaviours can be observed in the

behaviour of very young babies but it is not until about the age of seven or eight that children can actually conceptualize these feelings, readily explaining the situation that led to the ambivalent feelings. Quite why it should be at this age and not earlier that the children recognize these feelings is not the issue here. What I wish to express, in relation to the hypothesis on emotion mixtures, is that if evidence suggests that babies display ambivalent behaviour and weighty evidence illustrating that children can explain and identify situations which have and could cause ambivalent feelings then can it be possible that when we become adults ambivalent feelings are also a major feature of our emotional lives? The answer to this, in light of the evidence from this diary study, would have to be yes. I propose that the preponderance of emotion mixtures will not be a finding that is peculiar to this one diary study but that we will find it a recurrent result from the other diary studies herein. As Harris said, "when we consider our relationships with other people, feelings of ambivalence are almost inevitable at certain times". (Harris 1989, page 106). For confirmation of this finding the occurrence of mixtures of emotion will be tested throughout all of the diary studies to follow. Should it be confirmed it would seem that it is an aspect of emotional experience that should be acknowledged by the cognitive theory of emotions.

Oatley & Johnson-Laird also hypothesized that emotions occur, not so much by comparing events against a checklist of features, but by recognition of recurring types of situation with significance for an individuals goals and plans. It was proposed that happiness is triggered mainly by achievements, sadness by losses, anger by frustration of plans, and fear by

the threat to plans. Although the results were preliminary Table 4 page 65 indicated that, in general, this was the trend.

It was also discovered that, achievements sometimes triggered anxiety rather than happiness. This may be due to the uncertainty of future plans as a result of achieving some goal. The fulfilling of a goal may have implications in itself, which can cause uncertainty about the future and thus lead to anxiety. For example, if one passes an exam then one has a sense of achievement, but the implications for the future as a result of this may cause anxiety. Similar findings to this have been documented before which in some way makes one more comfortable about the outcome of this result. For instance, Stein and Levine (in press) also discovered that losses were almost as likely to trigger anger as sadness. The conclusion here, they say, is that when a loss is evaluated it can either be re-instated or it could be lost for ever. If the goal has been thwarted as the result of forces outside one's control then the emotion experienced is more likely to be sadness. If however the action of someone else has led to the collapse of a plan and particularly if the goal cannot be re-instated then anger is experienced. Of course this is only conjecture but Stein and Levine see it as a matter of perspective for the individual and they may well be correct.

This and the other hypotheses will be tested throughout all of the studies, but it will also be necessary to carry out "blind" post-hoc analysis of the emotion descriptions from the subjects in the second study. Since the researchers, were the only one's who rated the content of this question for classification of episodes as one of four generic elicitors, a

bias was probably clouding reliable results.

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Conclusion to Study 1

The purpose of this experiment was to collect preliminary data about emotions as they occur in everyday life. It was hoped that the findings of this experiment would reflect and elaborate on the results from studies carried out by Wallbott and Scherer (1986). These hopes have been realised.

The fact that the data from this preliminary experiment has re-iterated that from other researchers is a heartening sign which further suggests that we should continue to use the structured diary in subsequent experiments. The diary has proved itself to be a worthwhile tool in as much as it did yield information about the circumstances and consequences of the everyday occurrence of emotion.

However, from this launch of the diary a few problems in the distribution and completion of the diaries was uncovered. The diary method does demand a relatively large amount of commitment on the part of subjects but this can be achieved by persistence from the researcher in administering the diaries and maintaining contact with subjects. This can make them less convenient and time-consuming than other self-report questionnaires. The response rate can be low if the diaries are just distributed and subjects are not followed up whilst doing the diary.

In future studies in order to increase the response rate it will be necessary for the following steps to be taken. When the diaries are distributed it would be beneficial for the subject if I

were to work through an example or mock episode. Introducing payment for completed diaries would be another option to consider in future experiments, to increase subject motivation.

If I can continue to receive such data about the characteristics of these specific emotions and introduce the improvements suggested above in future experiments then the structured diary will be well tested.

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Study 2

Incidents of emotion recorded by a sample of employed people.

Synopsis

This study was essentially a replication of the the first study, in which the structured diary method was, then, launched as a way of increasing the knowledge about the characteristics of emotions, as they occur in everyday life. It was intended, in this present study: to increase the subject response rate and use random sampling; implement the changes to the methodology made apparent from the first study and in all diaries to include the fifth specific emotion; disgust/hatred for analysis.

The alterations made to the procedure for this replication study will, it is hoped, produce results consistent with those of the first study and of previous researchers. We will also retest the cognitive theory of emotions, to find out if the preponderance of mixtures of emotions from the first study appears again. This will further confirm that the theory of Oatley and Johnson-Laird (1987) should be re-examined to explain the presence of emotion mixtures.

Introduction

With the experience gained in the process of the first study, using a student sample, one now feels that the diary can be given to a sample of the non-student population. (In this study subjects were drawn from two occupations). From the initial experiment it became clear that various changes in methodology would have to be made in order to improve response rate. Therefore it can be said that the results from this early study although very promising, it was clear that there were various problems with the design of the diary, and the execution of the study.

Although the diary method was worthwhile, in as much as it did yield information about the antecedents and consequences of emotion episodes, one did encounter some problems in choosing to use the diary as the methodological tool for an study of this nature.

The main problem lay in the poor response rate from subjects. One must qualify this statement, however, by saying that though the response rate was poor all round the main failure to complete diaries came from the males of the sample. This could be a social phenomenon, (folklore would have us believe that women are more in tune with their emotions and are more willing to make known their experiences than their male counter-parts). Whatever the reason there was an attempt, in this replication study to increase subject motivation and have equal numbers of male and female participants.

The method of distributing the diaries in the first study probably encouraged the poor return rate. Diaries were merely given out to the class of Psychology students with no real pressure exerted on them to complete the diaries. A method such as this often creates what one could call 'anonymous subjects'. With no one-to-one contact each subject tends to hide behind another and they don't feel under any obligation to complete the questionnaire.

In this present study, (and in all subsequent studies using the structured diary) the following procedures were carried out. Each subject or group of subjects was given individual attention. Therefore the diaries were handed out personally and individually. At the first meeting the subjects were asked to think of a recent emotion, and then to think about how they would complete the diary. They were guided through each item in turn, checking that they would know how to complete it for the emotion they were recalling, and I answered any queries. This procedure is what is meant by a 'mock episode schedule'. I believe that this procedure is better than say, providing an example of my own, or an example of a situation that might lead to an emotion being experienced. In doing so I ensure that every effort is made not to influence the subject unduly as to how to complete their diary.

Even if the subject is keen to take part in the experiment it was often the case that they would forget to fill in their diaries. Essentially subjects have to know that they are taking part in a piece of research. Problems with the diary at an early stage can often deter completion, but if difficulties can be aired immediately and worked out then completion should follow.

The solution here was to remind the subjects to fill in their diary, by either, personal visits, or by phone contact, especially when the diary had just been distributed. This procedure should not to be confused with the "beeper" method used by Csikszentmihalyi and Larson (1984) as quoted earlier (refer to page 24). If you recall their method required the use of a signalling device which sounded at quasi-autonomous times to remind the subject to then fill in the questionnaire at that time and the device had to be worn by the subject. In contrast my procedure was simply to call the subject or meet them personally only for a few minutes, no more than 3 or 4 times whilst they were completing the diary. During these calls or visits the aim was simply to remind them that if they have an emotion episode they should record the details as soon as possible. I think this method is less intrusive and annoying than that exercised by Csikszentmihalyi and Larson.

Commitment on the part of the researcher, shown by frequent subject contact and a thorough explanation of what is required, should thus be reciprocated by commitment from the subjects themselves. This may be more tiresome for the researcher but certainly the good completion rate in this study stands as an example to the important ground work carried out.

Paying subjects to take part in experiments in Psychology generally increases motivation and thus the response rate. When the issue of payment was introduced into this second study many of the subjects decided that they wished their 'fee'

of £2 to go to charity.

For all subsequent participants the option of donating to a charity was given. Donating to a charity proved to be a good motivating factor in itself.

Strategies for improving response similar to that described above should be adopted by other researchers considering utilizing the daily diary method.

Changes To Diary

The diary used in this study is close to that shown in the Appendix 1a. This was version 5 of the diary, which has a number of slight changes from earlier versions. One major change, however, was that, rather than five instances of emotion, subjects were asked to record only four episodes of any of the five specific emotions. This, one hoped, would ease the task for the subject and so speed up the process of completing diaries. .

All subjects, in this sample, received the same diary. All results in this present study will include a full analysis of disgust/hatred as well as the other four emotions, (happiness/joy, sadness/grief, anger/irritation, fear/anxiety). Hereafter known as happiness sadness, anger, fear, and disgust

On the Cover-Page a question on the subjects occupation was added and slight alterations were made to the wording of the

instructions.

The only other changes were in; question 5, which now asked for the intensity of the emotion experienced (to be indicated by circling the appropriate number on a '0' to '10' scale), as opposed to the 'yes', 'no' response to the presence or absence of an inner feeling of the emotion; a new question on who the subject was with during the emotion episode was added, (question 9); and the wording of the questions on mixtures and alternations of emotions was modified to make it more clear to the subjects what was being asked.

Discussion of Hypotheses from a Cognitive Theory of Emotions

Since I wished to re-test the cognitive theory of emotions, a recap on the basic features of this theory, by Oatley and Johnson-Laird (1987) would be appropriate. They proposed that all various emotions are based on just a few distinctive mental states that go with readiness for action, and that each is set off when we evaluate an event in relation to our goals. Events are evaluated either consciously or unconsciously in terms of whether something has been achieved, lost or thwarted. Each evaluation produces a mental state that is a basic emotion. This theory sees emotions as functional. They are no longer regarded as just disturbances and labelled irrational but are 'action modes'.

They propose that emotions 'depend' on processes that monitor our goals all the time, to assess whether they are

contributing to an on-going plan. From these monitoring processes, simple signals are sent out whenever progress is made towards any goal changes substantially, for the better or for the worse.

From the first study we witnessed that most situations having any bearing on the subjects goals led to the emotion one would have expected. For example happiness was associated with the achievement of a goal. But on 10 occasions anxiety was associated with achievement, rather than happiness, and in 13 cases anger was associated with the loss of a goal, not sadness, as one might have expected. This aspect will be looked at again in this present study.

Classification of episode situations as one of four possible generic elicitors (achievement, loss, frustration, threat and noxious stimuli) will be carried out by raters ' blind ' to the actual emotion experienced. In the previous study only the researchers classified the episodes, therefore the decisions on the generic elicitor may have been influenced by the fact that we already knew the emotion type experienced by each subject. Note that a noxious stimulus is now included as a possible emotion elicitor, since all subjects in this study are asked to record incidences of disgust/hatred.

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Subjects

Random sampling methods were also implemented in this study, but only with the female group of Librarians. Since this occupation had a preponderance of females and a lack of males, all male members of the junior staff had to be approached systematically and asked if they would like to take part in the study. All Laboratory Technicians (from various departments of the Science Faculty) were also systematically approached, both male and female.

There were 46 subjects, 24 male and 22 females randomly chosen from a staff list of Librarians and Laboratory Technicians. The mean age of all subjects was 33, range 18 to 56. These 46 subjects came from two differing occupations. The first group were Librarians, of which there were 20, 11 females and 9 males (mean age 28, range 18 to 52) and the second group were Laboratory Technicians, of which there were 26, 11 females and 15 males (mean age 36, range 19 to 56). The laboratory technicians were from various departments of the Science Faculty, of the University of Glasgow. These departments were Botany, Cell Biology, Chemistry, and Microbiology. Student research technicians were excluded from this sample.

Method of Subject Selection

The Librarians were chosen at random from a staff list compiled by the Deputy Librarian. This list consisted of all junior librarians, not senior clerical staff. From this original list of 94, only those who were full-time employees working in Main Library of the University were selected as part of the sample. This was done in order that regular contact with the subjects would be assured, thus increasing the likelihood of completion of the diaries. The original 94 were reduced to 75 and from this list of males and females, 25 females were chosen by randomization methods. It was found that 5 of these female subjects had left the library since the list had been compiled. There were 2 refusals to take part and 3 withdrew form the experiment. That left 16 female participants and from this sample 11 completed diaries were returned.

As mentioned earlier, compared to our sample of women there was a dearth of male librarians. This meant that random sampling, of male librarians, from the list was impossible. Therefore all males on the list, 10 in all were approached and asked if they wished to take part in the study. From the original list of 10 males, 9 completed their diaries.

Each librarian was seen individually and given a briefing on how to complete the diary successfully, using the mock episode procedure.

The laboratory technicians, however, had to be taken in groups. It would obviously not be conducive to a safe

environment to have me wandering around the laboratories un-announced and possibly, disturbing experiments, lectures or laboratory sessions.

Insufficient numbers for a random sample to be carried out meant that all technicians from these said departments were approached, assembled in groups and asked if they wished to take part.

From a total of 36 technicians from all the disciplines only 6 refused to take part and 4 withdrew from the experiment. All of the subjects, from each occupational group, were given identical diaries and instructions.

Procedure:- Instructions to Subjects.

At the initial meeting all subjects were asked to think of a recent emotion, and then to think about how they would complete the diary. When the subjects were satisfied they could complete their diary at home they were asked to record an emotion episode when it was strong enough for them to notice bodily perturbations, persistent thoughts and/or acting in an emotional way. This way they have some guidelines as to what may be identified as an emotion episode, or mood.

Classifying Emotion Situations

In order to test the hypothesis that emotions are triggered by recognizable and recurring types of event in relation to goal-relevant events the responses to question 12 in the diary, detailing the circumstances surrounding the emotion episode were rated. The following procedure for classifying events was devised and the principles adopted from this procedure were used in all other diary experiments from this time on.

The responses from the first study were put to a content analysis and rated by myself and Keith Oatley, he being blind to actual emotion recorded by the subjects. We then worked together to agree on classification of episodes along a defined set of principles. The principles are outlined below. The episodes from this, present study, were then rated according to these principles and the categories chosen by the blind rater were then used in the table of generic elicitors, and can be viewed in the results section to follow.

One final point is that prior to the classifications being made the emotion situations had been screened to delete all emotive words and their physiological accompaniments. Any such words were replaced by ****.

A level of agreement of 84.6% was achieved between raters for the occupational sample using only transcribed responses. From the blind ratings, 69% correct prediction of emotion incidents was achieved. That is to say the type of emotion as identified by the subject was predicted from the blind rater's

goal relevant categories, so that achievements as defined in the categorization scheme mostly caused happiness, losses mostly caused sadness and so forth.

Here are the principles for classifying emotion situations, as devised by myself and Keith Oatley. A subset of examples is shown in parentheses.

A-Achievement. Achieving or prolonging valued goal state. Being with friends, lover, spouse, children or similar if no other issue like a quarrel or loss is mentioned. A reunion. A relief. Subject fully involved in a voluntary activity.
(Achievement: S032: "With colleagues: my success in organizing a group of people was praised." Being with lover: S028: "On bed with boyfriend.").

L-Loss. Loss, lack, disappointment, or need of valued goal, for Subject, friend, relative, or other person with whom Subject is identified, such as a confidant or person in a drama or documentary. Failing to achieve something, or being left out, in a way that could lead to loss of self-esteem. Longing or thoughts of distant or unattainable friend. Recalling loss from the past.
(Loss: S022: "Asked girl out - was turned down - with friends". Disappointment: S041: " I went to an audition for a band and did not play well.").

F-Frustration. Thwarted, or desiring a goal that has been blocked or made unattainable by the action or inaction of another, or of the self. Trying to do something without completion. Something done to subject, or to friend, relative or other person the Subject is identified with, that is harmful, insulting or wrongful. Argument, quarrel or conflict with someone.
(Thwarting: S019: "Watching TV with another person who forces his commentary on me." Argument: S036: "At home with father eating breakfast. He criticized me and I snapped back. Then spent 20 minutes screaming.").

T-Threat. Anticipation of a reverse or possible reverse to a valued goal. Occurrence or anticipation of a danger. Exposure to possible future loss of esteem. Realization of a goal conflict or a resource limitation, e.g. of time, money or ability.
(Danger: S042: "I was in the street with a friend, when a car almost knocked me over, i.e. I went in front of it by accident." Limitations of resources: S001 "...reading an article - realizing how much I have to get through before Finals.").

R-Repellant. Object, situation that is noxious or objectionable.
(S029: "At the bus stop alone. Young boys in queue spitting, kicking the shelter etc.").

C-Communicated Emotion. Direct communication of emotion in response to an emotion in another person. Not elicited by a goal-based event as such.

U-Unclassifiable. Description is insufficient to allow classification in the above scheme.

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RESULTS OF STUDY 2.

Analysis of recorded emotion episodes.

As several diaries were returned without the full compliment of four emotion episodes, there were 175 actual emotion episodes, classified as happiness/joy, sadness/grief, anger/irritation, anxiety/fear, and disgust/hatred, (hereafter referred to as happiness, sadness, anger, fear, and disgust), to analyse, instead of a possible 184, (46 subjects recording 4 emotions). Forty-four percent of the subjects episodes were recorded within three hours of occurrence, and 90% within 24 hours. The mean time to record four emotions was 7.9 days.

As to the intensity of the emotions: in response to item 5 in which subjects were asked to rate the intensity of the feeling from 0 = "no feeling noticeable" to 10 = "as strong as I can imagine" the mean intensity was 6.3, with anger having the lowest intensity (5.9) and happiness the highest (7.0). None of the subjects recorded a 'zero' rating for any episode, though 6% of episodes had ratings of only 1 or 2. On the other hand rather surprisingly 11% of episodes were given an extreme rating - 10. A one-way analysis of variance on the intensities of different types of emotion indicated that different emotions were not experienced with markedly different intensities ($F = 1.7$, df 4, $p = 0.16$)

Table 5, to follow, shows the frequency of the five emotions by sex. It was found that anger as the most frequent emotion with, happiness next. Differences in the frequency of emotion type as a function of sex was analysed by analysis of variance with one independent factor (sex) and one factor with repeated measures (emotion type), In this analysis there were

three missing cases who had not said how many emotions they had missed.

There was a large main effect of emotion type ($F = 17.1$, df 5, $p < 0.0001$). Neither the main effect of sex nor the interaction of sex x emotion type were significant (0.5 in both cases).

Table 5 The number of emotion episodes recorded by 24 males and 22 females workers .

	Frequency of emotion type recorded		
	Male	Female	
Emotion type			Totals
Happy	22	28	(50)
Sad	8	9	(17)
Anger	38	31	(69)
Fear	16	18	(34)
Disgust	5	3	(8)
Totals	(89)	(89)	(180)

From the example set by the first study it was expected that cognitive, behavioral and physiological elements would be well represented. It was found that from all the 178 episodes 73% of emotions included a bodily sensation, 75% were accompanied by persistent thoughts coming to mind and 85% were accompanied by an emotional act.

As is indicated in Table 6, below, anger was the only emotion where all bodily sensations were represented, excepting "coldness". Feelings in the stomach and pounding of the heart, were frequently associated with happiness, anger and fear. As one might have expected feeling tense was predominantly associated with anger. Sadness is notable for the low reporting of physiological aspects, a feature also seen in the first study. Since there was a dearth of episodes of disgust, one cannot really comment on the nature of bodily perturbations related to this emotion.

Table 6 The frequency of specific bodily sensations as a function of emotion type

	Number of sensations for each emotion					
	Happy	Sad	Anger	Fear	Disgust	
Sensation type						Totals
Tenseness	4	4	43	11	4	(66)
Trembling	1	0	2	3	0	(6)
Stomach	9	3	15	11	4	(42)
Heart	15	3	20	14	1	(53)
Sweating	3	2	4	4	0	(13)
Hot	8	3	7	4	0	(22)
Cold	0	0	0	1	0	(1)
Totals	(40)	(15)	(91)	(48)	(9)	(203)

Table 7 shows the frequency of thoughts accompanying emotions.

Table 7 Frequency of thought as a function of emotion type.

	Number of thought type for each emotion episode					
	Happy	Sad	Anger	Fear	Disgust	
Thought type						Totals
Past events	1	6	5	2	1	(15)
Longing	10	2	7	0	0	(19)
Future	19	0	1	3	0	(23)
Dread	2	1	11	18	1	(33)
Revenge	0	0	10	0	0	(10)
Other	11	7	30	8	4	(60)
Totals	(43)	(16)	(64)	(31)	(6)	(160)

What is clearly detectable from Table 7, above, is that the categories given in the diary were not sufficient to cover the possible range of thoughts the subjects experienced as part of their emotion episodes. Typically fear is associated with the unknown. Subjects reported a feeling of dread in 18 cases when fear was experienced. Thinking that something good might happen in the future and longing for someone, or something represent part of the positive aspects of happiness and how it can make one feel about oneself.

The actions that the subjects reported were then investigated and it was found that happiness and anger have most of the actions represented. Table 8 below shows that in happiness the actions were of a positive nature with a wish to communicate. Anger was synonymous with withdrawal from the situation.

Table 8 Number of actions reported by 47 subjects for each emotion type

	Happy	Sad	Anger	Fear	Disgust	
Actions						Totals
Talking	15	8	9	12	2	(46)
Expressing	28	7	25	5	3	(68)
U/mcloser	16	1	1	2	0	(20)
U/aggress	0	2	33	5	1	(41)
U/wdraw	0	2	13	7	1	(23)
A/touch	21	2	1	0	0	(24)
A/aggress	0	1	11	0	0	(12)
A/wdraw	0	3	15	2	4	(24)
Totals	(80)	(26)	(108)	(33)	(11)	(212)

(Please refer to Glossary of Terms and Abbreviations on page 354. All subsequent tables of actions use this system.)

On the duration of each emotion episode I found that only 9% of episodes of emotion lasted less than a minute, 26% lasted between one and five minutes, 31% lasted five to thirty minutes, and 34% lasted more than thirty minutes. The differences in duration as a function of the type of emotion were not significant (chi-square = 18.9, p = 0.09). Anger had the shortest duration on average, with 49% of episodes lasting less than five minutes. All other emotion types had more than 40% of episodes lasting more than 30 minutes. An interesting parallel exists between these figures for duration and those of the first experiment.

Most of the emotion episodes in this study lasted for more than five minutes, 83% for disgust, 81% for happiness, 75% for sadness, 66% for fear and 52% of episodes of anger lasting for more than five minutes. The most frequent duration of anger was five to thirty minutes, but for the other four emotion types the most frequent duration was more than thirty minutes. In reply to the question of whether the emotion episodes were part of a longer lasting mood it was found that 46% of happy episodes, 27% of angry episodes, 12% of sad episodes, 12% of fearful episodes and 4% of episodes of disgust were reported as being part of a sustained mood.

Looking now at the antecedents of the subjects' emotion episodes, one can see, from Table 9, (on the following page), that most of the emotions were triggered by people other than the subjects themselves. This applies especially to episodes of anger, with 77% being due to other people doing or not doing something. Again there were many more eliciting conditions

for emotions than were given as choices for the subjects, as shown by the figures 7, 1, 8, 8, and 3 respectively for the category " other elicitor ".

Table 9 Frequency of antecedents as a function of emotion type

	Number of episodes of each emotion					
	Happy	Sad	Anger	Fear	Disgust	
Elicitor						Totals
Other person	26	6	53	12	5	(126)
Self	4	1	3	6	0	(39)
Remembered	4	3	2	1	0	(20)
Imagined	2	1	0	4	0	(23)
Read, seen	4	4	3	2	0	(13)
No cause	3	0	0	0	0	(18)
Other	7	1	8	8	3	(21)
Totals	(50)	(16)	(71)	(33)	(8)	(176)

From the original 175 episodes, 151 situations could be classified, using the principles defined earlier, (pages 88 to 91) for the appropriate generic emotion elicitor. The raters' decisions on generic elicitors were matched with the actual emotions each subject recorded. Table 10 below indicates that the entries along the main diagonal (top left to bottom right) were those expected on theoretical grounds explained above.

Table 10 Number of episodes caused by five generic types of eliciting event as a function of emotion.

	Number of episodes of each emotion type				
	Happy	Sad	Anger	Fear	Disgust
Generic Elicitor					
Achievement	37	2	3	2	0
Loss	1	10	4	3	2
Frustration	0	4	49	2	4
Threat	4	0	7	23	1
Repellant	1	0	0	0	1
Communicated	0	0	0	0	0
Unclassified	6	1	4	3	1

As you can see from Table 10, there was again a diagonal (top left to bottom right) match with actual emotion and generic elicitor. This result was significant (chi-squared on the contingency table above, with 20 df, was 226.8, $p = 0.0001$).

Since the rater was assigning responses to five main categories, it would be expected that roughly 20% of the ratings could have matched the subjects named emotion purely by chance. Despite this the concordance from raters is sufficiently predominant to propose that there is now evidence supporting the postulation that elicitation of emotions is largely predictable on the basis of goal relevance of the events. (In future studies these tables will not include the terms "Unclassified" and "Communicated.")

Emotions mixtures were again common. Of the 175 episodes there were only nine instances of failure to respond to this question. It was found that 33% of episodes of happiness, sadness, anger, fear, and disgust were described as being accompanied by another emotion. Of the five emotions sadness was most frequently mixed with another emotion. In 46% of episodes it was said to be paired with another emotion. There an almost significant difference among the emotions as to which supported mixtures (chi-square = 14.7, df.8, p = 0.06).

Alternations between one emotion and another were also a common occurrence. For example, the subject would at first feel angry and then later feel sad, or later feel anxious when they had originally felt happy. It was found that a proportion of emotions, 32%, changed in type during the course of the episode. In this study, as was the case in the first, happiness was the most stable emotion, with 84% of episodes staying as happiness. Sadness (75% of all sad episodes) and fear (73% of all fear episodes) were the next most stable emotions. Anger was the most unstable emotion, with 41% of all episodes

of anger changing to another emotion.

There were no cases in which anger, sadness, or fear actually helped plans. From a count of all episodes it was found that 65% of fear, 53% of anger and 38% of episodes of sadness all hindered plans. Again the more positive state of happiness might then be an aid to ones plans, and in fact in 39% of episodes it was found to be the case. But in just as many (45%) happiness had no effect on plans at all. Because of the poor showing of episodes of disgust/hatred one cannot conclude anything about its affects on plans at this stage.

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Discussion

It is intended that this discussion should survey the results of this study and where possible be compared and contrasted to the results from the first study. I will also be looking at whether women's emotions differ from men's. In order to do this the data from both studies will be combined including those from the Final-Page of the diary on the possible effects of the menstrual cycle on women's emotions.

One of the aims of this study was to increase subject response rate keeping the number of withdrawals from the experiment to a minimum and to achieve equal numbers of male and female subjects. This was indeed achieved.

The improvements made to the design, and to the distribution of the diaries proved successful in increasing subject motivation and thus the completion rate. There were only a few subjects who did not complete their diaries or who after accepting to take part in the study then wished to withdraw.

Hypotheses, from the cognitive theory of emotions tested in the first study were also re-examined to see if there was any consistency in the early findings, given that there had been alterations to the methodology for this second study.

Working through an example emotion episode with each subject and maintaining contact by telephone and/or frequent visits facilitated a better all round response from subjects. The subjects in this study were enthusiastic about taking part

and were keen to talk about their emotions in general. Frequent contact with subjects was more a factor in producing a good response than the fact that they were going to be paid for taking part as most of the subjects refused payment preferring instead that the 'fee' to go to a charity

It has been shown again that emotions have physiological, cognitive and behavioral aspects, with anger having the gamut of bodily sensations and sadness with relatively few mild sensations. Happiness and anger proved to be the elicitors of many facial and verbal reactions, but the wish to move closer to someone was reserved for occasions of happiness where there seemed to be desire to communicate and receive feedback from others. Reinforcing this aspect of happiness is the fact that none of the subjects, who said they experienced happiness, wished to withdraw from the situation. Happiness is also associated with the subjects being very tactile. Subjects acted on their feelings by touching the person(s) they were with. Obviously the proximity of the people involved in the emotion will determine whether any urges to act are carried out. This can be seen in the case of anger. Less than half of the people who felt like being aggressive towards something or someone followed up on these urges. The absence of the source of frustration could be the contributory factor here, but one should also consider that whether anger is expressed or suppressed is often the result of social convention. Expressing anger may be inappropriate in given situations.

It seems from both Studies 1 and 2 that we should understand that there are certain constraints over the expression off

emotion and in particular that aggressive impulses were often quenched, probably because aggressiveness is regarded as socially negative.

There were no sex differences in numbers of each type of emotion experienced. In fact if one refers back to Table 5, page 94, it can be seen that the count of each emotion type is very similar for male and female. For both sexes anger was the most frequently recorded emotion with happiness the next most frequent. This is a different from the first study where it was happiness which was the most frequent emotion among the young student sample. It could be assumed that the results of this present study may be more representative of the sexes, since there was almost equal numbers of each sex in this study.

From the analysis of the antecedents of emotions of both the studies here it is clear that most of the emotion episodes were triggered by other peoples' action or inaction. Therefore our interactions with other people in our daily lives' are being constantly monitored and the actions of others interpreted as having some relevance to our own plans and goals.

There was a clear association between the type of emotion experienced and the outcome of goals (generic elicitors), as shown in Table 10, page 100. Situations in which goals were achieved lead to happiness, frustration lead to anger, a loss lead to sadness, being threatened lead to the subject experiencing fear and a noxious stimulus lead to feelings of disgust. There were instances when this direct relationship between generic elicitor and emotion was not always the case.

In some cases achievement led to anxiety. Achieving something has implications for future plans. Success perhaps bringing with it more responsibility which could raise anxiety. Clearly the theory needs some elaboration to allow for these unusual relationships between goals and emotions. These findings must be taken as more credible than those of the first study since a blind rating procedure was adopted.

From these results several kinds of comparison can be drawn between the theory of Oatley and Johnson-Laird (1987) and other appraisal theorists, such as Roseman Spindel & Jose and Scherer. One would be direct. A trial could be set up in which emotion type could be predicted from, for instance, Scherer's (1990) expert system with subjects' ratings as inputs. These could be compared with the predictions herein based on goal-relevance. Another comparison would be on the basis of parsimony: the proposal here involves a single causal operation, evaluation of an event relevant to a goal. By contrast appraisal theories involve five or more features. Finally a few theoretical comparisons can be made. Appraisal theories characterize each emotion according to a value on several features - no doubt these values are part of what people know about each kind of emotion. But not all of them relate to causation. For instance several of Ellsworth and Smith's (1988a, 1988b) set of nine appraisal features could be understood as accompaniments or effects of emotions (e.g. attentional activity, anticipated effort) rather than external eliciting events. By contrast Oatley and Johnson-Laird attend to goal-relevant events which, it is claimed, are more appropriate when we speak of theories of emotion elicitation

than these accompanying features.

Whilst a link between goal management and emotion has been established, (refer to table of generic elicitors, page 100), Oatley and Johnson-Laird postulation that emotion mixtures are a rare occurrence has been refuted. In a total of 33% of episodes there was said to be a mixture of emotions. This reiterates the results of the first study. It was said then that the theory would have to be re-examined to account for emotion mixtures. Confirmation that this should be done has been shown by the results of this present study.

Although there were no significant effects of living conditions on emotions there were however some worthwhile figures to look at if the two largest groups are contrasted; these being the subjects who were married and the subjects who were living with their parents. Being married meant that subjects recorded 22% of their emotions as being episodes of anger, 17% of episodes as happiness, 7% of fear and 6% of episodes of sadness. Living with ones parents meant that only 10% of all episodes for these subjects were recorded as being happy ones, 11% as anger episodes, 9% were of fear and only 3% of episodes were of sadness. Anger, then, was the most common emotion in married subjects as opposed to the other four emotions, but, in this sample, living with one's parents meant that there was little disparity between the emotions anger, happiness and fear.

It can be seen from both studies that happiness is usually part of a sustained mood. It was also found to be the most stable emotion, with only just a small minority of all episodes of

happiness actually breaking down into another emotion(s).

Both studies illustrated a wide variation in the duration of emotion episodes, but it is not clear when an emotion may be described as a mood nor whether is there are any difference between these two terms, or whether the words 'emotion' and 'mood' delineate the same thing. To guide the subjects in labelling their feelings they were informed that any feeling lasting more that half an hour was then considered to be part of a more prevalent mood. It could be that there is a quantitative difference, but just how long does an emotion have to last until its considered part of a longer mood? Alternatively there could be a qualitative difference between emotions and moods. That is to say that there may be something in the situation itself which will pre-determine whether the resultant feeling is of a short duration or of a more prolonged duration. However there is another element which will effect duration of feeling and that is how the individual views the situation leading to the emotion in the light of their own plans and goals. The same situation may affect two people in entirely different ways depending on this assessment of the status of their plans.

Are women's emotions different from men's ?

In the occupational sample, but not the student sample (of study one), subjects were asked to judge the intensity of each emotion on a scale from 0 (no feeling noticeable) to 10 (as strong as I can imagine). Thus it was possible to test whether, on average, the intensities of emotions experienced by women were different from those of men. Women in the occupational sample reported emotions that were on average 0.6 scale points more intense than men's (6.5 as compared with 5.9). However if the mean intensity of these four emotions is calculated this sex difference was not significant, ($t = 1.3$, df 45, $p = 0.2$).

There were no sex differences in the types of emotion experienced by subject in this study, and this result having occurred in the light of the fact that equal numbers of men and women had been achieved. Therefore one would be inclined to settle for saying that this would be a more accurate result. But women in the student sample (from study one) were found to have reported significantly more incidents of fear than men ($t = 2.2$, df 55 $p = 0.03$). This apparent disparity may be, if further investigations are allowed tell us something about the possible reasons for a sharp difference in the number of episodes of fear, especially from such a young sample.

Now what of the nature of this fear, that is, what had triggered these episodes in these women. Looking through the responses to item 10 of the diary, in the student sample,

several of the incidents in which fear was elicited concern anticipation of exams, having to make presentations in class and the like. Such events, did not occur for non-student samples. They may contribute to the sex difference in fear among the student women because the faculty and ethos of the University for these students were predominantly male, and, as compared to men, women students may find self-presentation in academic settings more frightening. Consider, also a different kind of event from one of the student sample: "In the pub working. Punter asks me out. I say 'yes'. Then I start to get worried in case he is a psychopath, 'cos I don't know him very well. He also said he would wait for me after work, worried in case he followed me home." This represents a class of event which happens, with some frequency to young women, but much more infrequently to men. This scenario could also indicate a type of incident that may occur more frequently to younger women rather than to the women of the older occupational study. Most of the episodes of anxiety here concerned their families, work place relationships, and career.

When I looked at the effects of the menstrual cycle on women emotions it was found that 44% of women said that their emotions were affected in most of the cycles, and only 16% said they were never affected. So we could have the basis of an argument that the menstrual cycle does have some influence in everyday emotional experiences. This study however did not look into the emotions that were more likely to occur before and during the menstrual cycle, just that were recognizable effects in a majority of cycles, so at the moment the implications are preliminary, and deserve further

systematic study.

From this we can say that it may not be that women will experience more episodes of fear as a rule, but that they do face situations which men do not usually have to, which more often lead to anxiety being experienced.

Theoretical Issues

Again the hypothesis on the rarity of emotion mixtures was refuted. Emotion mixtures were found to be common from both studies one and two and there is now some indication of which emotions do arise in mixtures. There were never any cases of anger and happiness being paired together, and the most common pairing seemed to be that of anger and sadness or anger and anxiety. Related to this were the occasions when the emotion situation was ambiguous, in that the raters were not sure if there was a loss of goal or the blocking of a goal.

Subsequent Research

It was rather disappointing that the diaries did not contain more episodes of disgust/hatred. It could be that this specific emotion is a very strong one and therefore may not always be a part of every-day emotional experience. An alternative explanation could be that disgust/hatred is a socially undesirable emotion, which when experienced distresses the subject causing great inner conflict as opposed to leading to open expression.

A study devoted to experiences of disgust and hatred alone would indeed be useful in increasing the knowledge about these emotions.

The results here have re-affirmed the efficiency of the diary and that it is accessible to the general public.

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CHAPTER 4

Study 3

Causality in Basic and Complex Emotions: A Comparison Study

Synopsis

In this study, using a somewhat different form of the diary, than has been used so far, basic and complex emotions were compared. The proposal is that basic emotions can occur without an identifiable cause but that complex emotions, as described below will always have an identifiable eliciting event and never occur without the individual knowing why. It was shown in the previous study that non-attributable basic emotion modes could happen but we have not sought to compare a basic mode to complex emotions. This study then rectifies this and attempts to go some way to settling the dispute between Ortony & Clore and Oatley & Johnson-Laird.

It is the intention to contrast episodes of anger, a basic emotion, with the occurrence of three complex emotions, shame, jealousy and embarrassment.

Introduction

Working within the framework of the cognitive theory of emotions in mind, a study is presented of an aspect of the theory which has caused substantial controversy.

There is one word which, if innocently whispered about emotions, can result in a cascade of unholy psychological bickering about its pros and cons. What, you may wonder, can arouse such fierce debate? Its simply this, BASIC.

To expand in a less frivolous vein it is the proposal that there is a discrete set of emotions which can be said to be basic. By basic, what is meant, is that these emotion modes are suggested to be innate and serve a function in organizing human actions, thoughts and goals in a sometimes, unpredictable world.

Before exploring the 'basicness' of basic emotions I would like to point out that rather refreshingly at last emotions are seen by most theorists on this topic to serve an important function in everyday life. This has at least been established but after that meeting place most theorists drift away and begin to differ in how emotions perform this function.

Darwin (1872) concluded that emotional expressions are a kind of vestige of evolution or individual development. More recently, however, it has been argued that, expressions of emotions are not accidental hiccups in an overloaded system, they are part of our daily lives and interactions.

If the expressions of emotions serve a function for human interaction, why not then the emotions themselves? Dysphoric states have the unpleasant nature of demanding our attention above all other priorities until we have laboured over an inner dialogue enough to feel that we have resolved the conflict that arose to cause the bad feeling.

Conflict is at the core of the idea that emotions serve as organizational tools, restructuring our thinking and resetting the "goal posts" if you like so we know where to aim.

The cognitive theory of emotions formulated by Oatley and Johnson-Laird (1987) proposes that emotions serve a communicative function both within an individual's cognitive system and between individual's in general. Moreover that emotions are a biological solution to the problem of co-ordinating planned action with multiple goals in a world that is surprising. They enable one priority to be exchanged for another in the human cognitive system which often has multiple goals until that priority is satiated.

Oatley and Johnson-Laird suggest that emotions are based on one of two types of communication within a semi-autonomous cognitive system. One kind of communication is propositional and the other non-propositional. The non-propositional signal sets up a distinctive basic emotion, - propositional signals carry information about what caused the emotion or to whom it is directed.

A non-propositional signal's function is to set the whole system into a particular emotion mode, and maintain it

tonically in that mode. A non-propositional signal does not contain or transmit information about the evaluation of plans and their possible outcome. Its function is to activate the system so that it can respond appropriately to a distinctive goal-relevant event. Propositional signals, by contrast, are symbolic and can therefore be used to construct new procedures and strategies to achieve goals, or alter the significance of particular goals.

Oatley and Johnson-Laird propose five basic emotions, each which has a characteristic phenomenological tone, but no meaning, as basic emotions are based on non-propositional signals. These are happiness/joy, sadness/grief, anger/irritation, fear/anxiety, and hatred/disgust.

It is here that they meet with criticism, for instance from Ortony and Turner in their article" What's Basic About Basic Emotions" (1990). They survey the field of research on emotions and try to settle what should be included in a list of basic emotions, if indeed they exist at all.

Although Ortony and Turner welcome the notion of emotion types they are not happy with the idea that there is a set of basic emotions, like the primary colours on a painter's palate, that when mixed together produce degrees of difference.

They propose that some emotions, such as happiness, sadness, anger and fear could be found in all cultures, without their being basic in any other sense. The idea that there can be basic emotion, they argue, is that some emotions can seem subjectively very salient, especially when they are intense. For

instance, extreme cases of fear arise in response to a threat to the individual and as a consequence carry an immense importance.

Ortony and Turner propose a subtle difference: that the complexity of an emotion is determined by the degree to which it is a more differentiated form of a simpler affective reaction. Thus they propose a hierarchical kind of structure in which, at the top level, there are two basic kinds of affective reaction - positive and negative.

Oatley and Johnson-Laird move away from just the simple dichotomy of affect to propose that happiness, anger, sadness, fear and disgust are basic emotions. Oatley and Johnson-Laird argue that an important criterion for a basic emotion is that it may sometimes be experienced without awareness of any propositional content. It is possible to experience a basic emotion which has no attributable event because it is based solely on a non-propositional signal. Although usually propositional and non-propositional parts are bound together, there need be no connection between a propositional signal and a non-propositional signal, either consciously or unconsciously.

Complex emotions, based on some evaluation of the self, on the other hand are never experienced without an identifiable cause because by definition they must contain a conscious propositional component. Complex emotions are an elaboration of a basic emotion mode. They usually arise at junctures in social plans since the propositional signal usually conveys information about the individuals goals in a social

context, in concordance with their expectations.

In the first two studies, I have shown that people do report that they experience happiness, sadness, anger and fear without knowing why, in about 5% of emotion episodes. (For instance refer back to Table 9, page 99). This has therefore provided evidence to support the inclusion of these non-attributable emotions in a proposed set of basic emotion modes.

This study is an attempt to substantiate Oatley and Johnson-Lairds claim that only basic emotions will be experienced without an identifiable eliciting event.

In doing so I hope to provide evidence relevant to the dispute with Ortony and Clore who claim that there is no objective way to decide if any set of basic emotion is correct and show, contrary to Ortony and Clore's claim, that a complex emotion will not be experienced without its propositional content.

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Method

The Structured Diary

The diary used in this study contained only two pages. It did not require that the subject enter as many details as the previous diaries. There were some notable differences in the kinds of questions subjects were posed in this diary. For instance questions '9' and '10' asked if the subject conveyed how they felt to others and if so was anything resolved. In the case of anger for instance there may have been an argument, if one was embarrassed there may have been some form of expression which eased the embarrassment in some way. (A copy of the diary can be found in the Appendix 2).

Subjects

There were 49 subjects: 33 female 16 male, all of whom were undergraduate students of psychology at the University of Glasgow. The mean age of the subjects was 20, range 17 to 41. The mean age of the male subjects was 22, range 17 to 41, with the mean age of the female subjects being 19 range 17 to 35.

As in the first study reported here it was suggested that the difference in numbers of male and female subjects was due to the ratio of men and women studying psychology. The method of distribution of the diaries required that they were

collected anonymously, without one to one contact, and under these circumstances more women have responded than men.

Procedure and Hypotheses

With the help of two undergraduate students, Melody Terras and Sharon Wayne, the diaries were distributed to a first year undergraduate class prior to a lecture. The students were requested to return the diaries but there was no undue pressure exerted on the students to complete the diaries. These subjects were asked to record just two emotions from the following set: anger, embarrassment, shame and jealousy. The class had not had the extensive "mock episode" procedure, that has been described previously, for that would have been impractical. Essentially we wanted to collect a set of episodes to compare basic with complex emotion, but without being unduly concerned with sampling.

According to Oatley and Johnson-Laird's theory anger is a basic emotion. Embarrassment, shame and jealousy, however, are not basic emotions, so we predict that these would never be experienced without the individual knowing why. Johnson-Laird and Oatley (1989) argue that when people use these emotion terms it implies that they must know what caused the emotion by virtue of the fact that these emotions have strong implication for ones self image. Embarrassment is fear (the non-semantic part) with knowledge that one is the unwelcome object of attention (the semantic part). Shame is an emotion of loss or threat (sadness or fear) together with the knowledge that one has contravened some social rule.

Jealousy is anger or hatred together with knowledge that some third person may be supplanting one in a close relationship.

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RESULTS OF STUDY 3.

Information about episodes collected

A total of 461 diaries were given of which 49 were returned completed (a response rate of 11%). Forty-three incidents of anger were collected in this way, of which one was not caused by anything in particular (2% of incidents — which is comparable to the 4% of anger incidents without a known cause shown in Table 1 Appendix 5a). Also collected were 15 incidents of shame, 26 of embarrassment, and 14 of jealousy — of these 55 non-basic emotions none was described has having an unknown cause. Oatley and Johnson-Laird (1990) predicted that if we were to do such a test, this would be the outcome: there would be a finite frequency of occasions in which basic emotions would be experienced as occurring without a known cause, whereas, if they are using the concepts properly, people experiencing shame, embarrassment, jealousy and other contextual emotions would never experience them as occurring for no reason — the terms themselves imply that the experiencer knows the cause.

This study begins to counter at least some criticisms made by Ortony and Clore (1989). They claim that it is feasible for people to state that they feel embarrassment or shame without knowing why. Oatley and Johnson-Laird argue that if people do say such things they do so only by being ignorant of what the words "embarrassment" and "shame" mean.

In summary: nobody said they experienced any of 55 incidents of emotions that are postulated to be non-basic without knowing why. By contrast, with the exception of disgust/hatred, about one in every 20 incidents of those

emotions which are said to be basic have been found in the studies reported in this thesis to occur without the subject knowing what caused them.

It was stressed that each emotion should be recorded soon after occurrence for a less distorted picture of the emotion. And indeed 28% of all episodes had been recorded within 2 hours of occurrence and by 24 hours 87% of all episodes had been recorded. The table below shows the number of emotions recorded by the subjects.

Table 11 The frequency of basic and complex emotions recorded by 16 male and 33 female students

	Male	Female	
Emotion type			Totals
Anger	15	28	(43)
Shame	3	12	(15)
Embarrassment	9	17	(26)
Jealousy	5	9	(14)
Totals	(32)	(67)	(88)

There were no significant sex differences in the mean number of emotions by sex. In proportion to the number of subjects of each sex it can be seen that male subjects reported more anger than shame or embarrassment, but both sexes were just as likely to experience jealousy, (13% and 16% for female and male respectively).

A significant sex difference was found in the expression of emotion. Of the total number of episodes recorded 52% of emotions were expressed in some way directly to others. The males in this sample were found to express their emotions more than women ($t = 2.5$, df 96, $p = 0.0073$). This might be due to men expressing anger more than women, as it is more socially acceptable for them to do so.

Shame and jealousy were only expressed in 13% of cases each compared with 51% of anger expressed and 22% of embarrassment expressed. From these figures it might be suggested that shame and jealousy are private emotions, involving an inner struggle to resolve the feeling, but that feelings of embarrassment may be better dealt with by opening up to others. In fact one way to "cure" embarrassment is to laugh at oneself, even in the presence others, and dismiss the significance of the event.

As to whether anything was resolved as a result of conveying ones feelings to others it was found that 46% of all emotions expressed were not resolved to the subjects satisfaction, but 42% were resolved. Shame, in 71% of occurrences, was not resolved. This reinforces the suggestion made earlier that shame is so private that the inner dialogue and strong

subjective nature of this emotion means that it is likely to stay with the individual long after the actual incident.

The complex emotions were just as likely to be accompanied by bodily sensations than the basic emotion of anger, although it is to be expected that there will be a greater range of differing bodily perturbations for anger than as for the complex emotions. See Table 12 below. For the purpose of presentation in this table embarrassment is substituted by 'Embarrass'. This also applies to subsequent tables.

Table 12 The total number of bodily sensations recorded for basic and complex emotions

	Number of sensations for each emotion				
	Anger	Shame	Embarrass	Jealousy	
Sensation					Totals
Tenseness	29	3	4	4	(40)
Trembling	8	2	3	4	(17)
Stomach	14	7	10	5	(36)
Heart	13	8	8	8	(37)
Sweating	10	3	17	2	(32)
Hot	3	3	4	0	(10)
Cold	3	2	1	0	(6)
Totals	(80)	(28)	(47)	(23)	(178)

From Table 12 it can indeed be seen that anger involves many more unspecific bodily sensations. Anger, a basic emotion, is synonymous with a greater range of bodily perturbations whereas the complex emotions, above, typically had two common sensations, those of heart rate increase and stomach cramps or butterflies.

The physiological accompaniments noted here were in keeping with data for anger presented in Studies 1 and 2 and they mirror other researchers' findings. (For comparison see page 58, Table 2 for the bodily sensations recorded by subjects in Study 1 and page 95, Table 6 for those in Study 2).

As well as comparing these two classes of emotion across various dimensions of bodily sensation frequency, it was hypothesized that an analysis of the durations of the two emotion types should produce differences between anger and the non-basic emotions.

There was, however, no significant difference in duration as a function of emotion type. The average duration of embarrassment was 1 to 5 minutes, a considerably shorter duration than anger which most commonly lasted from between 5 to 30 minutes. Shame and jealousy most commonly lasted for more than 30 minutes.

The implication may be that shame and jealousy are pertinent to an individual's plans and goals and provoke more brooding, since they also probably are threats to values held by the individual.

It was proposed that the antecedents of these emotions would differ in specificity, that anger would be triggered by non-specific and varied types of events as opposed to the complex emotions which carry propositional signals.

Table 13, below, illustrates the specific causes for the emotions recorded. The categories in this diary were as for all previous and subsequent versions of the diary and the range seems to cover most possible circumstances of antecedents to emotions. These results yielded a significant chi-square = 61.03 $\underline{p}$ = 0.0001.

Table 13 The antecedents of basic and complex emotions (figures given in percentages).

	Anger	Shame	Embarrass	Jealousy
Elicitor				
Other person	81	7	35	71
Self	7	67	50	7
Remembered	0	20	15	7
Imagined	0	0	0	14
Read etc	7	7	0	0
No cause	2.33	0	0	0
Other	2.33	0	0	0

From Table 13, above, it can seen that shame, embarrassment, and jealousy never occurred without a causal event but 2. 33% of cases of anger there was no identifiable cause.

Shame and embarrassment were on average most often the result of the subject's own actions or remembered actions. Table 13 suggests that those emotions that challenge the self-image are frequently remembered, perhaps indicating a difficulty in assimilating them. Anger and jealousy were triggered by the actions of others (81% and 71% respectively).

Oatley and Johnson-Laird (1987), state that basic emotions will be elicited by a set of recurring and recognizable events in relation to goals. In accordance with this principal the descriptions of the emotion situations given by subjects in their diaries were rated to establish if anger was experienced in response to the frustration of a goal. The situation descriptions for the complex emotions were rated to test the hypothesis that they were derived from; threats, losses, or noxious events. For this study an additional category of humiliation was added to the previously used categories. The sketches of the emotion situations were rated by one of the researchers who was not familiar with the actual emotion name given for each situation by the subjects.

Table 14, on the following page, shows the relationship between emotion type and generic elicitor.

Table 14 The relationship between generic elicitor and emotion type

	Anger	Shame	Embarrass	Jealousy
Generic elicitor				
Loss	5	23	4	36
Frustration	64	31	4	28
Threat	21	0	0	36
Noxious	7	15	0	0
Humiliation	2	31	92	0

These results yielded a significant chi-square result (chi-square = 91.529, $p = 0.0001$). These results also confirm the hypothesis that specific events tend to elicit specific emotions. According to Oatley and Johnson-Lairds theory, anger results when an active plan is frustrated. It was found that 64% of episodes of anger were caused by frustration. Embarrassment almost always resulted in humiliation. The fact that embarrassment did on occasions result from a loss or frustration suggests that there was some loss of face or self-esteem perhaps angering the embarrassed person.

Jealousy was never the result of humiliation or a noxious stimulus. Jealousy arose in situations where the individual might feel threatened or because someone else had what that individual didn't have. A threat to a plan or goal did not produce feelings of shame. It was surprising that feelings of shame resulted from a noxious stimulus. But if we look

closely at the descriptions given by each subject we can see that the shame either resulted from aspects of their own behaviour that they thought was inappropriate or the actions of known others that was in some way a disgrace.

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Discussion

It was intended that this study would contrast basic and complex emotions. It was expected that anger would be shown to be an emotion that could occur without one knowing why. The hypothesis was that embarrassment, shame and jealousy could never occur without the subject knowing why. This was found to be the case, and is thus contrary to the belief of Ortony and Clore who argue that people might say I have a feeling of embarrassment but don't know why. Embarrassment, however, was never said to occur when the subject was alone in response to the question in the diary "who were you with", so the case is strengthened.

The number of episodes of non-basic emotions was small - but if they occurred without an identifiable elicitor at the same rate as for basic emotions, two or three non-attributable episodes would have been expected. One episode of anger was reported to have occurred for no particular reason. Whilst this may seem a low figure it is comparable to the rate of non-attributable episodes of anger found in Studies 1 and 2

Further, the study of daily emotions in psychiatric patients (as will be described) show that emotions occur to them also without the individual knowing why.

Studies 1 and 2 also suggested that mixtures of emotions were common but that they depend on events that present a challenge to the individuals plans, and can give rise to

different interpretations.

The results suggest that these basic emotion modes in conjunction with the appropriate propositional signal can result in the experience of a more complex emotion, but that in this case people are always aware of some aspect of its causation.

Oatley and Johnson-Laird have suggested that complex emotions are the result of the elaboration of one of the 5 basic emotion modes by means of the propositional meanings that are ascribed to it. The propositional message is generally social and includes references to an internal model of the self.

In Oatley and Johnson-Laird's semantic analysis of emotion terms they propose that all emotion terms either refer to or can be derived from basic emotion modes - happiness/joy, sadness/grief, anger/irritation, fear/anxiety and disgust/hatred, or else to one or more such modes together with some propositional information. The physiologically accompaniments to these basic emotion modes are psychologically distinguishable.

Complex emotions cannot be experienced without consciously knowing what caused them since they involve an attention to the internal model of the self e.g. individuals feel embarrassed when they are consciously aware of themselves in a particular social situation when they feels that they are the victim of unwanted attention of others.

Complex emotions always occur at junctures in social plans (on examination of the descriptions from each subject this was substantiated) and they cannot therefore, by definition, occur without the person knowing why, even when the emotion is the result of a past event being remembered. (Jealousy, for instance in 71% of occurrences was the individual remembering the initial experience).

Therefore an individual must be consciously aware of both their own plans and goals as well as those of others, and must appreciate how events will effect the progress of these plans.

From the results it appears that eliciting circumstances seem to be specific to particular emotions. Anger appears to be caused primarily by the action of others and appears to be caused mainly by frustration. Shame was caused predominantly by the action of the self (67%), and 7% of the episodes of shame were caused by remembering some action or inaction on their part. The experience of shame, like embarrassment, requires attention to the self and subsequent self-evaluation. In order for this self-evaluation to occur there must be some propositional content. Thus shame could not result from a non-propositional signal and as a result cannot be regarded as a basic emotion.

Jealousy was caused mainly by the action of other people (71%), and 14% of incidents were due to something imagined. Jealousy seems to result from not only loss, but also from frustration. This illustrates just how important a propositional signal can be.

The relative duration of the emotions are shown to be consistent with the notion of them serving a communicative function by informing the individual that cognitive restructuring is required. The average duration of embarrassment was 1-5 mins. An embarrassing situation is likely to have little long term effects on your plans and goals, but is more of relevance to the image one projects to others. Embarrassing situations are best resolved quickly and this is usually the case in our own experience.

The average duration of anger was 5-30 mins and this allows adequate time to restructure plans and the relative importance of goals in the light of changing situation.

Both shame and jealousy lasted on average for more than 30 minutes. They are usually intense and last for a long period of time. Both results from self-evaluation and the evaluation of ones action in relation to others and mutual goals. Given their complex composition and the time taken to resolve the situation it is not surprising that they persist so long.

Criticism is also levelled at Oatley and Johnson-Laird by Ortony and Turner since they propose that there is no objective way to verify the validity of a set of basic emotions. It is very difficult to study subjective phenomena objectively.

It must be acknowledged that there can be certain influences in subjective study which can colour results but one would like to defend the use the diary by suggesting that it really is one of the best ways to ask about subjective information. Another point about the diaries should be made here. It is that the

subjects are given a choice of elicitors to tick and it may be a factor in human attributional style that there is an attempt to find a reason for the onset of emotions rather than say it, seemed to come from nowhere which implies a degree of irrationality on the behalf of the person and they would be reluctant to let it be known that they felt this way.

Studies 1 and 2 have shown that basic emotions are common, and other mixtures of two such emotions can occur. When I asked subjects to begin circling how sure they were that the emotion they had named in the diary belonged to one of the five basic emotion modes the average certainty that they did belong to the chosen category was 73%. This backs up the semantic analysis data from Oatley and Johnson-Laird (1990).

In conclusion, therefore, it can be said that complex emotions do not happen without the individual knowing why, but instances of anger can, (as can happiness, sadness and fear, as seen in previous studies) This supports the inclusion of anger in a set of basic emotion modes, and the exclusion of shame, embarrassment and jealousy.

The argument about basic emotion modes will still persist especially as to how many there should be, once one takes up the challenge and accepts that there are basic emotions. Perhaps those who are reluctant to exclude some emotions like desire or surprise should accept that there can be basic emotions modes whereas desires, sentiments, and passions as Frijda, (1986) suggests, are determined by their relative durations.

The findings of this study have relevance for the study of neurotic disorders where there is often the occurrence of non-attributable or so called "free-floating emotions". It is with this in mind, and with the intention to extend the application of the diary to a clinical sample, that I have proposed and carried out the study outlined to follow.

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CHAPTER 5

Studies 4 and 5

Testing the Diary on Some Applied Problems

Preface to Studies 4 and 5

The next step in my research was to apply the diary to some applied problems. These studies will illustrate the value of investigating emotions from an epidemiological perspective.

The first of these studies produced many important variables for the understanding of abnormal emotional experiences.

The second study shows how patients with alimentary canal complaints differed in how they handled anger and anxiety.

Study 4

Incidents of emotion recorded by a sample of psychiatric and non-psychiatric out-patients.

Synopsis

In Studies 1 and 2 the structured emotion diary was used to collect information on the occurrence of emotion in the everyday life of a sample of students and in a sample of employed people. The diary proved to be an invaluable way of gathering epidemiological information about emotions; and conclusions from the studies have implications for future study on the nature of emotional experience. In addition, they have presented the cognitive theory of emotions with a degree of support but also a challenge.

In this study the aim is to apply the methods used thus far to a clinical setting, to investigate daily emotional experiences in a sample of psychiatric patients suffering from non-psychotic disorders. These patients' emotions will be compared with those from a sample of non-psychiatric patients. Specifically, the aim is to study any differences in the frequency, duration, intensity and other more qualitative characteristics of emotion episodes between these groups.

As a supplement to the information contained in the emotion diary, each patient will take part in a semi-structured interview schedule. The aim of the interview is to provide a more detailed account of emotion episodes. The questions within the interview, as detailed earlier, cover areas such as the nature and duration of the thoughts during each distinct emotion episode; whether those same thoughts recurred later; whether the emotion experienced were associated with incidents from the patients' past; and most importantly

whether the patients understood their emotions. These last few elements were included as a result of feedback from piloting the interview and from discussions with colleagues.

It has been shown that psychologically disturbed patients recall over-generalized memories rather than specific memories associated with mood states (Williams and Broadbent, 1986). The aim here is to see whether this phenomenon will emerge when an actual emotion has been experienced.

It is proposed that the psychiatric patients will experience greater difficulty in understanding the extremes of emotions for which they are seeking treatment and their plans will be disrupted to a greater extent than non-psychiatric patients. In essence it is proposed that there will be both qualitative and quantitative differences in the emotions experienced by members of these two groups.

Introduction

One of the traditions of contemporary psychology is that behaviour can often be better understood by looking at the extremes, by investigating the causes and functioning of abnormal cases. This point of view has been very useful, as in the case of Freud's investigations, but it is not often that the complementary case is given attention. That is the chance to learn more about abnormal behaviour by looking at the frequent or normal case. Thus this study will not only investigate differences in patient samples but data from the preliminary pilot interviews with non-patients will be compared alongside data from the psychiatric patients so that we may be in a better position to understand the everyday emotional life of the psychotherapy patient.

Much research has taken place as to the nature of the emotionally disturbed patient. Much of the theorizing about emotional disorders has been based on consultations, observations and an obvious outward display of an inability to cope in many situations. The development of instruments to help diagnose psychiatric disturbance have also taken into account the information that the patients can tell us themselves about how they feel. I feel, however, that more could be done to help fully understand the confusion experienced by these patients on a day to day basis by asking them to keep a record of their emotions.

Beck and his associates have used diaries, specifically to investigate the elements of an emotion that the depressed

patient focused upon depending on the situational meaning (e.g. Beck 1976). Beck utilized two methods for recording emotions – recording emotions at intervals and/or asking for detailed accounts of particular emotion incidents. Here it is the intention to go rather further than this and ask psychiatric and non-psychiatric patients to record their daily emotion experiences.

The studies conducted by Brown and Harris (from 1978) have involved detailed interviewing of their subjects. These studies concentrate on particular large life incidents and their probable indication of ensuing psychiatric disorder. I feel that interviews are useful but in this study I extend the use of the semi-structured interview as an accompaniment to, and supplement of, the information contained in the diary to investigate day to day emotion incidents.

It is also proposed that if the psychiatric patients are unable to understand their emotions it may be because there seems not have been an identifiable eliciting event. It has been illustrated in Studies 1, 2 and 3 that emotions can occur without an acknowledged precursor. It is proposed that the psychiatric patients will report more emotions that have arisen for no particular reason.

At this point I would venture to suggest that having patients record their everyday emotional experiences will not only be a therapeutic practice for the patient but that we may come to know better why patients who are emotionally disturbed tend to over-generalize from events. I propose also that the use of a diary method akin to that contained herein could possibly be

of some help in getting psychiatric patients to focus on specific events, thus aiding therapy sessions.

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Subjects

For an adequate control group to that of the psychiatric patients it was decided that access would be sought to a group of out-patients also undergoing treatment, but this group would have a physical aetiology to their illness.

For simplicity and clarity, details of the two groups of patients in this study will be described in turn. Firstly the psychiatric patients: it had been proposed at the outset to have subjects from the following five sub-groups, [corresponding to five basic normal everyday emotions, happiness sadness, anger, fear and disgust] - hypomania, depression, paranoia or obsessive behaviour disorder, anxiety states and anorexia.

It was relatively easy to locate, in an out-patient sample, those who suffered from anxiety or phobic states and depression. However it was more difficult to locate people suffering from the other non-psychotic states mentioned. Most subjects, to a moderate level at least, could be qualified as displaying an inappropriate degree of anger and aggression, but the sample does not include any cases of subjects suffering paranoid delusions. It is with this in mind that anxiety and depression are paid closer attention.

Thirty-five patients were originally asked if they would take part in this study. From this number 21 patients completed all or part of the questionnaires given. Four of this number withdrew from the study having only completed the HAD

scale. Of the 17 patients remaining, one withdrew after recording only one emotion episode. He nevertheless answered the supplementary questions of the semi-structured interview on this single episode. Three other subjects, finding that there were too many pressures in their own life, could not give a full complement of 4 emotions but again cooperated in the interview with the episodes they had recorded.

Therefore, with 17 patients recording 4 emotions each the potential number of episodes for analysis should have been 68. In reality the actual number of recorded episodes was 61.

All of the subjects in the psychiatric group were attending either the Psychological Medicine Unit of the Southern General Hospital, Glasgow or their local Health Centre. The average age of these subjects being 34, range 19 to 54, making up a sample of 12 female and 5 male subjects.

The comparison group consisted of patients who were attending the Gastro-Intestinal Unit, of the Southern General Hospital, for an organically based disorder, (organic GI patients). For the purposes of this study I will call these patients the non-psychiatric group. Mean age 32, range 22 to 52, with 5 subjects being male and 10 female. The potential number of episodes of different types of emotion should have been 60 for this group, but the actual number was 59, with one patient recording three rather than four episodes.

Many of the patients attending Gasrto-enterology clinics have problems of the alimentary canal which are not of an organic aetiology, but are due to psychological mechanisms. As the

study required a comparison group of patients not suffering psychological dysfunction it was necessary to examine each patients' records to determine the correct aetiology, that is either organic or non-organic. This task was carried out by the consultant head of the clinic. From the original 30 subjects who agreed to take part 15 qualified for inclusion in the comparison group in this study as they had a definite organic aetiology for their illness. The astute reader will no doubt wonder that there could be some mood disturbance as a consequence of the severely restricting illnesses common to some attenders of a Gastro-Intestinal Unit. And indeed, yes, the consultant's diagnoses did refer to 3 patients having what was called a " non-organic component " to their illness. Nevertheless the diagnosis specified that psychological disturbance (anxiety or depression, for instance) was not the initial cause of the illness, so these three patients were retained in the comparison group.

Procedure.

Access to the patients in the psychiatric group was negotiated via the attendant psychologist for each patient. Providing the clinician judged the patient fit then he or she addressed the patient about the research.

In accordance with the judgements of the psychologist, each patient was assured that their family doctor had approved of this research (A copy of the letter distributed to local GP's can be found in Appendix 3).

Informed consent was sought from each participating patient, before their further involvement in the study. (A copy of the consent form can be seen in Appendix 3).

The patients in the comparison group, attending the Gastro-Enterology Clinic were approached while they awaited their appointment. It was found that asking patients before their consultation was by far the most productive method in yielding positive responses, as patients can wait at this particular clinic for up to 2 hours.

All participating patients were asked, as in the previous studies, to remember a recent episode of any of the five emotion types from the diary. In going through a mock episode the subject becomes comfortable in filling out the diary themselves at home.

Patients in both the psychiatric and non-psychiatric group (organic GI) were asked if they suffered any persistent pain in any particular part of their body which was of concern to them. If the answer to this was 'yes', then I discussed with the patient what type of pain it was and we agreed on a term which adequately described the pain.

This term or label was entered at the top of the pain-timetable. In the case of the non-psychiatric patients the pain term entered on the chart would be one which was a result of the illness for which they were being treated. Only instances of this "agreed" pain were to be recorded on the pain chart, to maintain consistency. All subjects were asked to indicate how many painkillers, if any, were taken to act on each pain attack,

and to record whether the pain had disturbed their sleep.

Subjects were asked to fill in the diary and pain time-table within 2 weeks of the initial meeting, if possible. Following completion of these questionnaires each patient answered questions in a semi-structured interview schedule, lasting approximately 45 minutes. Most of the psychiatric patients preferred the interview to take place in their own home rather than at the hospital or health centre they had been attending, so there was no real urgency for them and these interviews tended to last longer than the average time. The non-psychiatric patients, however, preferred to make their way to the hospital for the interview and being mindful of transport restrictions kept the interview going at a faster pace. .

None of the subjects who completed all diaries and questionnaires refused to take part in the interview. Contact by telephone, with each subject, was maintained throughout participation in the study. This allowed them to air any doubts about how to complete the diary and ensured that some pressure was exerted on the subjects to complete their diaries as quickly as possible.

The Hospital Anxiety and Depression Scale (HAD Scale) (Zigmond and Snaith 1983) was also administered to all patients.

An additional interview schedule was devised for use with the psychiatric patients only. The Psychiatric Symptom Interview (PSI) was adapted from questions contained in the Present State Examination the Diagnostic and Statistical Manual (DSM

III) and the Research Diagnostic Criteria. Please refer back to the section in Chapter 2 pages 33 to 46 which outlined the development and use of schedules, by the author, in these patient studies.

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RESULTS OF STUDY 4

Psychological and Pain Profile of Patients in This Study

The profile of the patients based on the responses from the HAD Scale, Psychiatric Symptom Interview and the Pain-Timetable will be presented first. Following this will be the analysis of the diary and the semi-structured interview.

Responses on the HAD Scale

The following Tables 15(a) and 15(b) indicate the prevalence of anxiety and depression among the psychiatric and non-psychiatric patients in this present study. Recall that there are three separate categories of score in for the HAD Scale. Under this classification system patients who score between 0 and 7 inclusive on either anxiety and depression are 'non-cases', those who score between 8 and 10 inclusive are 'doubtful cases' or 'borderline cases' and those whose score is between 11 and 21 inclusive are deemed 'cases'.

In the case of the psychiatric patients 21 completed the Hospital Anxiety and Depression Scale, (HAD scale), however 2 from this group declined to be involved any further in the research and the remaining 2 initially consented to take part, but later withdrew.

With respect to the non-psychiatric patients all 15 completed the HAD scale.

Table 15(a) Number of psychiatric patients with Anxiety and Depression states as determined by the HAD Scale.

Depression			Anxiety		
Non cases	Doubtful cases	Cases	Non cases	Doubtful cases	Cases
8	6	7	5	7	9

Table 15(b) Number of non-psychiatric patients with Anxiety and Depression states as determined by the HAD Scale.

Depression			Anxiety		
Non cases	Doubtful cases	Cases	Non cases	Doubtful cases	Cases
14	1	0	7	5	3

As one can observe from Tables 15(a) and 15(b), above the most striking difference in the psychological profile of these two groups of patients is that there are no cases of depression in the non-psychiatric patient group and only one doubtful case of depressive disorder. Anxiety disorder at case level is prevalent in both groups, about a third of the number of subjects in each group suffer from anxiety to a disabling degree.

Psychiatric Symptom Interview

In addition to using the HAD Scale it was decided that the psychiatric patients should be questioned further with a view to establishing the presence of other emotional disorders disorders, such as Hypomania, Paranoia or Obsessive Behaviour/Thoughts, or Anorexia Nervosa.

As mentioned earlier, the reason for including questions on these disorders was indeed a conscious one. The hypothesis was that Hypomania, Paranoia and Anorexia were the end point on a continuum representing at one end what we consider to be normal everyday emotions such as Happiness, Anger, and Disgust and at the other, extreme clinical forms of these normal emotions.

The Psychiatric Symptom Interview was administered only to the psychiatric patients, with their consent. All 17 patients completing all other questionnaires in this study were quite willing to be interviewed.

The figures below indicate whether the patient concerned did not present an aspect of either one of the three personality disorders - (0), whether that aspect was present to a moderate degree in the last month prior to the interview - (1), and as to whether the patient presented aspects of the disorder, again present within the last month prior to the interview, which would result in him or her to be considered to be at case level - (2).

The following table illustrates the number of patients reaching the case level, as well as those patients who were considered borderline cases and non-cases.

Table 16 Incidence of three Non-Psychotic disorders in 17 psychiatric patients

	Conditions		
	Anorexia	Paranoia	Mania
Case Level	1	3	5
Borderline	0	4	1
Non-Case	16	10	11

Pain-Timetable

Tables 17(a) and 17(b), below show the instances when pain was reported to have accompanied an emotion.

Table 17(a) Percentage incidence of pain recorded with emotion in the psychiatric sample

	Emotion Type				
	Happy	Sad	Anger	Fear	Disgust
Yes	13	20	28	53	67
No	87	80	71	47	33

Table 17(b) Percentage incidence of pain recorded with emotion in the non- psychiatric sample

	Emotion Type				
	Happy	Sad	Anger	Fear	Disgust
Yes	26	20	29	60	67
No	74	80	71	40	33

The incidence of pain was far greater in the non-psychiatric patient group than in the psychiatric. This could be expected owing to the nature of the former groups illnesses. (e.g.

Colitis, Croans Disease).

There were nevertheless instances where the psychiatric group reported that they experienced pain during, or as result of, an emotion. In the results section of this study it is indicated that pain can be the actual antecedent of an emotion.

As can be seen from Table 17(a) and 17(b) (above), there were cases of patients experiencing pain on the day they were filling in an episode of a particular emotion. This table does not imply that the pain was the cause of the emotion in psychiatric patients but it might indicate the degree to which psychological disturbance can result in tension and pain in muscles.

It was the case that the psychiatric patients most often complained of a headache pain, whereas the non-psychiatric group had complaints that were almost exclusively abdominal. It is likely that the origin of the pain is different in these two groups, with pain often being the cause of emotion in the non-psychiatric group whereas pain in the psychiatric group could be labelled psychogenic in nature.

The results presented here are only meant as a profile of the patients from responses in the additional questionnaires used, to give the reader a perspective on the nature of the samples. A full account of possible differences and similarities is given in the analysis of the emotion episodes to follow.

Analysis of Emotion Episodes

Below is an analysis of emotion episodes as recorded in the diary. Some data from elements of the interview schedule will also be presented here. In the section following this I will deal specifically with interviewing about daily emotions, and try to distinguish what may separate normal from abnormal emotional experiences. Thereafter I will review the results in the light of the hypotheses proposed, previous research and suggest directions for future research.

The psychiatric group took an average of 8 days to complete their diaries compared with the non-psychiatric group who took 12 days. The difference in the groups can be attributed to there being 2 subjects in the latter group who took 58 and 44 days respectively to finish their diary. Taking both groups together, 13% of all emotion episodes were recorded within one hour of occurrence, and 83% of all emotion episodes were recoded within 24 hours of occurrence.

Table 18 on the following page indicates the frequency of each emotion type occurring in the psychiatric and non-psychiatric (organic GI) groups. In this study, as in Studies 1 and 2, anger and happiness, were the most common emotions experienced, with 29% of episodes being of happiness, and 32% of episodes being of anger. Although there were no significant differences in the frequency of emotion types between the two patient groups, (chi-square = 3.558, p = 0.469), the psychiatric group did experience more episodes of anxiety

Table 18 Frequency of emotion episodes in a sample of 17 psychiatric and 15 non-psychiatric patients

	Number of episodes of each emotion		
	Psychiatric (n = 17)	Non-psychiatric (n = 15)	
Emotion type			Totals
Happy	15	19	(34)
Sad	5	10	(15)
Anger	21	17	(38)
Fear	15	10	(25)
Disgust	3	3	(6)
Totals	(59)	(59)	(118)

The average intensity of these emotions in each group was as follows. For the psychiatric patients the mean for happiness was 73%, for sadness 80%, anger 74%, fear 78% and for disgust 97%. The mean for each emotion for the non-psychiatric group, presented in the same order was, 83%, 72%, 75%, 73%, 83%. The average intensity over four emotions for each subject was calculated in both the non-psychiatric group and the psychiatric group and an independent t test was carried out. But no significant difference was found, ($t = 1.459$, $df = 16$, $p = 0.082$,).

There was a significant difference in the duration of all four emotions between the psychiatric and non-psychiatric patients (chi-square = 13.838, p = 0.0541). It was found that 32% of all emotions in the non-psychiatric patient belonged to the category "less than 30 minutes". In contrast, only 10% of the episodes in the psychiatric patients belonged to this category. For the latter sample it was found that some emotion episodes, (2%), belonged to the category "greater than one day", but none of the episodes in the non-psychiatric group were reported as belonging to this category.

It was found that 86% of all episodes involved a bodily sensation, that all emotion episodes but one were accompanied by persistent thoughts, and that 99% were accompanied by an emotional act or an urge to act emotionally.

Tables 19(a) to 21(b), on the following page, illustrate these three elements. We can thus compare the two groups' across physiological accompaniments, persistent thoughts and actions.

Table 19(a) Frequency of specific bodily sensations in 17 psychiatric patients

	Number of bodily sensations for each emotion					
	Happy	Sad	Anger	Fear	Disgust	
Sensation						Totals
Tenseness	0	1	15	5	2	(23)
Trembling	5	2	3	6	3	(19)
Stomach	3	2	10	10	1	(26)
Heart	5	1	5	10	2	(23)
Hot/Sweaty	2	1	2	7	2	(14)
Cold	1	1	1	3	0	(6)
Dizzy	0	0	0	2	0	(2)
Nauseous	0	0	0	0	0	(0)
Totals	(16)	(8)	(36)	(43)	(10)	(113)

Table 19(b) Frequency of bodily sensations in 15 non-psychiatric patients

	Number of bodily sensations for each emotion					
	Happy	Sad	Anger	Fear	Disgust	
Sensation						Totals
Tenseness	4	4	12	2	2	(24)
Trembling	0	1	1	2	1	(5)
Stomach	8	5	4	9	1	(27)
Heart	4	2	3	4	0	(13)
Hot/Sweaty	1	0	5	5	0	(11)
Cold	0	4	0	2	0	(6)
Dizzy	0	0	0	0	0	(0)
Nauseous	0	0	0	0	1	(1)
Totals	(17)	(16)	(25)	(24)	(5)	(97)

If we compare the figures from Table 19(a) and 19(b), above, the psychiatric patients have reported experiencing almost twice as many bodily sensations in episodes of anxiety. This difference, however, not significant (Mann-Whitney, U = 107.5, when p = 0.05, with critical value being 64).

Tables 20(a) and 20(b) show the frequency of actions reported by each subject for each emotion.

Table 20(a) Frequency of actions reported by 17 psychiatric patients

	Happy	Sad	Anger	Fear	Disgust	
Actions						Totals
Talking	13	0	6	4	1	(24)
Expressing	10	2	10	8	1	(31)
U/mcloser	2	1	0	0	0	(3)
U/aggress	1	1	4	1	2	(9)
U/wdraw	0	1	3	5	0	(9)
A/touch	6	0	0	0	0	(6)
A/aggress	0	0	3	0	1	(4)
A/wdraw	2	2	9	3	0	(16)
Totals	(34)	(7)	(35)	(21)	(5)	(102)

Table 20(b) Frequency of action type reported by 15 non-psychiatric patients

	Happy	Sad	Anger	Fear	Disgust	
Actions						Totals
Talking	15	3	9	3	0	(30)
Expressing	14	6	10	5	1	(36)
U/mcloser	2	3	1	1	1	(8)
U/aggress	0	0	4	1	1	(6)
U/wdraw	0	1	4	0	0	(5)
A/touch	6	1	0	0	0	(7)
A/aggress	0	0	3	0	1	(4)
A/wdraw	0	2	2	3	1	(8)
Totals	(37)	(16)	(33)	(13)	(5)	(104)

From a comparison of Tables 20(a) and 20(b) the only observable differences between the two groups is in the actions performed as a result of experiencing sadness and fear.

It can be seen that for sad episodes the psychiatric group reported less actions, but this difference was not significant as the value obtained was greater than that of the critical value (Mann-Whitney, U = 81.5, when p = 0.05, with the critical value being 64). There were more actions reported by the psychiatric group in episodes of fear, but again this difference was not significant (Mann-Whitney, U = 107.5, when p = 0.05 with critical value being 64).

Tables 21(a) and 21(b), below, show the thoughts accompanying each emotion reported by the subjects. It can be seen from the total in the 'Other' row that the diary did not have sufficient criteria to cover the nature of thoughts experienced by all of the subjects. This is where a semi-structured interview is invaluable in as much as that it allows the subject to elaborate what they have recorded in their diary and to extract information not covered by the diary.

Table 21(a) Frequency of thought type reported by 17 psychiatric patients.

	Number of emotion episodes					
	Happy	Sad	Anger	Fear	Disgust	
Thought type						Totals
Past events	5	3	8	5	0	(22)
Longing	4	3	1	0	0	(8)
Future	5	0	3	12	1	(21)
Dread	0	0	0	0	0	(0)
Revenge	0	0	3	0	1	(4)
Other	4	1	8	3	1	(17)
Totals	(18)	(7)	(23)	(20)	(3)	(72)

Table 21(b) Frequency of thought type reported by 15 non-psychiatric patients.

	Number of emotion episodes					
	Happy	Sad	Anger	Fear	Disgust	
Thought type						Totals
Past events	5	8	0	5	0	(15)
Longing	1	3	7	3	2	(1)
Future	10	5	4	6	1	(23)
Dread	0	0	0	0	0	(33)
Revenge	0	0	0	0	0	(10)
Other	9	1	8	1	0	(60)
Totals	(25)	(17)	(19)	(15)	(3)	(142)

From Tables 21(a) and 21(b), above, we can see for patients suffering from a psychological disorder that thoughts of the future or imagined events lay behind their episodes of fear, whereas the non-psychiatric patients thoughts focused on the future were more often of a more positive nature signified by the higher number of episodes of happiness in the "imagined" category.

When interviewed each patient was asked if thoughts in connection with each emotion episode returned later that day or the next, and it was found that recurrences of thoughts occurred in 64% of all emotion episodes in the psychiatric

compared with a 45% rate of re-occurrences in the non-psychiatric group. This difference was found to be significant (chi-square = 4.145, p = 0.0418).

There were, however, no significant differences in the duration of these recurring thoughts for all four emotions, (chi square = 4.302, p = 0.5068). But I do feel it is worth highlighting that 64% of recurring thoughts connected with episodes of anger were reported by the psychiatric patients to have lasted as long as twelve hours or more, but for the non-psychiatric group the recurring thoughts of anger were reported to have subsided after one hour. It was also apparent that 50% of recurring thoughts on a specific episode of sadness were still present for up to 12 hours or more in the former group, compared with only 33% in the non-psychiatric group.

Related to this was the discovery that in 39% of episodes of all emotions the thoughts were so persistent that the psychiatric patients found it difficult to sleep. Whereas in the non-psychiatric patient group this occurred in only 17% of episodes. This difference was found to be significant (chi-square = 7.109, p = 0.0077).

Half of the episodes of all types of emotion were attributed to 'other peoples' action or inaction'. Only 13% of emotion episodes were attributed to the subjects themselves doing or not doing something. With the psychiatric patients, 11% of emotions were attributed to something imagined compared with only 5% in the non-psychiatric group. It was also found necessary to include pain as a trigger of emotion episodes in the non-psychiatric sample. Pain as a precursor of emotion

was only included if it was specifically pointed out by the patient. A pain category should be considered an inclusion in future versions of the diary with similar samples.

The non-psychiatric patients attributed 11% of their emotion episodes to the onset of pain.

It was also found that there were a number of episodes occurring for no particular reason. The overall occurrence of non-attributable emotions in both samples was 10%.

Tables 22(a) and 22(b) on the following pages show the frequency of antecedent triggering emotion episodes in each sample.

Table 22(a) Frequency of antecedents of emotion episodes in 17 psychiatric patients

	Number of emotion episodes					
	Happy	Sad	Anger	Fear	Disgust	
Elicitor						Totals
Other person	10	1	14	4	2	(31)
Self	2	1	3	2	0	(8)
Remembered	0	2	1	1	0	(4)
Imagined	2	0	1	3	1	(7)
Read	0	0	0	0	0	(0)
No cause	0	1	1	4	0	(6)
Other event	1	0	1	1	0	(3)
Totals	(15)	(5)	(21)	(15)	(3)	(59)

Table 22(b) Frequency of antecedents of emotion episodes in 15 non-psychiatric patients

	Number of emotion episodes					
	Happy	Sad	Anger	Fear	Disgust	
Elicitor						Totals
Other person	7	7	12	2	0	(28)
Self	5	0	1	1	1	(8)
Remembered	1	1	0	3	0	(5)
Imagined	2	0	0	1	0	(3)
Read	1	0	0	0	0	(1)
Pain/Illness	0	1	2	2	2	(7)
No cause	2	1	2	1	0	(6)
Other event	1	0	0	0	0	(1)
Totals	(19)	(10)	(17)	(10)	(3)	(59)

Classification of the emotion situation descriptions was carried out. The raters of these situations were trained and given general principles, by which to rate the situations, as constructed by myself and Keith Oatley, (see pages 88 to 91 for principles). The raters were, of course "blind" to the actual emotion experienced by each subject. In this study it was the more detailed descriptions from the interview that were chosen rather than those from the diary itself. All emotion situations from both groups of patients were rated. These ratings were cross-tabulated with the actual emotion recorded by the subjects. These results can be viewed in Table 23 below.

Table 23 Generic elicitors as a function of emotion type in combined psychiatric and non-psychiatric groups

	Frequency of elicitor type for each emotion				
	Happy	Sad	Anger	Fear	Disgust
Generic elicitor					
Achievement	25	1	4	3	0
Loss	4	8	4	3	0
Frustration	1	3	18	3	2
Threat	2	1	4	11	1
Repellant	0	0	2	1	2

There was a high inter-rater agreement as to the generic elicitor for each emotion situation: 72%. For personal reasons a number of patients did not give a description of the event. As a consequence the term unclassifiable was assigned. There were no instances of communicated emotion. As can be seen from Table 23 there is, with a few exceptions, a direct relationship between emotion and the generic elicitor. This result was significant (chi-square = 100.371 p = 0.0001), and one that was expected on theoretical grounds.

Although more episodes of emotion were said to be detrimental to the plans made by the psychiatric group, there were no significant differences between the groups as to whether emotions affected plans (chi-square = 1.075, p = 0.5842). The effect of emotion episodes on plans is indicated in Table 24 below.

Table 24 Whether plans were affected by emotion as a function of group (figures displayed as percentages)

	Psychiatric (n = 17)	Non-psychiatric (n = 15)
Help	15	22
No effect	42	42
Worsen	42	35

Table 25 below illustrates that in 33% of all episodes the psychiatric patients criticized themselves and turned the incident around to hold a negative view of themselves, compared with 17% in the control group.

Table 25 Effect of emotion on self-image as a function of group (figures are given as percentages)

	Psychiatric (n = 17)	Non-psychiatric (n = 15)
Positive	21	29
Negative	33	17
No difference	46	54

Of all episodes of emotion types 27% were said to contain elements that the psychiatric patients did not understand. Miscomprehension of emotion in the control group was evident in only 5% of all emotion episodes. Table 26, below, shows this difference and this difference was found to be significant (chi-square = 4.2, p = 0.05).

Table 26 Whether the emotion experienced was understood as a function of group (figures are displayed as percentages)

	Psychiatric (n = 17)	Non-psychiatric (n = 15)
Yes	73	95
No	27	5

The phenomenon of current emotion incidents sparking off memories of past events was evident in 67% of episodes of all emotion types in the psychiatric patient group but in only 39% of emotion episodes for the non-psychiatric group (see Table 27(a) below).

Thus the rate of associations was significantly higher for the psychiatric patients than for the GI patients at 39% (chi square 9.4, $p < 0.01$).

Table 27(a) Whether the emotion experienced brought to mind associated incidents as a function of group
(figures displayed as percentages)

	Psychiatric (n = 17)	Non-psychiatric (n = 15)
Yes	67	39
No	33	61

Since the rate of associations was higher in the psychiatric group, I decided to breakdown the results into the respective emotion types to see which emotion state was more likely to have sparked off memories of past event in these patients. Tables 27(b) (on the following page) shows that for the psychiatric patients all episodes of sadness and 71% of episodes of anxiety sparked associations with past events.

This preponderance of associations with past events is an important result and could have implications for the treatment of depression and anxiety. I will return to this issue in the discussion.

Table 27(b) Whether the emotion experienced brought to mind associated incidents as a function of emotion type in the psychiatric patients
(figures displayed as percentages)

	Emotion type				
	Happy	Sad	Anger	Fear	Disgust
Response					
Yes	66.67	100	57.14	71.43	66.67
No	33.33	0	42.86	28.57	33.33

Discussion

Implications of results

It was proposed that the psychiatric group would differ in their experience of emotion in everyday life in various ways. Although there were no significant differences in the frequency of emotion types the psychiatric patients reported more episodes of anger and fear. What was also suggested by the intensity scores from each patient was that the psychiatric patients reported experiencing a more intense feeling of sadness than the non-psychiatric patients, with the minimum value assigned to the sad episodes being no lower than 70%. A tentative suggestion is that although the psychiatric patients reported fewer episodes of sadness than the non-psychiatric group, the minimum intensity was so high because the psychiatric group experienced a depressive state that differed qualitatively from the sad episodes of the GI group. The non-psychiatric patients' responses on the Hospital and Anxiety Scale showed no cases of depression so what they were expressing in the diary were emotions that did not have such serious implications.

It was expected that the psychiatric patients would experience anxiety that would be of a longer duration than experiences of anxiety in the non-psychiatric patients. Strangely enough, however, all episodes of anxiety recorded by the psychiatric patients had subsided by 12 hours, but episodes of anxiety in the non-psychiatric group were reported as lasting longer than 12 hours.

An interesting finding was that more episodes of anxiety, (47%), were said by the psychiatric group to have recurred later, whereas this only happened in 30% of episodes in the non-psychiatric group. A similar pattern is seen in the reporting of whether the episodes of anxiety kept the patients awake at night. In 33% of episodes of anxiety the psychiatric patients reported that their anxious thoughts had kept them awake. This compares with only 20% of episodes of anxiety in the non-psychiatric patient group. It may not therefore be that patients with anxiety disorders will necessarily experience more episodes of anxiety that are of a longer duration and more intense. But it may be that case that psychiatric patients experiences of anxiety may differ qualitatively from those experienced by non-psychiatric patients.

It was also found that the psychiatric patients experienced many more bodily sensations for anxiety than the non-psychiatric patients. This information can be supplemented by the comments from the patients themselves who said that they often felt particularly ill or weak inside, and exhausted after emotions like anger and anxiety.

There were also significant differences in the duration of the actual emotion episodes and the nature of the recurring thoughts about the emotion that proved to be more disruptive to the psychiatric patients with many reporting a disturbed nights sleep as a result of their rumination.

It may seem strange that the non-psychiatric group (organic GI) had thoughts of longing or yearning accompanying episodes of anger and disgust. Such thoughts are usually

reserved for our loved ones and for unattainable things in connection with happy or sad episodes. In a sense this group does have something unattainable and that is a pain free day. These patients suffer when an attack of their particular illness takes over and several patients described a longing to be rid of the pain and to lead a 'normal' life.

What is striking is that despite their pain the non-psychiatric patients still looked forward to future events predominantly more than the patients of the psychiatric group. In fact the latter experienced more thoughts of the unknown resulting in episodes of fear, perhaps affirming that they experience greater non-specific anxiety states then the non-psychiatric group.

When we look at specific actions as a result of emotions, there are no differences between the groups in the overall picture. In both groups anger, happiness and fear had the most actions accompanying them. What was particularly noticeable from the figures contained in the tables above (Tables 20(a) and 20(b), pages 165 to 166) was that for episodes of anger the psychiatric patients reported that they actually withdrew into themselves or from the situation rather than confront the issue. Perhaps this would explain the sudden explosive outbursts reported by these patients in the Psychiatric Symptom Interview. Anger held within only to be released in a destructive manner is not constructive.

In relation to this, it was found that some episodes of anger were causing confusion for the psychiatric patients.

It was necessary to include a category of pain and illness as the antecedent of emotion experience. There were no instances of emotions being elicited by pain from the psychiatric patients but they did often experience pain with emotions. The pain was usually located in the back of the neck or head, typically being tension headaches induced by worry over, and misinterpretation of, bodily perturbations and accompanying anxiety.

It was found that there was a significant relationship between emotions and goal-relevant events. That is that achievement of goals, or maintenance of an ongoing positive situation did, as predicted, lead to happiness being experienced that the loss of a valued goal led to sadness and so on. However, again it was found that there were a few exceptions to this general rule in that the frustration of a goal often leads to episodes of sadness rather than anger. Similarly loss occasioned episodes of happiness and achievement also lead to fear.

Mixtures of emotion were very common in both groups. More than half (58%) of the psychiatric patients were sure that they had experienced more than one emotion. Similarly 44% of the non-psychiatric patients commented they had experienced a mixed emotion. The issue of mixtures will be addressed again in the section to follow.

Alternation of emotion types was also common in both groups. That is to say, the initial emotion was to later change into another emotion type in 35% of cases of all episodes of emotion from the two groups.

Strangely enough episodes of happiness in the psychiatric group were more stable (ie, did not result in another emotion being experienced later) than those of the non-psychiatric group.

The non-psychiatric group spoke of being determined to beat their pain and illness, and were more inclined to appreciate and respond to positive events than the psychiatric patients. There is no doubt here a parallel in these profiles with theories which exist to explain the perpetual concentration by depressed and anxious patients on negative past events. It would seem that the psychiatric patients are confronted with many everyday experiences which they view as negative even when the event is relatively minor, and they sink into self reflection and self-absorption.

The psychiatric patients were significantly more likely to have associations with past incidents and emotions in response to current experiences. This is a pleasing result as it was a phenomenon found with previous research. Williams and Broadbent (1986) have studied autobiographical memory in patients who have taken a deliberate overdose of drugs. In addition to mood congruent memory bias in latencies, they found that these patients tended (as a first response to cues) to retrieve inappropriately general memories. In a replication of findings from these researchers, Williams and Dritscel, (1988) proposed that over-general recall may be caused by disturbed mood at the time of retrieval, and that recent events and circumstances could effect memorial processes let alone affective disturbance. The use of the interview to supplement the diary facilitated the chance to explore this phenomenon in

patients with a psychological disorder. It was found that the psychiatric patients were indeed displaying over-general recall, probably influenced by the bad experience they were relating to the researcher at the time. This was not seen in the non-psychiatric group to any degree, and in fact they were often very specific in details about an associated previous event.

If, as these findings suggest, psychiatric patients have differing encoding procedures, then there are implications for the approach of therapy for these patients.

Williams and Dritscel admit that changes in memory strategies that take place within a psychotherapy session are unlikely to have lasting benefits unless the patient is using the strategy outside the realms of the therapeutic situation. This argument is rather like that against the use of token economy therapy which does not prove to be successful in changing behaviour in the long-term or carry on outwith the institution unless a programme of weaning off the token "props" has been implemented.

If patients are, firstly, confused as to why their emotion has occurred and secondly fail to fully understand their feelings it suggests that they may have difficulty in interpreting the relevance of an event for their concept of self and future plans and goals.

I would like to reinforce the suggestion (also inherent in several kinds of cognitive therapy) that the way forward for therapy would be in breaking through this network of over-generalization and negativism by forcing the patient to focus

on and record specific events in their daily life, so that therapy sessions can include acknowledgement of these experiences.

Indeed some of the patients themselves commented that they found the diary therapeutic and on occasions reiterated events recorded therein to the therapist at their next consultation.

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Interviewing about incidents and the question of abnormal emotions

Before I examine the data received from interviews conducted thus far it should be said that more studies such as these should be undertaken, and that the implications of the results presented here are preliminary.

Before presenting extracts from two interviews with psychiatric patients I feel it would be constructive to give details of two of the pilot study trials to illustrate the nature of the responses one can receive from a semi-structured interview schedule. These pilot studies were very useful in two respects. Firstly they revealed errors in question construction, but more importantly they led to the inclusion of several new elements on the nature of emotional experience. One was that present emotion incidents sparked off memories of past significant events and the other the discovery that there can be secondary feelings in relation to a particular event. For example, one subject commented that she felt guilty about her aggressive behaviour towards her children.

In this section I hope to demonstrate that by examining responses from subjects who were not undergoing any treatment for a physical or psychological disorder will highlight better what it is about emotions in psychiatric patients that is abnormal. The reason for not using the non-psychiatric (Organic GI) interviews as a comparison here will become apparent later.

The first pilot interview was conducted with a female student, aged 20, whom for the purposes of this exercise I will name Abigail. The following illustrates her responses given as the result of feeling anger/irritation (with an intensity rating of 70%) when she and her boyfriend argued about preferences for different kinds of music. The initial argument lasted two and a half hours. There were recurrences of anger for three days, and it kept her awake at night for three nights. Her description of the cause was "Not being able to get through to him." Thoughts included "Is this going too far? If it goes too far, it [the relationship with the boyfriend] would end." Without prompting, Abigail said that the argument "reminded her of an ex-boyfriend", and made her "wonder if it [the relationship] was worth it." The comparison with her ex-boyfriend made her not like the current friend, and make her think that he had faults. Then she felt guilty at having such feelings, and thought she was pressing him too hard. She thought she should take a step back and think about it as a way of calming down, then thought she was partly to blame. Her behaviour included sarcasm, cutting remarks, being withdrawn and sulking — followed by attempts at reparation, like making coffee for him. She felt that her anger was inconsistent with her view of herself, that one should not have such feelings. She did not properly understand the emotion, because she thought of herself as "a person who would not be irritated by someone with a different opinion". "There was a kernel of something that lowered my estimation of myself on some kind of internal scale."

The second pilot interview was conducted with a divorced woman of 44, who was a social worker. She had recorded an

episode of disgust in her diary and chose to elaborate on various aspects of this emotion for the interview. This woman I will call Beatrice. The disgust, she said, was mixed with anger. It occurred when an elderly woman she was visiting, started coughing up phlegm and gurgling, "It was horrible". The feeling was brief, lasting only five minutes, but quite intense (80%), during which she knew she was clenching her teeth and feeling nauseous. These responses she rated as 90% in severity. Again, just as Abigail had done, she said, without any prompting, that the incident reminded her that her ex-husband used to make a noise like this, which had always angered her. Beartice believed, "He did it to get on my nerves." About the old woman, she thought: "She is not doing it to annoy — she is poor and helpless." Her thoughts on the emotion were that she should not be having this emotion, because the old lady was in need, and not doing it deliberately. She thought that if she were doing this kind of job with elderly people: "I should be able to cope. I thought of being taken off this job." She had secondary emotions too: anger about old people being left in this state, like her mother when she died, which was unfair. And she felt guilty about feeling disgusted. She thought she did not care enough about this old lady. She too did not understand her emotion fully: she did not understand why the sound disgusted her so much. She knew it was associated with her husband, but could not understand why it should make her feel ill.

From these extracts come several issues that have an important bearing on the cognitive theory of emotions. The first is that of the preponderance of mixtures of emotions. If mixtures of emotions are common, then some of the mixtures

that are reported in the diary studies may be due to a primary emotion caused by some goal-relevant event, plus a secondary emotion about the primary one. In this case, mixtures were seen to be present for emotions about which there is some taboo— like anger and disgust.

Guilt and some regret were associated with the emotions as described by the subjects during these pilot interviews. In Studies 1 and 2 mixtures of emotions were evident, but it is only now with the use of the interview that we can see just why they may occur.

Secondly, both these women were very articulate about their emotions, and in both cases there was an unprompted reminding of a previous incident of emotion. This in turn prompted the researcher to include this element in all further interviews. This was displayed by the psychiatric patients in this study to a greater extent than in their comparison sample. But, Abigail and Beatrice have also been shown to have displayed mood dependent memory. This feature displayed by these women is not unusual as it has been shown by Linton in her studies of autobiographical memories (1982) that some incidents can be remembered as incidents, without much assimilation to semantic memory and hence without the loss of individuality.

Thirdly, the ready access to memories of past emotion incidents implies that the incidents are indexed under emotions, as suggested by Conway (1990). The retrieved emotions have several effects. In these examples they served

to elicit a series of thoughts of comparison between the remembered incident and the current one, and to induce reflections on action and future plans. Mood-dependent memory has been documented widely in psychopathological cases, and proposed as a primary mechanism for prolonging depressed and anxious mood by bringing to mind memories of threat and personal loss which in turn help to induce further anxiety and despair (see e.g. Blaney, 1986). But what the responses from the women in the pilot interviews show is that mood dependent recall is not exclusive to pathological conditions and thus can not always help to distinguish normal from abnormal emotions. Moreover what it does do is serve to elicit memories of comparable incidents so that present incidents can be understood in relation to past events. Although these women may not have fully understood their thoughts and actions they had an ability to think about the current situation and how to plan their course of action. Thus for Abigail, the reminding allowed her to think about what action she should take about her relationship: should she end it now, or should she try to become more allowing of differences with a person with whom she was intimate. For Beatrice, the incident both prompted some thoughts about getting herself transferred to another job, and — perhaps more significantly — prompted reflections on questions of looking after others, and what was involved in this for herself and more generally.

The implication of this is that the hypothesis that emotions are functional may be enhanced. As it can be seen current incidents bring to mind incidents from the past that elicited the same emotion. These remembrances then provide

relevant material for planning that is consistent with one's view of self. They also provide material for personal reflection in ways that may change one's model of self.

In determining what it is about abnormal emotions that makes them pathological I will compare the responses given above in the pilot interviews with two incidents from the psychiatric patient sample. The first from an out-patient attending the Manic-Depressive Clinic of the Southern General Hospital, Glasgow, and the second from another out-patient of the same hospital who suffers from agoraphobia.

The first patient, whom I will call Celia, aged 37, was depressed and scored 14 on the HAD depression scale. The emotion started when, as she, says she was "Getting tea ready and just felt lonely and neglected. Nothing really happened". Celia rated the feeling at 80% intensity, and it lasted for four hours. Thoughts recurred for a whole day, and kept her awake that night. Her thoughts were: "I'd no-one to share my life with. Husband is preoccupied with his own interests. We don't have anything in common. There is nothing to look forward to. Husband is not interested in me. He'd been put away for a year [in prison]. But he's not changed in any way. He still doesn't bother with me". Her thoughts about herself were that she "Felt used. Fed up just hanging around house, not being treated as a woman or a wife". Associations with the past were that she remembered, "how good it had been in the beginning, but once trouble started, husband and I grew apart. How much better it was when he was out of my life, in jail." One urge was to move closer to her husband, and touch him. But she also started thinking about plans to leave him: "Now I

know I really should leave. Starting to think about it again." As to whether she understood the emotion, she said she did partly, because it was familiar, but partly she did not understand it, in that she was confused about how to sort out problems at home, and felt lethargic and lonely.

At first inspection there seems to be nothing to suggest this emotion is abnormal. The non-psychiatric patients experienced episodes of sadness that matched this in terms of intensity and duration. Celia could be said to be sad because of a sense of loss of intimacy with her husband, to whom she used to feel close, and because of the seeming impossibility of doing anything about the problem. If there is something pathological in this emotion, it is in the duration of the feelings of hopelessness, confusion and lethargy. Her expectations of her husband have changed significantly and with it her role within the family. There is no sense here that Celia actually has the drive to really do anything about this situation even if she wished to. Celia's thought processes are quite different from, for example, those of Abigail who assesses her situation in terms of whether she should perhaps leave her boyfriend or in fact examine her own behaviour to see if alterations were required. It is thus evident that Abigail's thought processes are more definite and are directed towards some form of action.

The second extract comes from a woman whom I shall call Deborah, with a diagnosis of agoraphobia, and a score on the HAD anxiety scale of 18. The incident was described by her as irritation, a type of anger. It was rated at 90% intensity, and it lasted 10 hours. She had been hoping to go out

shopping, "but again felt nervous, then felt angry and irritated with myself for having to be supervised like a child", [in order to go out]. I wish I could go to the shops myself". There was fear mixed with anger in the emotion, she experienced first one and then the other. Her thoughts were that she "misses out on so much. If I could just forget all the nonsense about being scared, and just go out. Having to depend on people all the time does not make me feel any better either. I worry that I will have no-one to look after me soon if aunt dies, or moves away. I get angry with myself at not being able to look after myself, of not being able to do more with nieces and nephews". About herself, she knew that she should be thinking more positively. Her secondary emotions included a "sense of inferiority" (rated at 90% intensity). The incident reminded her of other times she was unable to go out. Her future planning was affected: "When I have a bad day it takes twice the effort the next day," and then she feels worked up. Her actions included sitting down and crying hard. She does not fully understand the emotions: She said, "I can't figure out why I can't make it out and go somewhere. I know how to go about doing it."

Here are the rather typical thoughts and feelings of an agoraphobic person — fear, anger at self, a sense of inferiority. The thoughts and feelings recorded in this single incident are enough to make a diagnosis.

The concentration on what might happen is intense and compounds the worry she has about what others think about her. The core element that defines this as an emotion that can be regarded as abnormal is the degree of disablement for

Deborah. It is a disablement that she is fully aware of and it only serves to reinforce her feelings of inferiority and shame because she fails to understand why she cannot conquer her fear. The abnormality here — what makes this emotion itself characteristic of a clinical anxiety state — is that the fear of what might happen if she goes out is abnormally compelling so that it causes disablement.

Clearly both Celia and Deborah are aware of their hopeless situations and the disablement to their lives but both seemed trapped and lack direction and are confused by their action or inaction. Thoits (1985) did in fact propose that a defining condition of psychiatric syndromes was that patients should label their emotions as abnormal. This can be translated to mean that psychiatric patients would more often find they could not understand aspects of their emotions. From the data it can be seen that it was indeed the case that the psychiatric patients had more incidents of emotion that they did not understand completely than the non-psychiatric patients. But how can it be said that it is lack of comprehension of emotion that distinguishes abnormal from normal emotions when miscomprehension of emotions was found in the non-psychiatric patient sample and in the two women in the pilot study?

There seem to be two possible explanations for this. One is that the first two incidents above from the pilot study may have been unrepresentative for normal subjects, in that both Abigail and Beatrice were especially thoughtful about their emotional life. The fact that they questioned their actions does not mean that they are experiencing an abnormal

emotion, but rather that if they were reflecting more deeply on their emotions, it could be expected that they would find aspects difficult to understand. The main point, also, is that Abigail and Beatrice did not experience the degree of 'disablement' that the psychiatric patients clearly did.

Another explanation is that patients with organic gastro-intestinal pathology were a less suitable comparison group for this kind of study than was first reckoned. One hypothesis about many kinds of organic gastro-intestinal disorder (e.g. ulcerative colitis) is that its aetiology and maintenance derives from anxiety that is suppressed — or somatized. This idea, together with these results, suggests that suppression might consist of avoiding any reflection on incidents of anxiety. Perhaps the patient will not report any difficulty in understanding if not much attempt to understand is made. This question deserves further study.

There is another result that may contribute to understanding how psychiatric patients are different from normal people and that is the high frequency of reported current events that sparked off memories of past incidents. The rate of associations for each emotion incident with some event from the past, was higher for the psychiatric patients than for the comparison group. In addition to this the recall from the psychiatric patients was of a general nature, describing how they felt in a situation from the past and dwelling on negative aspects. This finding lends support to the hypothesis that moods bring depressogenic and anxiety provoking episodes to mind in psychiatric patients (e.g. Blaney, 1986; Teasdale, 1988). This finding also illustrates that even at this early

stage an interview schedule is valuable, but the subject has to be able to begin from some reference point in order to recall associations with past events. Consequently I would suggest that the study of everyday emotion has to be approached from an epidemiological point of view

Chains of connection of current incidents of emotion to incidents and emotions in the past might profitably be investigated. In particular, what needs to be investigated (as suggested by George Brown, personal communication, in discussing these results) is whether the incidents of emotion in current life might connect with large and severe life events in the past, or with especially significant incidents in the past. If so this would signify a new way of approaching the old ideas that emotional traumas continue to have effects (cf. Scheff, 1979) by conferring on each new incident of emotion a particular kind of interpretation that might then become more troublesome or problematic for the sufferer.

A further point should be considered in understanding how abnormal emotions may differ from normal experiences, and that is that constant rumination about an incident was more evident in the psychiatric patients than in the non-psychiatric patients. In fact this often led to many sleepless nights for the psychiatric patients. When sleep loss was reported by the non-psychiatric patients it was due mostly to the onset of symptoms of their illness. Constant thoughts and rumination about an event that has passed has been identified as an indication of emotional disturbance following a traumatic experience. Janis and Mann (1977) noted that this pattern of behaviour, which they call "hypervigilence", is not necessarily

confined to the aftermath of traumatic experiences but is a marked feature of stress and the threat of having to make important personal decisions. Since the psychiatric patients in my studies reported confusion, disturbed sleep and an inability to take charge of their lives then we should consider this an important differential in distinguishing abnormal emotional functioning from normal everyday emotions.

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Conclusion to Study 4

It was hypothesized that there would be qualitative and quantitative differences in emotions between the psychiatric and the non-psychiatric patients. However, there were no significant differences between the groups as to intensity and frequency of emotions, although there was a trend suggesting that the psychiatric patients experienced more episodes of anxiety.

There were three other important findings of this study. These were (i) that psychiatric patients reported that they had difficulty in understanding their emotions, (ii) displayed more mood dependent recall of past events, and (iii) viewed themselves negatively.

In this study two ways of asking people about their emotions have been used, the diary and the interview. It has been shown that the interview not only supported the diary but also allowed many theoretical issues for the study of emotions to be raised.

The earlier reference to the suggestion by George Brown - that the events that are recalled during an emotion may be significant life events, will be addressed in the final study. In this study of hatred and disgust, I ask the subjects to evaluate whether they consider the past event which comes to mind to be a significant event in their emotional lives.

Study 5

Incidents of emotion recorded by patients attending a Gastro-Enterology Clinic.

Synopsis.

It is hypothesized that differing patterns of emotions will be identified between organic and non-organic gastro-intestinal patients. It is proposed that there will be a greater frequency of anxiety in the latter group and perhaps an indication of anger denial in the former. Findings such as these would tend to confirm conclusions of a previous study (Hough 1988) which has suggested that there are differences in non-verbal behaviour of organic and non-organic patients, a feature which can often help doctors make tentative diagnoses on first meeting a patient to discuss the history of their illness, as to whether the patient has complaints which are consistent with a primarily organic aetiology or consistent with psychogenic processes.

The incidence of pain, will be cross-tabulated with the occurrence of emotions. This will be done by using a pain-chart, which each patient filled out as they completed their diary.

Introduction

Before I begin here I should point out that when I refer to doctors I mean specifically, for the purposes of this study, only those doctors who work with patients attending Gastro-Enterology clinics.

Some aspects of the communication of emotion will be presented first and then I will outline an experiment which led me to utilize the diary to explore the daily emotional episodes of patients attending a gastro-enterology clinic.

As the incentive to carry out this study was based partly on the tentative assumption that clues to the aetiology of gastro-intestinal problems could be observed in the overt behaviour and emotional reaction of the patient themselves I feel a brief explanation of the means by which emotion can be communicated is warranted, and how patients verbal and non-verbal behaviour is an important tool for the doctor in his evaluation of the patient he or she is interviewing.

The face-to-face communication of emotion involves at least two individuals: the sender and the receiver. According to Buck (1984) the sender process starts with a motivational/emotional state. This state is transformed into an appropriate facial expression by a central encoding mechanism which is located in the central nervous system. The described process is 'prewired' and, depending on the specific emotional state of the sender, it results in different facial expressions such as a happy or an angry display. It is

not necessary to argue this point now but merely to use this aspect of the communication of emotion to highlight an important qualifier to this prewiring of facial expressions. As Ekman has noted (1972, Ekman and Friesen, 1975), the final overt expression, (which in Ekman's terminology is initiated by a 'primary affect programme'), is also influenced by 'display rules' which involve previously learned and cultural rules governing how to manage the display. The important factor here is that of display. So much of our interactions with others involves the display of emotion or mood and to make an interaction proceed smoothly we usually try to read these signals in others and react accordingly to them.

So it is clear from this and from what we experience ourselves that communication of emotion to others is not only done by verbal means. Clues to another person's emotional state can also be indicated by non-verbal behaviour, and it would seem that elements of verbal and non-verbal behaviour can occur consciously or unconsciously. In a conscious effort to deceive others, facial expressions can be important if one wishes to effectively mask true feelings. An over-cheerful face perhaps may actually be a cover for a person who is at that time feeling particularly anxious. Furthermore, not only can facial movements be manipulated to deceive, but altering bodily posture can give false signals. Just as there can be manipulation of elements of communication, these very same elements can prove useful in detecting the over-anxious patient from the relaxed patient. The behaviour of patients is often peculiar. The more attention the patient wishes, the more inclined they would be to exaggerate symptoms, and perhaps the doctor unwittingly takes this at face value and

thinks there is something seriously wrong.

However, if there is a genuine confusion about particular pain sites the behaviour of the patient may be better understood. Experienced doctors often say that they feel they know when they are dealing with an anxious patient. In the gastro-enterology clinic anxiety often takes the form of presenting pains as large, diffuse and disabling - patients perhaps being keen to let the doctor know how bad they are

Let me now explore some of the studies which have sought to highlight certain aspects of emotion communication and how they help to identify the mood of the person one is interacting with. The work of Ekman and Friesen (1967) showed how important a role non-verbal behaviors play in situations where the communicator is either unwilling or unable to express his or her feelings explicitly. Observational studies show that facial expression, bodily movements and posture are signals emitted by a person during conversation which may help to identify distress or distortion.

The avoidance of eye contact in an interaction has been linked to a variety of emotional reactions, including anxiety or tension (Argyle and Dean 1965). When these negative emotions are experienced, the avoidance of eye contact may be used to minimise the individuals discomfort. Knapp, Hart and Dennis (1974) found that when subjects were deceiving they spent significantly more time in fidgety behaviors, used fewer words and spent less time making eye to eye contact with their interviewer. Deceivers showed behaviors indicative of uncertainty, vagueness, nervousness, and reticence.

The Behaviour of Gastro-Enterology Patients

It is generally recognized that about half of the patients seen in a Gastro-Intestinal Unit complaining of abdominal pain or other intestinal tract pains are not suffering from an organic disease. Their symptoms are due to disorders of gut functions generated by psychological mechanisms, and thus these patients are said to be suffering from non-organic disorders. These patients are not malingerers. They do have pain complaints but the causes are related to psychological mechanisms rather than primarily to organic pathology.

The question then is that would it be possible to differentiate those who are suffering pain with a probable organic etiology from those patients with a non-organic etiology before intrusive and expensive investigative procedures have been carried out? If so, this would save time and resources, as well as allowing alternative methods of treatment to be adopted to treat the non-organic patients, rather than taking them down the road of lengthy medical investigation only to frustrate them by telling them there is no physical cause for their symptoms. It would be far less distressing for patients if doctors could inform the patient, prior to investigations, at least from their own experience, that the patient may possibly require treatment of a psychological nature, that is, treatment which consists of therapy from a psychologist and/or psychotropic drugs.

In fact some doctors do gain sufficient experience to be confident that the patient they are interviewing will turn out to

have a non-organic aetiology as opposed to an organic aetiology. Of course dismissing patients after an initial assumption or hunch from the doctor is not enough: more investigation is still relevant and needed. But if doctors can be trained to be more attuned to the reactions of their patients during this history taking period they may be able to guide the patient more easily into understanding the origins of their pains.

It is generally assumed by experienced doctors, although it is not an absolute, that the non-organic patients can be identified as such because they give more unconvincing, often dramatic, accounts of their complaints. During the consultation they are often restless, exhibiting much body movement and face touching. They describe pains with exaggerated movements and facial grimaces and do not seem to maintain eye contact with the doctor, (Crean 1990 personal communication). These are signs which could prove to be useful for the doctor.

The study by Hough (1988) examined this issue. Her emphasis was that the training of doctors and medical staff should be aimed at recognizing patients with psychologically based medical problems. The supposition tested therein was that non-medical observers will be able to distinguish non-organic from organic disorders simply through the observation of non-verbal behaviour of patients during history taking.

Videotapes of the consultations with doctors were shown to two groups, without sound so that only behaviors were rated.

One group did not receive any information on what particular behaviors to look for to distinguish the non-organic patients from organic patients. The experimental group was trained for a short time prior to presentation of the video segments on what behaviors to look for to aid them in separating subjects into organic and non-organic. Given that Dr. Crean and his colleagues suggest that there are certain behaviors indicative of an anxious patients, the raters were given a list of behaviors incorporating these which included lack of eye contact, and exaggerated hand movements over body when indicating where the most pain was felt.

The results of this study did not prove significant in that the raters who had had previous training did not have an advantage over non-trained raters:- they were no more accurate at assigning patients to either groups. Hough did make the point that the non-trained people may be drawing on their own knowledge of behaviors which may be indicative of a more unsure, anxious patient, and that the pre-video presentation training should perhaps have been more thorough. Hough also suggests that it could have been useful to run a similar study but with sound to accompany the non-verbal signals, to determine whether the complete non-verbal and verbal display would make discrimination easier for the informed observer.

Therefore, although there was no evidence of overt difference between the two groups of patients demonstrated in Houghs study, the clinical phenomenon of doctors being able to make hypotheses as to the existence or otherwise of organic pathology was sufficiently strong to warrant further

investigation of whether patterns of anxiety and or other emotions could be distinguished in the two groups of patients. Prompted by this and the knowledge that pain complaints which are psychosomatic may be indicative of possible mood disturbance, such as clinical anxiety states and depression I wished to extend the research done thus far by examining the daily emotions experienced by patients of these two groups. If the physician's observations suggest different coping styles in these patients then one may be sure that if daily emotions are recorded by these patients, using the diary method, then differing patterns of emotions will be evident.

Specifically, differences in two particular emotions are hypothesized: anger and anxiety. It is proposed that non-organic patients will experience more anxiety which will be of a disabling nature.

Further it is proposed that the organic patients will describe a pattern of behaviour consistent with anger denial or ineffectual expression and/or control of anger.

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Questionnaires Used

A diary identical to that used for the study with psychiatric patients was used.

As with the previous study the Pain-Timetable and Hospital Anxiety and Depression Scale together with the semi-structured interview schedule were used. No amendments were made to any questionnaires.

Subjects

The subjects in this study were selected at random from attenders of the Gastro-Intestinal Clinic at the Southern General Hospital, Glasgow. A total of 48 subjects were approached, of which 30 were willing to take part. The 15 subjects already used as controls for the previous study formed the organic patient group in this study. The remaining 15 subjects had been diagnosed as non-organic patients. The average age of patients who took part was 35, range 19 to 59. The average age of the organic patients alone was 32, range 22 to 52, (5 male, 10 female), with the average age of non-organic group being 36, range 19 to 59, (3 male, 12 female).

Of both groups, 18 were married, 9 were single and living with parents, 1 lived alone in a flat, 1 shared with friends, and 1 was a single parent.

The total number of episodes to be analysed from 30 subjects filling in diaries was 117, not the full complement of 120, with two subjects failing to fill all of their diary.

Procedure

As outlined in the previous study, waiting until patients had seen the doctor to approach them about the possibility of being involved in this research was not conducive to a good response rate as they can wait up to two hours before being seen by the doctor. Patients were more responsive while awaiting an appointment. All subjects who were called prior to their appointments are taken to another area of clinic to have their weight checked. The researcher approached subjects in this annexe to the main waiting area. The seats were arranged around the four walls. Seating arrangements such as in this annexe ensured that there was no bias in subject selection. Rather than choosing patients with whom on first observation I may be able to relate to I began with the first patient to my left as I approached this room and continued in a clockwise direction until each patient had been asked.

Signed consent was sought from all participating subjects. They were taken through a "mock episode" of emotion to guide them in filling in the diary and asked to fill in the Hospital Anxiety and Depression Scale whilst in the waiting area.

A term defining what kind and location of pain each patient suffered was agreed upon and entered at the top of the pain-timetable, with instructions to subjects to fill in the appropriate boxes only when they had an occasion of this agreed pain.

Wherever possible, the semi-structured interview took place no later than 2 weeks after presentation of the diary to each subject. Again subjects were encouraged to complete their diary by frequent phone calls to check on their progress.

All but 2 interviews were conducted in the gastro-intestinal clinic. The two interviews not carried out in hospital were conducted via the telephone due to severity of illness in these patients. (The 2 came from the organic group). The format of these interviews by telephone were not changed in any way from those conducted face to face.

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RESULTS OF STUDY 5

Profile of Patients Based on Hospital Anxiety and Depression Scale and Pain-Timetable

The profile of the patients from their response on the HAD Scale and the Pain-Timetable will be presented first. The results on the analysis of the emotion episodes will then be presented. I will refer to some aspects covered by the semi-structured interview, but leave a more full analysis of the responses from the interviews for the discussion section.

Results for the organic group of patients were presented in the previous study when these patients were used as controls to the psychiatric patients. But these results will be reiterated here for proper comparisons to be made with the non-organic patients.

It needs to be said again that some of the patients in the organic group (3), were said to have a "non-organic" component to their illness, but the defining characteristic of this group is that they have an essentially organic pathology.

Hospital Anxiety and Depression Scale

An indication of the differences between groups with regard to psychiatric symptoms can be seen from their scores on the the Hospital Anxiety and Depression scale (HAD, Zigmond & Snaith, 1983). Remember that a score of 11 or more on the sub-scale for either anxiety or for depression indicates

caseness.

Tables 28(a) and 28(b) below indicate the mood of patients attending the gastro-intestinal clinic as assessed by the HAD Scale.

Table 28(a) Number of organic patients with Anxiety and Depression States as determined by the HAD Scale.

Depression			Anxiety		
Non cases	Doubtful cases	Cases	Non cases	Doubtful cases	Cases
14	1	0	7	5	3

Table 28(b) Number of non-organic patients with Anxiety and Depression states as determined by the HAD Scale

Depression			Anxiety		
Non cases	Doubtful cases	Cases	Non cases	Doubtful cases	Cases
12	2	1	5	3	7

As can be seen, by comparing the figures of these tables, the organic GI patients 3 reached caseness on the anxiety scale and none on the depression scale. There are more cases, (7), of debilitating anxiety states in the non-organic patient group. It thus follows that this group would perhaps experience anxiety more frequently, and of greater intensity than the organic group patients. The daily emotions experienced by each subject as recorded in their diaries will be examined to see if there is indeed a higher incidence of anxiety in the non-organic group.

Pain Profile

Organic patients pain complaints were almost exclusively abdominal in nature, with only 4 cases of back pain accompanying abdominal pain. The non-organic group are set apart by the fact that they have non-specific locality for their pain. That is that they often complained of back, abdominal, chest and headache pain. It was thus difficult to come to an agreed pain term with these patients. In the end they defined their most intense most frequently experienced pain as abdominal, but they commented that tension headaches, stiffness in the neck and back pain were common. In the organic group, however, there was never any dispute as to the area of their body where they experienced pain. It was entirely focused in abdominal region, with specific details as to whether it was low or high abdomen.

Doctors often face this picture from patients at the clinic. It is suggested that in common with other chronic psychogenic pain patients, where there is doubt as to there being a physical basis for the pain, these gastro-intestinal patients are vague about their symptoms in the sense that they tend to see the pain as having a "shifting" locality and they have multiple pain complaints.

Thirty percent of non-organic patients labelled their pain experiences as severe in intensity compared with 20% of organic patients. In keeping with this figure the average duration of pain for the organic group was 5 hours and for the non-organic group 9 hours. Furthermore 15% of non-organic patients said their pain prevented them from sleeping compared with only 7% of organic pain patients. Clearly there are differences in the evaluation of pain in these two groups.

If one looks at the occurrence of emotion coinciding with each emotion type recorded (cross-reference from the pain-timetable and diary), it is seen that in 53% of episodes of anger in the non-organic patients pain is said to have been experienced at the time of the episode and following cessation of the emotion, compared with 29% of episodes of anger in the organic patient group. It can be said therefore that the onset of pain in these two patient groups has a different origin. That is, anger is an important factor in the origin and maintenance of pain for the organic patients, but in the non-organic patients it is anxiety.

Frustration and depressed mood are common responses from non-organic GI patients to the advice that a change in lifestyle and diet are needed to combat pain: a solution to a problem these patients find difficult to accept.

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Analysis of Emotion Episodes

If we take an overview of the results at this point it can be seen that there are not as many differences between the groups as was expected. However there is enough evidence to suggest that the hypothesis that there would be differences in the way anger and anxiety would be handled by each group is in part substantiated.

The average number of days to complete recording of four episodes of emotion was 11.8, range 2 to 58. (The latter, very high figure, was due to a patient suffering a recurrence of symptoms of colitis, 'disabling' her for some time). Of the 30 patients 23 had completed the diary within 10 days, with all interviews taking place within 2 weeks of completion of the diary.

Once again the use of the diary method allowed early recording of characteristics of emotion episodes, with 27% of all emotion episodes being recorded within 2 hours of occurrence, and by 24 hours 94% of episodes of all emotions occurring had been recorded.

Of these incidents 77% were accompanied by a bodily sensation, all but one episode was accompanied by persistent thoughts, making concentration on anything else difficult, and 95% of all emotion episodes were accompanied by an emotional act, or an urge to perform an emotional act.

Table 29, below, illustrates the frequency of all five types of emotion between groups.

Table 29 Number of episodes of each emotion type in the organic and non-organic patients

	Number of episodes of each emotion		
	Organic	Non-organic	
Emotion type			Totals
Happy	19	13	(22)
Sad	10	8	(18)
Anger	17	19	(36)
Fear	10	16	(26)
Disgust	3	2	(5)
Totals	(59)	(58)	(101)

There were no significant differences in the frequency of different types of emotions between the two groups although there were more episodes of anxiety in the non-organic group, as hypothesized and they experienced fewer episodes of happiness, (chi-square = 3.035, p = 0.552).

In this study as in all others previously carried out there were few episodes of disgust/hatred. In some of the results that follow this emotion will be excluded from any comparisons

between the two groups, because of the small numbers.

The overall average intensity of all emotion episodes for both groups was similar; in the organic group it was 76% and in the non-organic group it was 77%. The average intensity of each group of four emotion types reported by each subject was calculated to obtain one value for each subject. The figures for each subject in the psychiatric group were compared to those for the non-psychiatric group and an independent t test was carried out. There was no significant difference in the scores between the groups ($t = 1.467$, $df = 14$, $p = 0.3599$).

It should be pointed out however, that the average intensity of sad episodes that were reported by the non-organic patients was 84% with the intensity value never being placed below 60%, whereas the average intensity of sad episodes as experienced by organic patients was 72%, with the minimum value as low as 20%.

Although this result does suggest that the non-organic patients in this sample reported experiencing sad episodes with a greater intensity than the organic group this difference was not significant ($t = 0.486$, $df = 14$, $p = 0.317$).

Tables 30(a) below illustrates the effect of emotions on patients self-image. The non-organic patients reported feeling negative about themselves in almost twice as many episodes of all emotion types. It was found that this difference was significant (chi-square = 6.952, $p = 0.0309$). The non-organic patient group reported more negative self implications than the organic patient group for all emotions except disgust.

Table 30(a) Self-Perception as a function of group type. (figures given in percentages)

	Number of episodes for each group	
	Organic	Non-organic
Response Type		
Positive	17	7
Negative	10	19
No difference	32	32

On examining this difference further to determine which types of emotion led to more negative feelings, it can be seen from the following Tables 30(b) and 30(c) that the non-organic patients did not report as many instances of positive feelings along with their episodes of happiness. Of the episodes of happiness only 5 resulted in the patients feeling positive and secure about themselves, whilst the organic patients reported 13 episodes of happiness as having positive implications for their self-image. It can also be seen that situations which led the non-organic patients to experience anger or fear had a greater detrimental effect on their self-image when compared to the organic patients.

Table 30(b) Self-Perception as a function of emotion type in 15 organic patients

	Number of episodes of each emotion					
	Happy	Sad	Anger	Fear	Disgust	
Response type						Totals
Positive	13	3	0	1	0	(17)
Negative	0	2	3	3	2	(10)
No difference	6	5	14	6	1	(32)

Table 30(c) Self-Perception as a function of emotion type in 15 non-organic patients

	Number of episodes of each emotion					
	Happy	Sad	Anger	Fear	Disgust	
Response type						Totals
Positive	5	1	0	1	0	(17)
Negative	0	3	6	10	0	(10)
No difference	8	4	13	5	2	(32)

Although the organic group reported more occasions of positive feelings during happy episodes than the non-organic patients this difference was not significant as the value

obtained was greater than the critical value (Mann-Whitney, U = 77.5, when p = 0.05, with the critical value being 64).

Tables 31(a) and 31(b), (below and on the following pages) show the frequency of bodily sensations for each group by emotion type.

Table 31(a) Frequency of bodily sensations accompanying emotion episodes in the organic GI patients

	Frequency of sensation type for each emotion					
	Happy	Sad	Anger	Fear	Disgust	
Sensation						Totals
Tense	4	4	12	2	2	(24)
Trembling	0	1	1	2	1	(5)
Stomach	8	5	4	9	1	(27)
Heart rate	4	2	3	4	0	(13)
Hot/Sweaty	1	0	5	5	0	(11)
Cold	0	4	0	2	0	(6)
Dizzy	0	0	0	0	0	(0)
Nauseous	0	0	0	0	1	(1)
Totals	(17)	(16)	(25)	(25)	(5)	(88)

Table 31(b) Frequency of bodily sensations accompanying emotion episodes in the non-organic GI patients

	Frequency of sensation type for each emotion					
	Happy	Sad	Anger	Fear	Disgust	
Sensation						Totals
Tense	0	2	11	4	1	(24)
Trembling	0	1	0	2	1	(5)
Stomach	2	4	6	9	1	(27)
Heart rate	1	1	3	3	1	(13)
Hot/Sweaty	0	0	0	2	1	(11)
Cold	0	0	0	0	0	(6)
Dizzy	0	0	0	0	0	(0)
Nauseous	0	0	0	0	0	(1)
Totals	(17)	(16)	(25)	(25)	(5)	(88)

From Tables 31(a) and 31(b) the only substantial differences between the two groups can be seen to be with regard to their experiences of happiness and sadness. The organic GI patients reported experiencing more sensations during episodes of happiness and of sadness than the non-organic GI patients. Bodily sensations for the non-organic group were primarily associated with dysphoric emotions. More bodily sensations were reported by the organic patients for happiness. Anger and fear in both groups have the most bodily sensations associated with them. The most common of

which were tension, an increased heart rate, butterflies or stomach cramps and hot and sweatiness. It was decided to employ the use of a non-parametric test, the Mann-Whitney, to establish whether there was a significant difference in the number of bodily sensations associated with happy episodes and then with sad episodes between each group. However in both cases the differences were not significant.

The greater number of bodily sensations for happiness in the organic patients was not significant as the value obtained was greater than that of the critical level (Mann-Whitney, $U = 73.5$, when $p = 0.05$, with the critical value being 64).

The greater number of bodily sensations for sadness in the organic group was not significant (Mann-Whitney, $U = 85.5$, when $p = 0.05$, with the critical value being 64).

Tables 32(a) and 32(b), (on the following pages) show the frequency of thought category reported by each subject of each group:

Table 32(a) Frequency of thought type reported by the organic GI patients

	Frequency of thought type for each emotion					
	Happy	Sad	Anger	Fear	Disgust	
Thought type						Totals
Past	5	8	0	5	0	(18)
Future	1	3	7	3	2	(16)
Longing	10	5	4	6	1	(26)
Dread	0	0	0	0	0	(0)
Revenge	0	0	0	0	0	(0)
Other	9	1	8	1	0	(19)
Totals	(25)	(17)	(19)	(15)	(3)	(79)

Table 32(b) Frequency of thought type reported by the non-organic GI patients

	Frequency of thought type for each emotion					
	Happy	Sad	Anger	Fear	Disgust	
Thought type						Totals
Past	0	1	1	3	0	(5)
Future	3	3	3	6	1	(16)
Longing	4	1	1	1	1	(8)
Dread	0	2	0	3	0	(5)
Revenge	0	0	3	0	0	(3)
Other	6	2	11	2	1	(22)
Totals	(13)	(9)	(19)	(15)	(3)	(59)

From these tables it can be seen that neither group had thoughts of revenge or of dread in connection with episodes of happiness. This is expected from our experience of happiness. Patients with an organic diagnosis have more thoughts of longing in connection with all episodes of emotion types whereas the non-organic patients persistent thoughts of all types are clustered under anxiety. This is what one could have expected in the light of the responses from the Hospital Anxiety and Depression Scale. There are many more categories or types of thoughts than were given in the diary itself. This is again why it was felt that an accompanying

interview schedule proves useful, especially if patients were unsure about which category their thoughts patterns belonged to.

Tables 33(a) and 33(b) show the frequency of actions performed as result of each emotion type:

Table 33(a) Frequency of action type reported by the organic GI patients

	Frequency of action type for each emotion					
	Happy	Sad	Anger	Fear	Disgust	
Action						Totals
Talk	15	3	9	3	0	(30)
Expressing	14	6	10	5	1	(36)
U/mcloser	2	3	1	1	1	(8)
U/aggress	0	0	4	1	1	(6)
U/wdraw	0	1	4	0	0	(5)
A/touch	6	1	0	0	0	(7)
A/aggress	0	0	3	0	1	(4)
A/wdraw	0	2	2	3	1	(8)
Totals	(37)	(16)	(33)	(13)	(5)	(104)

Table 33(b) Frequency of action type reported by the non-organic GI patients

	Frequency of action type for each emotion					
	Happy	Sad	Anger	Fear	Disgust	
Action						Totals
Talk	8	0	10	3	1	(22)
Expressing	9	2	11	7	1	(30)
U/mcloser	4	0	0	0	0	(4)
U/aggress	0	0	5	0	0	(5)
U/wdraw	0	0	0	0	0	(0)
A/touch	4	0	0	0	0	(4)
A/aggress	0	0	1	0	0	(1)
A/wdraw	0	7	7	8	0	(22)
Totals	(25)	(9)	(34)	(18)	(2)	(88)

Again the main differences between the two groups can be seen in the episodes of happiness and of sadness. The non-organic group reported fewer actions performed for these emotions. This difference in number of actions for sadness and was however not significant (Mann-Whitney, U = 86, when p = 0.05, with the critical value being 64).

The difference in the number of actions for happiness was also not significant (Mann-Whitney, U = 81, when p = 0.05, with the critical value being 64).

There was also a consistent pattern of withdrawing from situations in the non-organic patients group. Both groups reported that they were talking, shouting, or noticed exaggerated expressions in the case of anger. But perhaps it is that the way anger is handled subjectively that most differences will lie. This issue raised here will be addressed further in the sections to follow, when the responses given by each subject during their interview schedule will be examined closely and an outline of the way anger is handled by both groups of patients will be presented.

Although there were no significant differences in the duration of emotion episodes between the two groups, the non-organic patients experience of anxiety lasted longer; as long as 24 hours (19% of all episodes of anxiety): whereas all episodes of anxiety in the organic group had subsided by 12 hours after onset (chi-square = 8.054, p = 0.3209).

Tables 34(a) and 34(b), on the following pages, illustrate the frequency of antecedent or causes of emotion as chosen by each group of patients:

Table 34(a) Antecedents of emotion episodes reported by the organic GI patients

	Frequency of antecedent for each emotion type					
	Happy	Sad	Anger	Fear	Disgust	
Elicitor						Totals
Other person	7	7	12	2	1	(29)
Self	5	0	1	1	0	(7)
Remembered	1	1	0	3	0	(5)
Imagined	2	0	0	1	0	(3)
Read, seen	1	0	0	0	0	(1)
No cause	2	1	2	1	0	(6)
Pain/illness	0	1	2	2	2	(7)
Other	1	0	0	0	0	(1)
Totals	(12)	(3)	(5)	(8)	(2)	(30)

Table 34(b) Antecedents of emotion episodes reported by the non-organic patients

	Frequency of antecedent for each emotion type					
	Happy	Sad	Anger	Fear	Disgust	
Elicitor						Totals
Other person	6	2	15	2	0	(25)
Self	4	0	2	4	0	(10)
Remembered	0	0	1	2	0	(3)
Imagined	0	2	0	2	0	(4)
Read, seen	0	2	0	0	0	(2)
No cause	2	1	1	1	0	(5)
Pain/illness	0	0	0	5	1	(6)
Other	1	1	0	0	0	(2)
Totals	(13)	(8)	(19)	(16)	(1)	(59)

Both patient groups are in agreement that most emotion episodes occur due to the action or inaction of other people. From these tables it can be seen that of the total number of episodes of happiness (32, adding totals of both groups together), 41% were said to be triggered by the action or inaction of another person, in most cases this person being the subject's' partner, children, or friend(s). Twenty-eight percent of episodes of happiness were attributed to the subjects' own actions. The non-organic patients response to their illness was more often anxiety than in the case of the organic patients. Again it was found that emotions can occur

when there does not seem to have been any identifiable eliciting event. In this study 9% of all episodes of all types of emotion were said to occur for no particular reason.

Mixtures of emotions were common in both groups, with 44% of all episodes of all emotion types being mixed with another emotion. All episodes of anger in the organic group remained stable and did not break down later into another emotion, suggesting anger of a nature that is unresolved. Seventy-nine percent of episodes of anger in the non-organic patient group changed in type. There were no instances of happiness and anger occurring simultaneously, a result that was apparent in Studies 1, 2 and 4.

There were no significant differences between the two groups as to whether the emotion episodes were understood (chi-square = 0.574, p = 0.4486). However by breaking the result down into individual emotion types it was found that the organic subjects reported that in 18% of cases of anger they did not understand the intensity of the emotion or why they had reacted the way they did compared with that of 5% of all episodes of anger in the non-organic group.

As hypothesized it was found that, in episodes of anxiety, the non-organic group reported a degree of confusion as to why they should feel so anxious (19% of all episodes of anxiety). It was also the case that the recurring anxious thoughts frequently led to sleepless nights.

There were no significant differences between the groups as to whether emotions affected plans (chi-square = 1.35, p = 0.271). Happiness helped the patients' plans as one would have expected. Sadness, anger and anxiety all had a detrimental effect on subjects plans: 62%, 37%, 62% of all episodes of these emotions respectively in the non-organic group; 60%, 41%, and 50% of all these emotions types respectively with regard to the organic patients.

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Discussion

Observational studies and accounts from doctors in gastro-entorology clinics suggested that there were identifiable differences in the behaviour of organic and non-organic GI patients. Taking up this proposal this study sought to explore this possibility further thorough investigation of the daily emotions of organic and non-organic patients.

One did not expect that there would be vast differences in all types of emotion between organic and non-organic patients since this was a fairly homogenous sample with the same types of pain complaints. But it was hoped that there would be differences in the nature of their experiences of anger and anxiety.

It was proposed that there would be differences between the organic and non-organic patients specifically concerning two emotions, anger and anxiety. The results of this study substantiate that hypothesis to some extent, with quite a number of other surprising findings. It was the case that the non-organic group experienced more episodes of anxiety than the organic patients. But it is in the effect of episodes of anger and anxiety on the patients self-image where one of the main differences lay. The majority of episodes of anger and anxiety caused the non-organic patients to regard themselves in a poor light. It was also surprising to find that happy episodes had relatively little positive impact for the non-organic patients, but did so for the organic patients. What is clear is that the non-organic group have a tendency to view

pleasant experiences as having less of a consequence for their own coping ability. The organic patients, even though they know the full extent of their illness, can still find the positive aspects of situations and can readily respond to happy situations.

Perhaps when one considers that most of the non-organic patients were unsure of the origins of their illness and feel some disbelief and confusion at the advice from doctors, this could explain their reluctance to see situations in the way the organic patients do.

To help illustrate the sense of confusion and frustration experienced by the non-organic patients here is an extract from an interview conducted with one of these patients. This patient, whom we shall call Ellen, related an incident in which she reported feeling angry. With her anger she also reported feeling fearful and this feeling lasted for about six hours. Ellen rated the intensity of her emotion as 60%. The emotion had been caused by a visit to the hospital for tests, during which she waited more than two hours. She wondered why she had to be kept so long and thought she had not been "treated sympathetically by the doctor." Ellen wondered what she "had to do to get back to normal." She was very annoyed, scared and bitter at the doctor and whole hospital. She believed that, "there had been something overlooked", [from the tests] and "that I have been misunderstood". How can a pain like this last for three years and I just have to change my lifestyle?" Ellen viewed herself negatively feeling "it was unfair, what I have to deal with. Would just love a pain free day. I can't plan for anything". She was kept awake that

night by the pains and she was reminded of the days when she was pain free. She was crying and felt like hitting something, but did not seek anyone to talk to.

Although no episodes of anger were viewed as positive by either group its surprising that 82% of all episodes of anger had no implications for the self-image of the organic patients group, whereas 32% had a negative effect on the non-organic group. Considering that the intensity of anger experienced by each group was similar there is the implication that both groups deal with this emotion differently. Perhaps this implies that the organic group deny the experience of anger rather than re-examining the effect the incident has had on themselves and in relation to others. Let us look at another extract that typifies the nature of the thoughts reported by the organic group when they experienced anger. This particular woman, who I will call Jill, experienced anger when she found that she had been left to do all of the housework, make the dinner and watch the children.

The day previous to this the symptoms of her illness returned, cramps, sweatiness and so on. She wanted to say something to her husband but she carried on working as she felt that she had called on the services of others too often. She commented that she felt her anger and frustration getting gradually worse, and "everything was getting on top of me". Jill said that she did not "want to appear as if I could not cope". It was only after the children, whom she said "had been getting in the way", said something that her anger was released. She said, "I suddenly flared up and shouted at the children". Her feelings of anger lasted most of the day, and in

fact she had to go to bed and try to sleep to calm herself down. When her husband asked her what was wrong she did not comment but turned away feeling guilty and ashamed at having shouted at the children.

In this case Jill experienced an episode of anger that could have been prevented had she not been so reluctant to seek help. She felt she should struggle on with the pains and solve her problems alone. She did not fully understand why she was so angry in the first instance. In the end nothing was solved and she only punished herself more by not seeking help.

This was a typical pattern in the organic patients. They would struggle on through the pains and often vent their anger on the wrong people or objects and for the wrong reasons. It was almost as if they were waging battle against their illness. The thoughts of the organic group of patients were consistently of hoping to gain control of their pain and defeat it in some way with an intense longing and determination to be free of pain. They were very resentful of the disabling affects that the illness had on them and their future plans. They felt irritated if they were unable to manage things well and if their partner did not understand their illness, as the extract above also illustrates. To others, though, it would appear that they were coping very well. The result is a vicious circle of denial of inability to cope and resentment at others' lack of understanding. The organic patients were annoyed with themselves if they were unable to take control of a situation and their feelings of anger. They experienced more guilt if they had expressed their anger about their illness in ways

which affected loved ones, or if they failed to express the anger and let the resentment and anger build up until they unleashed it inappropriately.

The non-organic patients were not immune to experiencing anger. They did feel irritated and did express anger but they did not report the same sense of being out of control. They were more inclined to feel unsure of what effect their symptoms would have on them and so experienced more anxiety with the symptoms they reported. Their emotions were triggered by situations in which they felt they would be unable to cope. They were more worried about what was coming in the future, and commented that stomach cramps often followed these feelings of uncertainty. This had implications for their self-image. They were more likely to view events, and their emotions negatively. One woman, whom I will call Kathy, felt so insecure when her husband went away on a business trip that she constantly checked all the locks on the doors and windows. She reported that since the departure of her husband she had had several nights of poor sleep, and worried for the safety of her family. In her own words she was, "thinking the worst might happen". She was annoyed that she "felt so unsure of myself". This insecurity reminded her of a time before she was married: "I was always shy and insecure of myself, and now with him going away it has brought it back". Her pains continued to get worse, and she was slightly confused as to why she should be so unable to feel as if she could cope.

There seems to be a different reaction pattern between the groups. The organic patients get angry if they detect that they

are unable to cope and seem more determined, whilst the non-organic patients become more anxious and convinced that they will be unable to cope in a situation.

If we look at the duration of the thoughts connected with each emotion type there are differences in the two groups when we look at individual emotion types, but not a significant difference over all emotion episodes. Initial thoughts connected with anger for the patients of the non-organic group had subsided by 30 minutes (59% of all episodes of anger), whereas the organic patients reported durations of emotions clustered around an hour to 6 hours, with 10% of all episodes of anger involving persistent thoughts for up to a whole day (defined as any time greater than 12 hours or until they retired to bed). More striking is that the non-organic patients' anxious thoughts were more likely to recur later on the same day or the next. In fact 69% of episodes of anxiety recorded by the non-organic patients supported persistent and recurring anxious thoughts compared with only 30% of all episodes in the organic patients. Persistent thoughts in the non-organic group also caused them to lose sleep in 44% of episodes of anxiety compared with 20% in the organic patients.

Recurring thoughts of anger were not reported to last more than one hour in the organic group, that is to say that if thoughts of anger did recur the average time that they lasted was for one hour. The non-organic patients angry thoughts were still present in 14% of cases up to and greater than 12 hours.

The consistent pattern for episodes of anger, sadness and anxiety for the non-organic group was to withdraw from the situation, suggesting an inability to cope well with situations coupled with a determination to remain within themselves for fear of not coping. The organic patients displayed a pattern of behaviour consistent with denial of and/or inappropriate expression of their anger. The non-organic patients appealed more to others for help and attention, and experience more anxiety about how to manage their illness. This would be consistent with the usual pattern of behaviour from patients who are unconvinced by the explanation for their illness as deriving from their lifestyle and coping styles.

Although both groups' future plans and goals have to be re-adjusted around their illness, the organic patients still longed to be able to make plans that would not have to be changed whereas the non-organic patients tended not to look ahead but to be rather pessimistic.

This study has also re-affirmed results of the previous studies herein relating to the cognitive theory of emotions. Emotions did occur without an identifiable eliciting event, as the table above on antecedents of emotion episodes indicates. Eleven episodes of emotions occurred apparently without an identifiable cause. This has been a consistent finding throughout all of these diary studies and one that must be taken seriously. Again we can see that mixtures of emotion were very common, with the same combinations of emotions as has occurred in previous studies. And lastly there was a direct relationship between emotions and goal-relevant events,

with again the usual exceptions as when achievement leads to anxiety and loss to anger rather than sadness.

The dearth of episodes of disgust and hatred only serves to reinforce the need to examine these emotions in more detail by some other method other than the structured diary. When disgust was experienced it was in response to the symptoms of the patients' illness. The patients were subjectively and physically disgusted with themselves when they experienced heavy bouts of sickness, diarrhoea and cramps. In these cases none of the patients sought help, but preferred to be left alone.

To conclude, I would like to point out that the patients taking part in this study found that writing about their emotions actually helped them to understand what they were feeling, and that they often found the diary therapeutic. Non-organic patients were surprised at the types of situations which made them feel anxious. Perhaps an awareness of the events which can trigger their anxiety and thus their pains will help them to attempt to use relaxation to ease symptoms.

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CHAPTER 6

Study 6

An Investigation into the Characteristics of Hatred and Disgust

Synopsis

The aim of this study was to increase the psychological knowledge of the emotions hatred and disgust, thereby widening the scope of future research. In order to explore the antecedents of hatred and disgust subjects were asked to recall their experiences of hatred and disgust by taking part in an interview. To understand the phenomenology of these emotions they were compared to experiences of a less potent, but related, feeling. Therefore, a recent episode of dislike was compared with an experience of hatred that the subject could remember clearly, and an episode of something found to be distasteful was compared to an experience of disgust. It was hypothesized that hatred and disgust would be more intense and differ qualitatively from their related feelings. It was expected that there would be experiences of disgust and distaste reported in response to food items. Where this occurred these reports were compared to data from Rozin and Fallons study (1987) on disgust as a food-related emotion, examining such aspects as psychological contamination (i.e, past physical contact between an acceptable food and a disgust substance (physical contamination) causes rejection of the acceptable food). Preliminary findings on the relationship of the recalled experiences of hatred and disgust to past life events or significant emotional incidents are also presented.

Introduction

In the studies reported thus far, using the Structured Diary method, it was rather surprising to find that only 19 episodes of disgust/hatred have been reported. This is even more surprising when it is realised that such a small number has come from 94 subjects and from 3 differing samples: employed people, psychiatric patients and non-psychiatric patients. (In the first study, experiences of disgust/hatred were not specifically asked for.) The logical step, and one that might uncover why this was the case, was to devise a study concentrating on experiences of these two emotions alone. Since it would not have been practical to redistribute diaries and wait until people had experiences of disgust and hatred to record, it was decided that an interview schedule would be more appropriate. The aim was to collect as much information as possible on hatred and disgust, and hopefully to stimulate further research. The interview included items from the previously used structured diary and accompanying semi-structured interview.

According to Oatley and Johnson-Laird's (1987) cognitive theory of emotions, hatred and disgust can be included in the small number of discrete emotions regarded as basic. For the purposes of this experiment I will treat them as separate feelings and compare them to the less intense feelings of dislike and distaste, and not include a debate as to whether hatred or disgust should be regarded as basic or not. However I think it would be useful to compare some elements of disgust and hatred that are particularly interesting in that

they may add to the debate on basic emotions.

Following their review of previous research on disgust Rozin and Fallon (1987) noted that it was rather strange that disgust, having characteristic facial expressions and appropriate action modes, like any other basic emotion, has not been given more mention in introductory psychology books. Apart from the documentation of facial expressions and bodily postures accompanying feelings of disgust there is little else on the nature of disgust.

Thankfully though there is currently a body of research on disgust that is attempting to go some way beyond investigations of facial reactions, in the shape of the studies carried out by Rozin and Fallon (e.g, 1987). Nevertheless there is still little exploring the duration, intensity and subjective nature of this emotion and its relationship to personal plans and goals. I find, though, that Rozin and Fallon's data is an excellent reference point from which to investigate elements of the experience of distaste and disgust. Thus results from the present study will be cross-validated with those from studies by Rozin and Fallon.

It would seem, also, that hatred holds the position of an emotion, apparently basic, but with little reference made to it in text books, other than when it is spoken of in the context of being the opposite of love. Again the research history is centred around facial characteristics of hatred and how they are recognized in various cultures.

The following section details some of the stimulating research that has been carried out concerning disgust as a food related emotion.

Disgust as a Food Related Emotion

Rozin and Fallon (1987) defined disgust as a food-related emotion and focused on the properties of the food substance interacting with people to produce disgust, as opposed to solely looking at how this emotion is expressed. They centred their research on oral incorporation, or the prospect of oral incorporation, of offensive objects.

From their research findings they proposed four types of food rejection, based on varying motivations. These were *distaste, danger, inappropriate,* and *disgust. Distaste,* they say, is a type of rejection motivated by sensory factors. The distasteful substances are thought not to be harmful. It is also said that this type of rejection can account for individual differences, for otherwise edible foods accepted within cultures. In other words the rejection is based entirely on individual tastes and appetites. Unlike distaste, *danger,* is motivated by the knowledge that something is harmful. Some of these items are part of universal knowledge, for instance, items that are poisonous. Other items are those, at a more individual level, which cause allergic reaction. *Inappropriate* is a type of rejection primarily motivated by ideational factors involving, typically, items of minimum nutritional value, that

are however not normally considered offensive. These items are not classified as foods in the culture, and the full list of items is culture dependent. Examples of such items are paper, grass, bark, and such like. The fourth type of rejection is *disgust*, again primarily motivated by ideational factors, that is, the nature of the item or its social history. *Disgust* items do, however, have offensive properties with the capacity to contaminate. Rozin and Fallon postulated that disgust items were usually animals or animal products, with faeces being the universal disgust object among adults, (Angyal, 1941; Rozin and Fallon, 1981).

Rozin and Fallon also made a distinction between distaste and disgust. Although disgust may develop from distaste, when related to food they have qualitatively different properties in the adult. Rozin and Fallon hold that the ideational basis for rejection, offensiveness and contamination, are only present for disgust. They hold also that nausea is a much more prominent feature of disgust than distaste. This I feel will be the case in the experiences related by the subjects in the present study reported here. Disgust will be qualitatively different from distaste with feelings of nausea being reported more often, not only when food is the trigger but when other types of triggers are involved, such as people's behaviour, manners and so on.

There is little information on the possible variability in the intensity of feelings towards disgust objects, people or situations. Hence the comparison of disgust with distaste here. An exception to this comes from particular work

carried out, again, by Rozin and Fallon (1987), examining the intensity of disgust in relation to oral incorporation of substances. They noted, for instance, that the intensity of disgust, for an incorporated substance, reduced once the substance had actually passed into the body from the mouth, the mouth being, as they suggest, the last checkpoint for the ingestion of harmful substances. Rozin and Fallon suggest that the mouth, notably the lips, tell us much about the texture and flavour of an object helping us to perhaps reject it, but once it has passed into the body, it has crossed what they call the "border of the self with the world" and the mere matter of fact that it has now been ingested defuses intensity.

Rozin and Fallon also found that it is not all items, capable of eliciting disgust, that we reject. Our own body products, urine and faeces, when confined in the body do not elicit disgust, but a soon as they leave the body they become disgusting, though presumably less so than someone else's bodily substances. This result shows again that the intensity of disgust may vary according to the relationship of the disgust item with the self and/or others.

Similarly Rozin and Fallon proposed that normally disgusting substances or objects that are associated with admired or loved persons cease to be disgusting and may become pleasant: the notion being that they are an acceptable social extension of the self. The important element here seems to be familiarity with the substance or substance producer. This is similar to the argument put forward by Ortony, Clore and Collins (1988) in relation to emotions. They proposed that familiarity is a necessary pre-requisite to positive or negative

feelings and presumably to actions such as approach or avoidance. Supposedly increasing the number of times one is exposed to a person or object can influence the experiencer's affective response in a positive or negative way. These elements will be explored further in this study of the experiences of disgust.

Another factor that could be important for the perception of something as disgusting is the context within which it is placed. The object regarded as inoffensive suddenly becomes offensive because of its history, that is who, or what, came into contact with it previously. This phenomenon known as psychological contamination is therefore generated by physical contact from previously undesirable substances or people. In a somewhat stomach churning illustration of this Rozin, Fallon and Mandell, (1984), found that about 50% of the subjects who took part in their survey refused to eat their favourite soup after it had been stirred by a brand-new fly-swatter or comb. It was if there was something contagious in the undesired item that could have contaminated the soup.

What is also found from previous studies of disgust is that its characteristic facial expressions are often mirrored by those who are listening to disgusting stories. The listener identifies with what the reporter found disgusting and similar facial grimaces can be seen being elicited by the listener. Thus emotion is communicated between people in quite a dramatic way.

Compared to disgust, hatred has had considerably less attention lately by researchers. Again the facial

characteristics of hatred are well documented (e.g, Ekman 1984). Darwin (1965) described the facial expressions of hatred as including a reddened face, veins on the neck being exposed, furrowed brow, glaring eyes, as well as accompanying bodily sensations such as raised heart rate and sweating. Darwin described hatred in terms of rage. Rage is said to excite the person so much that there is a fierce desire to hit out at the offender. Hatred, just as love, seems to be synonymous with the word passion. To hate vehemently is to be so passionate about something that one can lose control and be violent. Darwin explains that such feelings in a more moderate dimension are not often overtly expressed, but he says that if intense there are few who could resist outright expression of hatred. He postulated that if the other person is judged insignificant then hatred would not be the reaction but mere disdain or contempt. I propose that the intensity of hatred will vary according to the relationship between the person feeling hatred and the person to whom it is directed. Intense hatred will be the result of unexpected and disapproved of actions of significant others, but a less intense emotion, perhaps dislike or contempt, will be experienced if the other person is insignificant.

In summary, therefore, it is proposed that there will be qualitative and quantitative differences between the emotion pairings of hatred/dislike and disgust/distaste. Hatred and disgust will be more intense and more challenging to the individual, and will be accompanied by more physiological perturbations than dislike or distaste.

A useful template for how hatred and disgust could differ from their related, less potent feelings comes from an aspect of a study carried out by Averill comparing anger and annoyance (1982). In the same way, he asked subjects to record episodes of annoyance and anger. Among other things he looked at elements within a situation that would lead to intense anger being experienced as opposed to mere annoyance. He deduced that the following would be true of very intense experiences of anger:

Anger would be (1) sparked off by more serious incidents, (2) more likely to involve attribution of blame, (3) more personal, (4) demand expression, (5) involve more complex interpersonal relationships, (6) tax coping strategies, (7) motivate revenge, (8) affect differentially by the mood of the individual at provocation.

I suspect that many of these elements will be relevant to those that separate hatred from dislike. Intense experiences of disgust would not necessarily need all of these elements to make it more intense than distaste, but would certainly include "demanding expression", "more personal", and in some cases, involve" more interpersonal relationships".

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Subjects

Subjects taking part in this study were recruited from first and second year students of Psychology at Glasgow University. A total of 50 subjects were approached from which 38 consented to take part, giving a response rate of 76%. The sample comprised of 12 male and 26 female subjects. The average age of these subjects was 23, with a range from 18 to 55 years of age. They were recruited from the Psychology Laboratory. It was necessary for students to use this lab to complete computer based cognitive experiments. The laboratory has 36 cubicles, arranged in six rows of six. In order to choose subjects at random a dice was thrown to decide which row, and which subject in each row. If that subject was involved in an experiment they could not abort then the next person to them, who was free, was approached and so on. The interview lasted approximately one hour. All subjects were interviewed between the months of November 1990 and February 1991.

Procedure

Instructions and questions were identical for each schedule, excepting a few additional questions for disgust and hatred only. Subjects were asked to recall a recent incident in which they felt they had clearly disliked something or someone and one where they found something, or someone distasteful. They were then asked to recall an experience of hatred and

one of disgust. The instances of dislike and distaste being recalled were, if possible to have happened to them within the month prior to the interview. There was no time frame limit on the recalling of episodes of hatred and disgust.

The Interview Schedule

The interview consisted of questions adapted from the previously used Structured Diary (version 5.3) and the accompanying Semi-Structured Interview Schedule (version 5). The interview itself comprised of 11 pages, with four sections, one for each emotion. Some of the questions were applicable for any of the four experiences and others for hatred and disgust only. Please refer to Appendix 4, for a copy of this interview. I would, however, like to draw attention to some of the items in this interview that were applicable to hatred and disgust only. These items add a dimension to the study of disgust and hatred, and in parts to the study of all emotions, not yet explored by researchers.

Questions for Disgust and Hatred Only.

Items 10(a) and (10b) asked the subject whether they had experienced a "subjective, inner feeling" of hatred and of disgust, and if so, to try and describe it. Item 11(a) and (11b) asked if the thoughts about the past incidents of hatred and disgust, described in the interview, were still recurring at the present date, and if the subjects sleep pattern was disturbed

now. Items 12, 13 and 14 dealt with the issue of whether the event that the subject was currently describing was related to a significant event in the past.

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RESULTS OF STUDY 6

General information about the episodes recalled.

For hatred there were 36 specific experiences recalled and 2 cases of feelings of hatred towards something or someone in general. By general I mean that these subjects were unable to recall any specific incident in time but that they had a particular situation that recurred many times which usually triggered their feelings of hatred. Subjects recalled their episodes of hatred from situations that were present and ongoing at the time of the interview and from incidents that occurred as long as 26 years before the interview.

For dislike there were 35 specific episodes recalled, and 3 of general feelings, some from events that had occurred only a few hours before the actual interview and as far back as 4 weeks prior to the interview.

Experiences of something found to be distasteful were recalled, again from just before the interview and from 6 months prior to the interview. Of the experiences recalled 29 were of specific incidents that had occurred and 9 were of general things that the subjects regarded as distasteful. Five episodes of disgust were of general feelings towards something that would be disgusting if it occurred and 33 were actual incidents recalled from 2 hours before the interview to 5 years before the interview.

Typically, specific incidents of the four feelings were more intense than general episodes. As a general personal observation, and one that is made in the full realization that it cannot be corroborated, the episodes that were very intense,

of long duration and of great personal significance to the subjects were recalled almost as soon as the subjects were asked for their experiences. In other words the subjects required no significant thinking time before they related their episode. It can be tentatively suggested that these episodes have therefore more salience in the subjects memory and thus their accounts are likely to be accurate.

Distaste and Disgust

There was a significant difference between the intensity of distaste and the intensity of disgust ($t = 9.48$, $df = 74$, $p = 0.0001$). The average intensity of distaste was 54%, with a range of 10% to 90%, whilst the intensity of disgust was 85%, with a range of 50% to 100%.

It was found that there was a significant difference as to whether there were bodily perturbations present (chi-square = 30.316, $p = 0.0001$). As can be seen from Table 35 on following page, 81.58% of episodes of disgust were accompanied by bodily perturbations whereas only 18.42% of episodes of distaste had accompanying bodily perturbations.

Table 35 The frequency of bodily sensations accompanying the reported episodes of distaste and disgust

Frequency of bodily sensation for each emotion			
Number of episodes	Distaste (38)	Disgust (38)	
Sensation			Totals
Tenseness	4	5	(9)
Trembling	0	6	(6)
Stomach	1	5	(6)
Heart rate increase	0	3	(3)
Hot/Sweaty	1	2	(3)
Cold	1	12	(13)
Nausea	1	14	(15)
Headache	0	1	(1)
Totals	(8)	(48)	(56)

The most common bodily sensations accompanying disgust were a "nauseous feeling" and "coldness". Bodily sensations such as "heart rate increase" and "trembling" were unique to disgust. On one occasion disgust resulted in a "headache". There were no significant differences in average intensity of bodily sensations between distaste and disgust ($t = 0.937$, df 35, $p = 0.1777$).

The following Table, 36, shows the actions accompanying distaste and disgust reported by 38 subjects.

Table 36 The frequency of actions accompanying distaste and disgust

	Frequency of action type		
Number of episodes	Distaste (38)	Disgust (38)	
Type of action/urge			Totals
Talking	8	3	(11)
Expressing	8	14	(22)
U/mcloser	0	0	(0)
U/aggress	4	5	(9)
U/wdraw	1	7	(8)
A/touch	0	0	(0)
A/aggress	0	1	(1)
A/wdraw	11	10	(21)
Totals	(32)	(40)	(72)

As can be seen from Table 36 there were no significant differences as to whether distaste and disgust were accompanied by urges to act or actual emotional acts (chi-square = 0.213, p = 0.6445). Over half the episodes of distaste and disgust were said to be accompanied by acts or

urges to act (52.63% and 57.89% respectively).

Making facial expressions in response to something distasteful and/or disgusting was common, although perhaps not as common as expected. From the 38 subjects reports on each emotion only 8 episodes of distaste and 14 of disgust were said to be accompanied by facial expressions or grimaces.

Withdrawing from the situation rather than being directly aggressive towards another person or object was common in distaste and disgust. There were no occasions reported of subjects wishing to get close to or actually touch the offending object(s) or person(s).

The table on the following page illustrates the antecedents of distaste and disgust reported by the subjects.

As you can see from this Table 37 on antecedents of the reported emotions, 64% of episodes of distaste and disgust were due to another person's actions, with 29% due to something read, heard, or seen on t.v. Only 2.6% of feelings of disgust were due to the subjects own actions.

Table 37 Antecedents of the reported episodes of distaste and disgust

	Frequency of eliciting circumstance		
Number of episodes	Distaste (38)	Disgust (38)	
Elicitor			Totals
Other person	24	25	(49)
Self	0	2	(2)
Remembered	0	1	(1)
Imagined	0	1	(1)
Read, seen etc	14	8	(22)
None of the above	0	1	(1)
Totals	(38)	(38)	(76)

There were no significant differences between the duration of distaste and disgust (chi-square = 10. 435, p = 0.1075). It is interesting to note, however, that a number of episodes of disgust (10.52%) were extended feelings lasting "greater than one day".

Differences in the duration of persistent thoughts about the incident were not significant (chi-square = 10.88, p = 0.1439), but thoughts connected with disgust were just narrowly more likely to have "recurred later that day or the next" (chi-square

= 4.266, p = 0.0389).

There was no significant difference as to the duration of recurring thoughts (chi-square = 9.528, p = 0.0898). There were no cases of sleep disturbance connected with distaste, but in 26% episodes of disgust subjects said that their thoughts had disturbed their sleep for a few nights following the incident (chi-square = 11.515, p = 0.0007).

As found in previous studies, using the diary method, mixtures of emotions were common. Both distaste and disgust had secondary emotions but disgust was more often said to be mixed with another emotion (chi-square = 13.88, p = 0.001). The average intensity of these secondary emotions was significantly greater for disgust (t = 3.216, df = 38, p = 0.0014). Anger was the most common emotion to be mixed with both distaste and disgust. Of the episodes of distaste said to have been mixed, anger was present on 66% of episodes and present in 49% occasions of disgust. There were no occasions of happiness or sadness being mixed with either distaste or disgust.

It was found that plans were not affected in any way by feelings of distaste, but 9 episodes of disgust disrupted plans (chi-square = 11.515, p = 0.0032).

There were no implications for how subjects viewed themselves in episodes of distaste, but 9 episodes of disgust caused the experiencer to view themselves negatively and 4 to view themselves positively (chi-square = 15.683, p = 0.0004).

Only five of the thirty-eight subjects interviewed said that they were confused by their feelings of disgust, but all of the subjects understood why they felt something was distasteful (chi-square = 5.352, p = 0.0207).

For the elements concerning disgust only the following was found. A "subjective, inner feeling of emotion" was experienced in 89% of disgust episodes. A minority, 7%, of episodes of disgust described in the interview, were judged by subjects to be a major event in their lives. Of the 16% of episodes that were said to have brought associations with past significant events 13% of these were themselves considered, by the subjects, to have been a major incident in their lives. Further to this it was found that 43% of episodes of disgust were still invading subjects thoughts; and in 16% of episodes the persistent nature of these thoughts were on occasions still disturbing the subjects present sleeping pattern.

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Dislike and Hatred

The average intensity of dislike was 55%, with a range of 30% to 80%. The average intensity of hatred was 83%, range 60 to 100. This difference was found to be significant ($t = 10.941$, df 74, $p = 0.0001$).

As indicated in Table 38, on the following page, reports of bodily sensations were significantly more evident in episodes of hatred than dislike (chi-square = 20.358, $p = 0.0001$), with 78% of episodes of hatred accompanied by a bodily sensation compared with only 26% in the case of dislike. The average intensity of these bodily sensations was greater for hatred 68.16% than for dislike 51.5% ($t = 3.537$, df 38, $p = 0.0005$).

Predominant sensations for hatred were "tenseness", "heart rate increase", "feeling hot and sweaty", and experiencing "nausea". On 2 occasions of hatred and a single episode of dislike subjects reported experiencing a "headache".

Table 38 The frequency of bodily sensations accompanying the reported episodes of dislike and hatred

Frequency of bodily sensation			
Number of episodes	Dislike (38)	Hatred (38)	
Sensation			Totals
Tenseness	6	16	(22)
Trembling	1	4	(5)
Stomach	1	6	(7)
Heart rate increase	2	11	(13)
Hot/Sweaty	6	5	(11)
Cold	0	2	(2)
Nausea	0	4	(4)
Headache	1	2	(3)
Totals	(17)	(50)	(67)

Hatred was not accompanied by significantly more emotional acts than dislike (chi-square, = 3.742, p = 0.0531). As can be seen from Table 39 (below) hatred and dislike prompted subjects to act aggressively. However, on all but a few occasions the subject withdrew from the scene rather than get involved in direct physical confrontation.

Table 39 The frequency of actions accompanying episodes of dislike and hatred

	Frequency of action type		
Number of episodes	Dislike (38)	Hatred (38)	
Type of action/urge			Totals
Talking	8	3	(11)
Expressing	8	14	(22)
U/mcloser	0	0	(0)
U/aggress	4	5	(9)
U/wdraw	1	7	(8)
A/touch	0	0	(0)
A/aggress	0	1	(1)
A/wdraw	11	10	(21)
Totals	(17)	(50)	(67)

From Table 40 (below) showing eliciting circumstances, or antecedents for hatred and dislike, it can be seen that 94% episodes of hatred and 60% of dislike reported by the subjects were said to be caused by the actions of another person. Of all episodes of dislike 5% were caused by the actions of the subjects themselves, with this being the case in only one episode of hatred.

Table 40 Antecedents of the reported episodes of dislike and hatred

	Frequency of eliciting circumstance		
	Dislike	Hatred	
Number of episodes	(38)	(38)	
Elicitor			Totals
Other person	23	36	(49)
Self	10	1	(11)
Remembered	0	0	(0)
Imagined	0	0	(0)
Read seen	2	1	(3)
None of the above	2	0	(2)
Totals	(37)	(38)	(65)

There were significant differences between the duration of dislike and hatred (chi-square = 21.54, p = 0.0058). The most pointed difference can be seen when we look at the extreme duration categories. Just 5% of episodes of dislike fell into the "more than one day" category, but in contrast 45% of episodes of hatred belonged to the category "more than one day".

The differences in the duration of persistent thoughts of each reported incident of dislike and hatred were also significant (chi-square = 28.15, p = 0.0004). Whilst only 5% of thoughts about the episode of dislike remained after one day, 50% of thoughts of hatred were of this duration. Thoughts that "re-occurred later that day or the next" was also found to be significant in episodes of hatred than in episodes of dislike (chi-square = 8.491, p = 0.0036).

The duration of these recurring thoughts of hatred lasted significantly longer than those connected with the episodes of dislike (chi square = 25.742, p = 0.0001). In 54% of cases these recurring thoughts of hatred lasted throughout the whole day and longer following the incident.

Mixtures of emotion were reported by the subjects as occurring most often in connection with feelings of hatred than with feelings dislike (chi square = 4.145, p = 0.0417). As seen in the results section for distaste and disgust it was anger that was most often paired with dislike and hatred. The intensity of these second named emotions was significantly greater for episodes of hatred than for dislike (t = 5.286, df = 64 p = 0.0001).

None of the episodes of dislike resulted in a reassessment of the subject's view of themselves, however 63% of episodes of hatred caused subjects to feel negative about themselves (chi-square = 49.565, p = 0.0001).

Over half (55%) of the episodes of hatred were said to have kept subjects awake immediately following the incident, but only 14% of episodes of dislike were said to have disturbed subject's sleep pattern. This difference was found to be significant (chi square = 14.427, p = 0.0001).

Plans were reported as being disrupted more by feelings of hatred than of dislike (chi-square = 22.704, p = 0.0001). All subjects said that they understood why they felt they disliked someone or something, but 3 subjects reported a degree of confusion as to why they felt deep hatred.

In the elements for hatred, only, the findings were that a "subjective, inner feeling of hatred" was felt in 87% of episodes described. Sixty-one percent of episodes of hatred described in the interview were judged by subject's to be a major event in their lives. Of the 35% of episodes that were said to have brought associations with past events, 13% of these past events were themselves judged to be significant in the subjects lives. Thoughts about the incident were still recurring in 76% of episodes of hatred at the present date, and in 10% of the episodes the persistent nature of these thoughts were still disturbing the subject's sleeping pattern.

Discussion

The aim of this study was to increase psychological knowledge of disgust and hatred, specifically to investigate the antecedents, bodily sensations and actions of these emotions, as well as intensity and duration. The effects of hatred and disgust on future plans, self-image and sleep pattern were also examined. Lastly it was hoped that this study would establish to what extent these emotions would be more difficult to comprehend than related feelings of dislike and distaste.

It was hypothesized that there would be significant differences in the intensity, duration, bodily sensations and actions between hatred and dislike, and between disgust and distaste. It was also hypothesized that hatred and disgust would be accompanied by a subjective feeling, not present in dislike or distaste; that hatred and disgust would disrupt plans more; have implications for how people viewed themselves; and be more difficult to understand than experiences of dislike and distaste.

New elements in the recording of everyday emotional events by interview method were introduced. These were whether the emotion was associated with past events and whether these past events were significant in the subject's lives. These elements applied only to the subjects' experiences of hatred and disgust.

As predicted it was found that hatred and disgust were more intense, and accompanied by significantly more bodily

perturbations, than their related feelings dislike and distaste.

Hatred and disgust also prompted subjects to view themselves, and their lives in a negative way, and these emotions were more disruptive to plans. For some subjects the effect on plans, although detrimental were often short lived. By that I mean that the subjects immediate plans were affected, but with hindsight it had been good for their long term plans. This phenomenon applies to experiences that were a result of what is considered to be a major traumatic life event: the break-up of a relationship or marriage. It seemed that under these circumstances the subject had to make major life changes which disrupted immediate plans within the context they knew, but once the crisis had been dealt with they felt more positive about the future and often took new directions. An example will help illustrate what I mean.

The following is an extract from an interview with a 32 year old woman, whom I will call Laura. She described her feeling of hatred for her husband Here is a resume of her story. For sometime Laura's marriage had been under pressure and she and her husband had had several trial separations. She had just embarked on a programme of further education with the intention of gaining entry to university. Her husband made it known to her that he did not approve of her new direction and accused her of not spending enough time with their children. In the midst of important exams Laura's husband announced that he had been seeing someone else for sometime, that they were expecting a child and that he wanted to marry this woman. She had to deal with the reaction of her three sons to this news, deal with financial problems, lawyers,

and divorce proceedings. All of this taking place during her exams. Here, in her own words is how she described the crisis. "He came to confess, as he called it, about the other women and that she was pregnant. I just thought about how stupid he had been. I was determined not to let him see I was hurt. I tried to put up a barrier between myself and him". She said she was, "desperately trying to keep myself under control. I was defensive, jittery, wanted to thrash him but fought it". By Laura's own admission her thoughts were "confused". She had a stream of anxious thoughts about "divorce, how would my children cope, money problems, wanting to get even, wanting to make him pay and grow up to his responsibilities"; and how she could let herself be "the victim", by not trying to do something much earlier in their marriage when her husband had been unfaithful.

In the short term Laura had a major crisis to deal with as well as conflicting, and sometimes confusing emotions. But she found that having gone through this meant that she was now free of her husband, who had held her back from continuing her education; had found new resilience to meet other challenges; and had a better relationship with her children. This is how she described the effect on her plans, "everything I wanted to do was affected in the short term because I had to cope with this new twist", [in the situation between her and her husband]. She "worried more about money". Her self-esteem was, by her own admission "at rock bottom". But the confrontation brought things to a head and she admits that it ultimately helped her plans and goals. "We had finally cleared the air and I was going to make sure that I made a fresh start". Laura felt that she had come through her crisis a better

person, with a new direction and renewed confidence.

Of course, it is not guaranteed that all people will respond to a crisis in this way. Another subject, who I will call Marie, was completely devastated when she discovered her long time fiance had been having an affair. She and her fiance had been planning to marry when this unexpected event came to light and she could see nothing positive in the event to hold on to. Marie is now distrustful of others and admitted that her relationships since had failed due to her insecurity. According to her the whole event had destroyed her confidence and she no longer trusted her judgement. She hated her ex-fiance deeply, despite thinking about the good times they had had. In her own words she had "lost what she had longed for". She tried to be practical and say "that at least I had found out his true colours before we married". But she admitted that she "walked about angry all the time, as if I was in mourning".

These extracts give a clear indication of how significant events in peoples' emotional life can affect aspirations and plans. Both women still feel intense hatred for their ex-partners but there is a sense that Laura has succeeded in dealing better with her hatred than Marie. The time lapse between the actual event and the reporting of the emotion was approximately the same, but it would seem that Marie has not found new directions and still feels very negative about herself.

Just why these individuals should respond in such differing ways to a crisis is not clear. One suggestion is that Laura being older has more experience to draw on to help her tackle

her conflicting emotions and of course the knowledge that she and her husband had been having problems and that he had been unfaithful before may have served as a cushion to the blow. Another reason may be that Laura was pushed along by the fact that she was responsible for the welfare of her children and was determined to achieve her goal - to get to university. Marie, on the other hand, was younger, presumably with less experience of how to handle such a situation; and to her knowledge her fiance had been faithful up until that time. The reasons are many and debatable, but certainly highlight differences in individual coping styles.

Regardless of the nature of the eliciting circumstances, hatred and disgust were described as having a clear subjective element. When subjects were asked to describe their inner feeling of hatred they said that it was "gripping", often "frightening", with a "burning" sensation, "seething" and "very upsetting". Subjects also described hatred as being a very personal and private emotion, and of having to control themselves for fear that they would physically harm the person they hated or damage property in anger. Disgust was described as "nauseating", bringing "utter revulsion", and making the "blood run cold" causing shivers to go through the body.

Although some emotional acts were common to dislike and hatred, urges to aggress were not followed through by direct physical contact with the other person involved. Banging the fists, slamming doors, and shouting were very common. There was also a consuming wish to physically harm other people or damage inanimate objects. But in experiences of

hatred it was found that there was an extreme amount of control being exercised to fight against sudden rash impulses. This inner battle was felt necessary as subjects reported that if they had not tried to stay in control of their hatred they would inflict damage to the person or property. The case from Laura reported earlier illustrates this. She commented that she was "shaking inside with rage, but was determined not to let go". So she chose to hurt verbally with cutting sarcastic comments, and admitted that she "wanted to seem superior to her ex-husband" by keeping control of her emotions in a way her husband had not.

The fact that 23 experiences of hatred and 6 of disgust were judged major life events could be in part an explanation for a dearth of episodes of hatred using the daily diary method. Being so potent they are not, by definition, emotions that occur with the same frequency as say happiness or anger.

It was also seen that incidents in the current emotional life of the subjects often connected with severe life events or significant incidents in the past. In fact 36% of episodes of hatred had associations with past events and of this number 13% were considered, by the subjects, to be major events in their lives.

The fact that a nauseous feeling was present in significantly more episodes of disgust than in distaste suggests that this data corresponds to Rozin and Fallon's theorizing that nausea is a distinguishing feature in the classification of disgust and distaste. From the interviews analysed in the present study, it seems that there is another factor distinguishing disgust from

distaste. This factor is the intensity or severity of reactions reported by some subjects in response to a disgusting object. These reactions were so intense that they could be considered akin to phobic reactions. One male subject, aged 20, reported that he was so disgusted by the noise that people can make whilst eating that if he is within earshot of the offender he has to immediately withdraw from the scene. If he is unable to, then he begins to sweat and feel tense and nervous, and his heart rate increases.

Subjects also reported what I consider the classic facial reactions to disgust and distaste, such as screwing up the mouth, nose and eyes, sticking their tongue out slightly due to the face being drawn in. Although some subjects reported these facial expressions, it is likely that there were many more occasions of these actions in many more subjects than was reported. The reason for this is that subjects were being asked to record details of actions that they are perhaps not consciously aware of doing. An observer, however, would be able to report the many more facial expressions and postures adopted. This suggests that further research should incorporate more objective measurement as well as self-report methods, not only for the emotions disgust and hatred but for all of the emotions investigated in the previous studies reported here.

The prediction that disgust would be of a longer duration than distaste was not confirmed. There were no significant differences between distaste and disgust with respect to the duration of the episode. In fact, with the exception of a few

incidents the duration of these emotion episodes was relatively short. Recurring thoughts in connection with episodes of distaste and disgust were also not common. This suggests that if something is offensive it is more likely, and indeed desirable, that efforts are made to dismiss any thoughts of it from one's mind, especially when the stimuli has previously caused an 'ill' nauseous, feeling.

If we compare the durations of hatred and disgust, whilst the majority of episodes of disgust (45%) fell into the "less than five minutes category", the majority of episodes of hatred (45%) belonged to the "greater than one day category". It seems, therefore, that disgust has fewer repetitions than episodes of hatred, and is more often a transient feeling which is quickly diffused.

Although the majority of cases of disgust lasted no longer than only a few minutes, there was at least one exception to this. One female interviewee aged 20, whom I will call Sarah, related how she had been sexually assaulted at the hands of a close relative for 4 years, between the ages of 4 and 10. It was only when she was older and sexually aware that she began to realise this was not normal. The images of what had happened to her now make her feel disgusted. This disgust was with her almost everyday and she felt her thoughts inhibited her from freely enjoying her present sexual relationship. This type of traumatic circumstance was quite unlike the other types of events which triggered feelings of disgust. Such events, that are so personal and involve close interpersonal relationships, have implications for the way the individual views themselves and how they conduct themselves.

In this case Sarah not only felt disgusted by the sexual acts she remembered, but also felt herself to be a disgusting person when she and her boyfriend were making love.

On reflection it is clear, from this extract, that disgust can often involve some degree of cognitive processing. Under certain conditions and life situations feelings of disgust are complicated and disturbing as well as being accompanied by distinctive physiological perturbations.

Episodes of hatred and disgust were in the main triggered by the actions or inaction of other people. This has been demonstrated to be the case for the emotions happiness, sadness, anger and fear. In this study all kinds of relationships were represented. That is to say that spouse/lover, friends, family and relatives were said to be the cause of the subjects' disgust/distaste or hatred/dislike, as well as strangers and acquaintances. The episodes involving the closest personal relationships were said to involve more intense, longer lasting, and disturbing feelings. In contrast there was a total of 22% episodes of distaste and disgust, being triggered by things read, heard or seen on t.v. These instances were not of an intense nature or a long duration. Perhaps these episodes were so fleeting because they did not impinge on the person directly in any significant way.

A closer look at the actual events in the category 'something read, heard, or seen on t.v.' showed a preponderance of feelings of hatred and disgust in response to news about the Gulf War. The interviews, remember, did take place between the months of November 1990 and January 1991, and it could

therefore be expected that current affairs would arouse emotions in the subjects. Typically these subjects reported that their feelings of hatred and disgust, whilst very intense, did not last long, usually only for the duration of a news bulletin, conversation or as they were reading an article about the war. Events, then, do not have to have direct personal significance in order that they may trigger intense feelings. (In this instance none of the subjects had loved ones playing any part in the war in the Gulf.)

None of the four emotions resulted in affectionate touching. Instead the very opposite occurred: withdrawal from all physical contact. It has, therefore, been reconfirmed that hatred and disgust result in avoidance behaviour.

An interesting twist to this, though, which replicates a finding by Rozin and Fallon (1987) is that substances which one usually finds offensive can be seen in a different light if they are connected with familiar objects regarded with affection. They pointed out that mothers do not report finding their childrens' faeces offensive. In some way the substance is seen as acceptable extension of the self. A case of this is seen from another interviewee, aged 55. In her eyes the mess made by her kittens was irrelevant, and although she could see why others might find it noxious she accepted it as, no doubt, her affection for the kittens had over-ridden any abhorance of an otherwise noxious stimuli.

The phenomenon of psychological contamination, first identified by Rozin and Fallon was also seen in this study. This is where past physical contact between an acceptable

food and a disgust substance causes rejection of the acceptable food. For example one subject reported that she discovered a caterpillar in her salad effectively making her good food bad and she refused to eat it. Even when the salad was washed and put on a new plate she still felt that a physical trace of the offending article prevented her from continuing to eat the salad. This phenomena has been found under many conditions in experiments by Rozin and Fallon, even when all possibility of actual physical harm had been removed.

From the experiences of disgust gathered in this study, it became apparent that a new dimension to extend this meaning of psychological contamination has been found: that behaviour manifest by another that one finds offensive tends to render that person as having an undesirable personality, and contact with him or her is thereby avoided. For example, the subject with the 'phobic reactions' to peoples' eating habits commented that he could never consider being friendly with such people as he sees them as bad through and through.

In another case, this time from a female subject, who in the past had experienced violent allergic reactions when eating fish, subsequently found others she saw eating fish as disgusting people. In this case the assessment of the offenders personality has been contaminated by their behaviour.

It was also seen from this study that this if someone the subject found offensive came in contact with food they were about to eat they rejected the food feeling it had been contaminated in some way. This aspect of disgust was first

identified by Meigs, (1978, 1984).

These results are promising but further investigations are required to fully understand the phenomenon of psychological contamination.

The interpersonal relationship between the experiencer and the offender was identified, by Averill (1984), as an important yardstick for predicting the probable intensity of the emotion triggered. He postulated that incidents involving close interpersonal relationships would be more likely to trigger an intense feeling of anger rather than annoyance.

Applying this principle to episodes of distaste and disgust it was found that the most intense experiences of disgust did indeed involve close interpersonal relationships. Typically when a person close to the experiencer had acted immorally, violating social norms of behaviour the emotion was more intense and labelled as disgust. But when these behaviors were observed in a stranger then the reaction was less intense and labelled distasteful. It has, however, already been pointed out that certain substances, such as bodily fluids, cease to become the noxious substances they are when they belong to a lover or ones child. The variability in intensity of disgust with regard to types of situations and relationships is complex, and will need further investigation.

The same principle can be applied here to the experiences of hatred and dislike. Hatred was more likely to have been the resultant feeling if the person involved in an incident was a significant other in the subject's life. In experiences of

hatred, an evaluation of the significant other takes place and they are seen in a negative light. The result being that hatred is directed solely at the person and his/her very existence (Frijda 1986). Although dislike and hatred may have at their root an evaluation of properties, it is the relationship of the event or person to the experiencer that would seem to be the most important factor if intense hatred is experienced.

This study has shown that feelings of hatred and disgust in response to major life events can last for many years. Even when the situation has been resolved the experiencer still feels a deep hatred for the other person involved, and present incidents can trigger off these feelings. I hope that further research could extend the findings here with the use of greater numbers and varying age groups. Since a proportion of the experiences of hatred and disgust described in these interviews were of very long duration, it would be interesting to select other individuals who have had similar experiences and ask them to chart the time course of these emotions day to day for perhaps a month or longer, plotting graphs indicating the varying intensity to investigate the variability of these feelings in the course of their everyday lives. This methodology has previously been adopted by Frijda, Mesquita, Sonnemans and van Goozen (1991) to chart the emotions a female subject.

Yet more research is needed to understand the connection of current events with past significant events. This study has shown that there are connections with past events but we should look further at the nature of these memories and how they can influence coping in current emotional incidents, not

only for disgust and hatred but for all of the emotions I have studied thus far.

I am satisfied that this study has not only presented some interesting data that could not have been achieved by any means other than asking people about their experiences and that I have paved the way for future research on the somewhat neglected emotions; hatred and disgust.

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CHAPTER 7

Final Conclusions and a Defence of Self-Report Methods

Summary of Findings

One of the aims of this research was to apply the structured diary technique to investigate emotions as they occur in the course of everyday life. This aim I feel has been fulfilled and I have extended the present psychological knowledge about everyday emotional experiences. As well as this the study sought to test hypotheses from the cognitive theory of emotions presented by Oatley and Johnson-Laird (1978). The results obtained have confirmed some of these hypotheses but the results do call into question other aspects of the theory. It was also found that studying emotions from an epidemiological perspective was very useful for the purpose of comparing normal to abnormal emotional experiences.

To conclude I will reiterate the main findings from these studies and the subsequent implications for theories of emotion elicitation.

I will then re-address some of the aspects of the debate about the use of self-reports and the validity of the data obtained by this methods received. By doing so I hope to counter some of the criticisms and offer solutions that will hopefully make those who are sceptical about the use of self-reports a little less so.

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The first of the diary studies presented data that was in part consistent with that of previous studies conducted by Wallbott and Scherer (1984). Parallels between the results herein and those of Wallbott and Scherer could be seen in that plans were hindered most by episodes of anger and sadness and hindered least by episodes of happiness, and that anger was most often caused by the action or inaction of another person.

In this preliminary study it was also found that a number of emotions were part of a longer mood with many of the emotions lasting for more than one hour. In particular it was found that more episodes of happiness were said to be part of a longer mood than any of the other emotion types. When an interview schedule was introduced that required subjects to give as accurate a time as possible for the duration of their emotion episodes it was rather surprising just how long feelings about a particular incident could last.

A finding from the first study that proved to be confirmed throughout all other studies was that the vast majority of episodes of all types of emotion were accompanied by bodily perturbations, persistent thoughts and emotional acts. As expected it was the dysphoric emotions that had the most physiological accompaniments to them. The exception to this was sadness, noticeable for its lack of perturbations. The most commonly occurring sensations were an "increase in the rate of heart beat", "stomach cramps or butterflies", "feeling hot and sweaty", and "experiencing muscular tension". This data fits well with that from studies which have exclusively recorded the physiological accompaniments to emotions.

It was also discovered that emotions were not stable. That is that an initial emotion may change for the same episode. Happiness was found to be the most stable emotion with almost all episodes (88%) remaining as happiness. The most common change in emotion was between anger and sadness and between anger and fear.

Although feelings of anger were reported pressure to conform to social norms I feel often guarded against the outright expression of anger towards another person. It was also proposed that if feelings of anger were not dispelled, there was a possibility that the feelings could return.

Although the first study presented promising and surprising data the subjects were not chosen at random and there were a few methodological problems with the diary technique, (not only in how the diaries were distributed but also in the phrasing of some of the questions contained in the dairy).

These problems were addressed in the second study utilizing a sample of employed people. The first problem was to adopt random sampling methods. This was done successfully where possible. The second major problem concerned the poor completion rate of the diaries. In order to solve this problem a few simple measures were adopted.

The most important of these measures was to actually meet the subject on a one to one basis and take each subject through a "mock episodes schedule". In this procedure each subject was asked to remember a recent emotion episode and they would then go through the diary answering the questions

in turn, hopefully pointing out at this stage anything they did not understand. Although this was time consuming, it did mean that the subject was fully competent in completing a diary.

To further enhance this initial measure I also maintained regular contact with the subjects and offered to pay them for their participation. It was found that the option of donating the fee to charity was an added incentive.

To avoid the confusion of emotion terms occasioned in the first study by asking subjects to name their emotion, the second study required subjects tick whether the emotion they were experiencing was one of five basic kinds, happiness, sadness, anger, fear or disgust. Further to this the subjects were also asked to circle a number from '0 to 10', indicating the intensity of each of their emotion episodes.

With these improvements made it remained only to see if the results obtained in the first study would be confirmed.

If we ignore episodes of disgust for the moment, the order of duration of the emotion episodes was the same for this study as for the first, with happiness again being the emotion that lasted longest (and which was said to be part of a sustained mood). Again the most frequent duration for anger was between 5 and 30 minutes.

Similarly happiness was said to hider the subjects' plans least, and on occasion to actually aid their plans. Again anger, sadness and fear were most detrimental to the subjects' plans.

Anger was again found to have been the most unstable emotion, with most of the episodes breaking down into another emotion, (usually sadness).

In contrast to the first study it was found that there were no significant differences in the frequency of different emotions between the sexes. In fact the number of emotion episodes for each sex were rather similar, (refer to page 94 Table 5). In the first study the female subjects experienced more episodes of fear in proportion to the male subjects. The discrepancy between the studies prompted further investigation. Had it been a mere quirk that women experienced more episodes of fear or was there social or physiological reasons behind this difference in emotions between the sexes?

When the emotion situations from the student sample were investigated it was found that many of the situations that resulted in fearful episodes were centred around examinations and presentations in class, events which did not occur in the non-student sample. Similarly it was found that young women faced situations that were personally dangerous more frequently than men.

Findings from the applied clinical studies

In the first of these studies the aim was to investigate possible differences in emotions of psychiatric patients and non-psychiatric patients. In essence it was proposed that the psychiatric patients would differ in their experience of emotions in qualitative and quantitative ways. For example the psychiatric patients would experience emotions related to their disorders more frequently and they would be of a longer duration and more intense.

Although the diary had provided valuable information about the epidemiology of everyday emotions a semi-structured interview schedule was devised to accompany and supplement the diary.

Using the HAD Scale it was found that the incidence of anxiety and depression states were more common in the psychiatric patients, with 9 cases of anxiety disorder and 7 of depression, compared to 3 cases of anxiety disorder and no cases of depression in the non-psychiatric patients.

Given this, one would have thought that the psychiatric patients would perhaps experience more episodes of anxiety and more episodes of sadness. This was indeed the case but the difference between the psychiatric and non-psychiatric patients with respect to episodes of anxiety was not in fact statistically significant.

Equally there were no significant differences in the intensity of different emotion types between the samples. There was, however, a difference in the lower limit of the intensity of sad episodes reported by the two groups. Although the actual average of episodes of sadness was similar, the non-psychiatric patients lower limit was as low as 20% but the psychiatric patients scores for sadness did not fall below 70%. It was suggested that patients with a psychiatric disorder may experience sadness that is qualitatively different from that of the non-psychiatric patients.

As for the duration of emotion episodes, it was found that they were of a significantly longer duration in the psychiatric sample, with episodes lasting more than one day. However, the psychiatric group had significantly more recurrences of thoughts about their emotion episodes. These recurrences were found to occur for emotions that could be expected to be predominant for their condition, such as fear in anxiety states and sadness in depressive states.

Not surprisingly, the psychiatric patients also reported more difficulty in sleeping: as they felt anxious about the persistent and distracting nature of their thoughts.

It was only with the help of the semi-structured interview that some of the most important differences between normal and abnormal emotional experiences could be discovered.

Perhaps the most striking and important findings for the understanding of abnormal emotions is seen in the fact that

the psychiatric patients felt more negative about themselves and their ability to cope and expressed more difficulty in understanding their emotion states. Responses from the interview also enabled one to establish that the psychiatric patients experienced more associations with past events during their current emotional experiences.

This is especially relevant in the light of the hypothesis that moods bring depressogenic and anxiety provoking episodes to mind in psychiatric patients. The results presented here have suggested that this hypothesis should be taken more seriously.

It has therefore been shown that emotions should be investigated from an epidemiological view. Before such responses could be obtained in the interview the patients had to have some reference point in order to then recall associations.

It seems that emotional traumas still have effects on current emotional life by conferring a particular kind of interpretation that may be still problematic for the patient.

We can see from these results a picture of abnormal emotional experience emerging. It is not necessarily the case that a patient with a psychological disorder will experience more of a particular emotion episode or that it will necessarily be more intense. Instead what is suggested by these results is that the most important distinguishing factors are to be seen in those qualitative features of emotional experience as explained above. It seems that the crucial differences may lie in the cognitive assessments made during emotion states.

If one also recalls the extracts from the interviews, pages 186 to 188, it is also apparent that the emotional experiences of the psychiatric patients were actually 'disabling' to their everyday lives. The extracts from the two pilot studies also illustrated that these women experienced a degree of confusion about their emotional state. The crucial difference between the two samples extracts is in that the women in the pilot study actually appeared to be weighing up the present situation with what had happened in a previously similar situation and planned some course of action. The psychiatric patients however experienced a great deal of confusion and anxiety about their emotional experiences but they did not use elements of past emotional experience as a way of coping with current situations.

I feel that this study has shown (1) that the diary is a flexible and easy-to-comprehend instrument, (2) that in-depth interviewing methods validate and extend the results from the diary, and (3) that it is profitable to understand abnormal emotional experiences by comparing them to normal emotional experiences.

The only problem affecting the study presented was that patients suffering from paranoia, anorexia and hypomania were lacking. Had more patients been involved we would have been able to investigate a wider range of normal emotions against abnormal emotional experiences. Time and accessibility to patients were, however, not conducive but this does not retract from the important steps made here in the study of everyday emotions in the psychiatric patient.

In the second of the applied projects the proposal was that if observational studies and accounts from doctors had identified ways in which organic and non-organic patients may be different then perhaps these patients would also differ in their experience of everyday emotions. In particular it was proposed that there would be differences between the groups in their experiences of anger and anxiety.

It had been thought that vast differences would not be identified across variables of emotion episodes, because in essence this was an exploratory study based on the suppositions made by clinicians at Gastro-Enterology Clinics.

It was found was that the non-organic patients viewed themselves negatively in significantly more episodes of anxiety and anger than the organic patients. Likewise, episodes of happiness seemed to have little positive impact on the non-organic patients.

The reason for this, I propose, is that the non-organic patients are suffering a great deal of confusion over their illness and believe that doctors have failed to believe their symptoms. These non-organic patients actually experience pain, (they are not malingerers) but they often failed to understand that the symptoms could be eased by a change in diet and lifestyle. The anxiety and confusion they experience over their illness only serves to fuel more insecurity, and the result is more episodes of anxiety which may lead to psychosomatic pains and further misinterpretation.

The non-organic patients pain profile was different from that

of the organic patients. The former did not report specificity of pain complaints but often complained of many types of pain in different areas of their bodies. It was thus often difficult to agree on a pain term to be placed at the top of the pain-timetable. This pattern reflects that which doctors say they often experience with the non-organic patients.

In contrast, the organic patients were very specific about the location and nature of their pain complaints. These patients have usually had confirmation of their pain: they believe that there is actually something physically wrong, which makes it easier to cope.

What results of this study show is that the organic patients handled anger differently from their non-organic counterparts. The organic patients also reported that they experienced persistent thoughts of anger that lasted longer than those of the non-organic patients. Even although recurrences of thoughts about all types of emotion episodes were common in both groups, the organic group differed in that they reported few recurrences of thoughts connected with angry episodes. Its rather surprising that the initial thoughts about the angry episodes should last so long but not recur. It seems that the organic patients display behaviour consistent with denial and inappropriate expression of anger. The extract from one of the interviews illustrated the typical behaviour of organic patients during episodes of anger. What is more, this group did not report any breakdown of their anger into other emotions. This is an extremely surprising finding when one considers that in all studies there was a good deal of reports that initial anger later broke down, as it were,

into anxiety or sadness. It seems that the organic patients are either not resolving their anger so that it does not diffuse and change, or that this happens but they are confused by their anger and misinterpreting their feelings.

The consistent pattern of behaviour in the non-organic patients was found to be that of withdrawal from situations into themselves. They viewed themselves in a negative light, becoming anxious about their ability to cope with day to day situations.

Perhaps the most important element of this study was that the non-organic patients were often surprised at the type of situations that resulted in their episodes of anxiety. Perhaps too that treatment for these patients should include monitoring their emotions, possibly using a diary format as well as doctors' observations to enable patients to identify when they are over-anxious and begin to make the lifestyle changes necessary to ease of their pain.

Recent research has emphasized the importance of the control and expression of anger. Researchers are now realising that unexpressed resentment, and anger can lead to health problems. There is also evidence (e.g. Spielberger 1986) that in some people, depression is caused by turning anger against themselves. Honest expression of anger is constructive, but a failure to express anger properly may mean that one is suppressing the emotion and thus suppressing the relevance of the emotion to oneself. This can lead to a continuing existence of anger, although the causes of this anger are never confronted.

If professionals and laymen alike now suspect that excessive rumination and anxiety states can lead to tension headaches, chronic pain states and stress related illness, should we not also look at the role of anger as an emotion which may have implication for general health and symptoms of the gastro-intestinal tract?

Overview of the present clinical studies and two further projects

Applying the diary method to clinical projects has broken new ground. It has been seen that it is possible to chart the emotions of different clinical groups to study their specific ways of reporting emotional components. With the inclusion of the interview schedule the type of cognitive assessment made by the subject can be recorded. This element is extremely important when we wish to understand more fully the emotions psychiatric patients experienced.

In addition to the clinical studies reported here there have been two further small ventures using the diary method in dealing with applied problems. Two colleagues, Grant Carson and Lisa Cooper, both undergraduate students of psychology at Glasgow University, completed two very different studies under the supervision of myself and Keith Oatley. The study by Grant Carson is outlined briefly below.

Emotion diaries applied to the experience of a physical disability

Grant Carson, himself a disabled person, administered a version of the structured diary to a sample of 31 disabled people and 25 comparison subjects between the ages of 18 and 60, selecting each member of the comparison group to be as similar as possible to one of the disabled subjects in age, employment and education.

For the disabled subjects, Grant Carson provided three different kinds of material so that the diaries could be completed irrespective of disability: the printed diaries comparable to the one shown here, an audio recorded version, and one transcribed by computer into Braille. He met some of the disabled subjects to record their responses, which he then transcribed. One modification of the diary introduced for this study was that rather than anger/irritation, the diary asked for incidents of anger/frustration, as it was thought that this might be a very common kind of emotion for disabled people.

The results of Grant Carson's study can be viewed in Figure 5, in Appendix 5b. The surprise both for Grant Carson, Keith Oatley and myself was that the disabled subjects experienced more incidents of happiness than the comparison sample. There are several possible explanations. One is that the disabled subjects are keen to counteract a negative image that society tends to have of them, and subsequently they have recorded more of their happy incidents. More plausibly, it

could be thought people who are disabled often feel happy about achieving something that would not be noticed by people who were able bodied. So, for instance, one disabled person said that getting to and from the toilet unaided elicited a happy emotion, and another said that because the weather was fine, she was happy to be able to go out.

Emotions and the Contraceptive Pill

In a further application, Lisa Cooper wished to test the commonly held notion that women can suffer unpleasant emotional effects when they start taking the contraceptive pill. She therefore asked 19 women to complete emotion diaries. Ten had recently started the contraceptive pill, and nine had been taking the pill from three to six months. She in fact found few differences between these groups. It was hypothesized that more physiological reactions would be found in those who had started the pill recently but this was not the case.

In just four applied projects I believe that the diary method has demonstrated sound applicability. The diary is easy to comprehend and can accompany many other measures if necessary. The design of the diary makes it conducive for transcribing, as was necessary in the study with disabled subjects.

What of the Cognitive Theory of Emotions?

It was one of the intentions of this research that hypotheses from the cognitive theory of emotions by Oatley and Johnson-Laird would be rigorously tested. Thus questions bearing on these hypotheses had been included in the original design of the diary.

The first of these hypotheses was that emotions occur in connection with at recognizable and recurring types of event in relation to goals. Under the classification principles devised by myself and Keith Oatley (refer page 88 to 91) each emotion situation in each study was rated. With the exception of the first study all classifications were made by raters blind to the actual emotion episodes recorded by each subject.

It was a consistent finding that there was a significant direct relationship between emotion types and their goal-relevant elicitors (ie, happiness with the achievement of a goal, sadness with the loss of a goal, anger with the frustration of a goal, anxiety with the threat to a goal).

However there was a caveat in these results. A proportion of the episodes did not fit well with this classification scheme. For instance, achieving a goal sometimes occasioned anxiety as opposed to happiness and frustration or blocking of a goal sometimes resulted in sadness rather than anger.

Indeed the raters often found that there was a problem distinguishing a loss from a frustration of a goal and thus this

was where the raters often disagreed as to the classification of the situation. It may thus be that where two raters find it difficult to agree an ambiguous situation has been identified where there is the potential for emotion mixtures to be experienced. This proposal may be supported by the fact that anger and sadness were the emotions most often mixed with each other and among the most often unstable emotions.

Oatley and Johnson-Laird hold that emotions have a non-semantic (or non-propositional) part and a semantic (or propositional) part which are typically bound together. They propose that the non-propositional signal sets up a distinctive basic emotion and the propositional signal carries information about what caused the emotion or to whom it is directed. Since the non-propositional signal carries no information it is proposed that a basic emotion mode will therefore occur without the experiencer being aware of the cause of the emotion. Oatley and Johnson-Laird believe that this is the defining characteristic of basic emotions (Johnson-Laird and Oatley, 1989). Indeed it a postulation that sets this theory apart from other cognitive theories of emotion. The hypothesis thus tested in study three was that there would be examples of subjects experiencing basic emotion modes, such as happiness, sadness without knowing what caused them, but that they would always know what caused non-basic, or contextual, emotions like embarrassment and shame since the definitions of such emotion terms include an awareness of the cause.

The prediction was tested in each diary study, based on the responses from the question, "What caused the emotion?"

which then offered a set of mutually exclusive response categories. It was found in all studies that there were a small number of emotions which were said to have occurred for no particular reason.

In fact if the incidents of emotion are pooled from four samples, ie, the student sample, occupational sample, the sample of disabled and able-bodied people and the sample from the birth control clinic it is found that people were claiming that they were unaware of the cause of these emotions, this occurring for 6.5% (42/645) of all incidents. Please consult Table 1 in Appendix 5a, for a full appreciation of this result.

In addition, data on emotions was collected in a slightly different way to test this prediction. Chapter 4, Study 3 investigated the incidence and eliciting circumstances of a basic emotion, anger, and compared it to the incidence and eliciting circumstances of complex emotions, such as embarrassment, jealousy and shame.

Johnson-Laird and Oatley (1989) postulated that to use these terms correctly always implies that the subject knows their cause. Embarrassment is fear (the non-semantic part) with the knowledge that one is the unwelcome object of attention (the semantic part). Shame is an emotion of loss or threat (sadness or fear), with the knowledge that some third person has contravened some social rule. Jealousy is anger or hatred with the knowledge that some third person may be supplanting one in a close relationship. From the 43 incidents of anger collected it was found that one episode had apparently arisen

for no reason. In contrast, of the 55 non-basic emotion episodes collected none of these emotions were experienced without the person being able to describe why.

If I take the broader view and look at all of the emotions recorded in all of the diary studies, with the exception of disgust/hatred about one in every 20 incidents of the emotions that are postulated by Oatley and Johnson-laird to be basic were experienced without the subject knowing why.

Although the number of incidents of emotion occurring without an identifiable cause was low it nevertheless existed and should not be ignored. The phenomenon has been evident in all of the studies conducted thus far and must be investigated further. It can therefore be said that evidence does exist which does run contrary to the position held by Ortony and Clore (1989), that, for example one can feel embarrassment without knowing why.

Unfortunately for Oatley & Johnson-Laird I feel not everything is as clear as it would seem. They have postulated that disgust/hatred is a basic emotion, and should therefore sometimes be experienced for no reason. This emotion, however, is by far the most problematic for the theory. Although there are good reasons for believing disgust/hatred to be a basic emotion (Ekman, 1992), and quite separate from other emotions (Rozin and Fallon, 1987), not only do the terms disgust and hatred carry an implication of the person knowing the cause, but it has been shown that incidents of disgust/hatred were more haphazard in their causation by goal-relevant elicitors. The problematic nature of

disgust/hatred appeared again when one considers that of the 16 incidents of disgust, none were described as occurring without a known cause. Although 16 incidents of disgust are too few to test the theory adequately, since some basic emotions like anger only occur without known cause on less than one in 25 occasions, the lack of even a single example of disgust or hatred occurring for no consciously known reason is a problem for the cognitive theory.

The third prediction of Oatley and Johnson-Laird's theory tested was that emotions would tend to occur singly, with mixtures being rare. The reason for this, they say, is that if the function of emotions is to summon into readiness a small set of action plans, each appropriate to the eliciting cause, it would be dysfunctional for several such sets to be brought to readiness (since conflicts and indecision could then occur). Therefore Oatley and Johnson-Laird proposed that there would be some mutual inhibition between emotions. Consequently they say that just as it is impossible to feel, say, amorous when anxious, they supposed that it would be hard to feel sad when happy, or angry when disgusted, and so on.

From all six studies detailed here it has been found that this hypothesis was wholly refuted. Mixtures of emotion were common and what is more it was often two of the so called basic emotions that would be paired together, such as anger with sadness. In fact, on average, about a third of all emotion episodes supported mixtures.

A consistent finding such as this presents the theory with a problem. In effect, though, the theory did not fair too badly

with two of the three predictions being upheld.

One additional point should be made on the subject of the theory of emotion elicitation. It is that the diary studies have shown that emotions often occur in daily life not in response to immediate events, but to events at one remove: to events remembered, imagined, heard about, read about, seen on television and so on. Though no one will be surprised that emotions can and do occur in this way, the diary method, I think, is the first to allow an estimate of the frequency of such occurrences. From 645 emotion incidents 128, (20%), recorded by the four samples (student, occupational, disabled, and birth control samples) were of emotions occurring because of events at one remove. (Please refer to Appendix 5a, for Table 1).

This is a high frequency, and I suggest that theorists should take this finding seriously. One way of doing so, would be to argue that any theory of planning requires that plans can be run in mentally simulated worlds. If emotions are closely tied to action, and function in the management of goals and plans, then it can be readily understood, as Oatley (1992) argues, that emotions will occur not just when real actions are performed, but when simulated plans are run, as when reading a story in which one identifies with a protagonist and his or her actions, or when one reconstructs a remembered sequence of events, or rehearses for something in the future.

Characteristics of Disgust and Hatred

In the final study of this thesis I found myself treading on relatively new ground. Although previous research had established the nature of the facial expressions accompanying these emotions, disgust has only recently enjoyed some exposure in the work of Rozin and Fallon, but hatred has not to my knowledge been studied in any systematic way. It seemed not only surprising that there were very few episodes recorded in the diary studies, but that the psychological literature was rather scant in comparison to that available on the other emotions I have investigated.

My aim was therefore to increase the psychological knowledge of the emotions disgust and hatred, thereby stimulating future research.

Disgust and hatred were compared to their proposed less intense but related feelings of distaste and dislike. I found these a useful baseline with which to compare elements of disgust and hatred.

It appears that both hatred and disgust differed significantly in many variables from their related phenomenon.

Disgust was significantly more intense than dislike, was accompanied by more bodily sensations which were also of a greater severity than those accompanying distaste. Most importantly the fact that nausea was reported to be present in significantly more episodes of disgust than dislike confirmed

the proposal made by Rozin and Fallon that the experience of nausea would be a distinguishing factor.

If the nature of a situation leads one to experience disgust the logical assumption is that in order to return to normal functioning the incident would be quickly forgotten. One should immediately withdraw from the situation. Indeed, in general, this was the case, with disgust not lasting longer than feelings of distaste. Feelings of distaste and disgust were not feelings to be dwelt upon.

However an important finding of this study was that some feelings of disgust lasted for more than one day and in some cases for many years. These feelings had become so personalized that they were actually disturbing to the subject. No more so was this the case than when a significant other with whom the subject had a close relationship had violated social and moral values.

This tells us that disgust is not purely physiologically based but that there is much more cognitive processing involved, particularly when the incident involves a significant other.

Psychological contamination was also evident in this study. This is when a disgust item has come into contact with a previously acceptable food. It seemed that under no condition would many of the subjects return to a food stuff that had been in some way 'contaminated'.

In addition to this, it seemed that undesirable behaviour of others resulted in a negative evaluation of their personality.

However the picture of disgust is further complicated by the fact that what would be regarded as disgust substances can indeed be tolerated or admired - as if they have become extensions of the self.

Hatred was significantly more intense than dislike, and was also accompanied by significantly more bodily sensations which were of a greater intensity than those accompanying dislike.

The experiences of hatred were reported as having a longer duration than experiences of dislike. In fact some the experiences of hatred were being reported from as long as 10 years or more, with one subject in particular reporting feelings of hatred that had been with her for 26 years. It did not seem that these feelings had abated in any way. They were still disturbing the subject's sleep, and still had a significant effect on her self-image.

Both disgust and hatred were described as having a strong subjective component to them. Disgust was described as "feelings of revulsion", "making the blood run cold, causing shivers", whilst hatred was described as a "gripping", "seething", "burning" feeling that was "upsetting" and left one feeling "exhausted".

In addition the subjects often reported an inner struggle to suppress aggressive impulses accompanying hatred. They battled with themselves to maintain control of their actions, often withdrawing from the person and situation rather than resorting to physical contact. It will not escape one's notice

that this is a similar pattern to anger episodes.

This study also explored various elements proposed by Averill in his study of anger and annoyance. If you recall he proposed that intense episodes of anger would be more likely to occur if they were sparked by more serious incidents, involve attribution of blame, be more personal involving complex interpersonal relationships, demand expression, tax coping strategies, motivate revenge and affect differentially by the mood of the individual at provocation.

In the case of hatred it was proposed that many of these elements would be present, and this was indeed the case. Episodes of hatred that were longer lasting and most intense were identified by the subject has being significant events in their lives, involved interpersonal relationships, were more disruptive to plans and goals, taxed coping strategies, and so on.

It was found that the same could be said with regard to in some occasions of disgust, although they did not always involve interpersonal relationships and did not always tax coping strategies. However, I feel that feelings of disgust can be more readily outwardly expressed than those of hatred.

It should be pointed out that distaste/disgust dislike/hatred were also triggered by events at one remove. A proportion of the episodes were caused by what the subjects had read, heard or seen on television friends and family, or what they might imagine could happen. These episodes however were those that were typically of a shorter duration and less intense.

It was seen again that past events were brought to mind by current events and feelings. In this final study I attempted to establish to what extent these past events were considered severe significant life events. It was found that of the proportion of events that were said to have brought associations with past events, around half of these episodes were said to be part of significant events in their lives. The impact that reasoning from these past events places on current events needs to be investigated further.

Although this research has fulfilled its stated aims and findings have been cross-validated with other research this does not entirely excuse one from having to defend the methodology that has led to these findings. In the following section I will explore the wider implications of emotion diaries and emotion accounts.

Folk Theory and Scientific Theory

In the opening section to this thesis I alluded to the body of criticism surrounding the use of self report measures. It was then pointed out that the problem with emotion accounts is that researchers may be tapping into nothing more than peoples folk theories of emotions: which are of little scientific value. There is a second knotty problem. That is the belief that in general people are not good at introspection and are regularly misled by their introspection. In other words they do not have the means to consciously say what has caused an event let alone give full details of the incident.

Having presented my data I here intend to answer the critics debating as fully as I can my position in defence of the methods used by myself and other researchers.

So to begin let me consider self-reports generally, and state two positions in the debate. From one side in this debate the implication would be that the only real prizes are to be gained in discovering scientifically how emotions work and what their effects are. From the other, self-reports have a place in psychological understanding.

Here, roughly expressed, is the first position, argued for instance by Patricia and Paul Churchland (Churchland, 1986; Churchland, 1990). In ordinary talk people assume that beliefs, desires and emotions influence behavior. Terms such as thinking something, wanting something and fearing something are terms of theory, a folk theory which is as old as

written language, and has not changed much in 3000 years. It is a rather primitive theory that is largely based on common-sense. But it seems that undue reliance on our common-sense ideas as a starting point for scientific theorizing would be the source of spurious problems and not a good guide for psychological theorizing.

By contrast scientific theories change because they are responsive to carefully collected evidence which becomes available as scientists collect it. According to scientific theories, behaviour is caused by the actions of nerve cells. By contrast, there is no evidence that beliefs, desires or emotions cause anything whatever. These and other terms of folk theory will be replaced when we have a fuller scientific account of behaviour. For scientific purposes they can be eliminated now. When we understand more about how behaviour is neurophysiologically caused, perhaps in terms of the new theories of parallel distributed neural processing, such terms as belief, desire and emotion will be as archaic as humors and phlogisten.

Several lines of evidence support this position. One has been advanced by Nisbett and Wilson (1977) and Nisbett and Ross (1980). People's behaviour and mental states are often affected by causal factors to which they have no introspective access. Even beliefs which seem pre-eminently conscious can change without volition and without people having any idea of the cause. They propose that when people are asked to report how a particular stimulus influenced a particular response, they do so not by consulting their memory of the mediating process, but by applying or generating their own

causal theories about the likely effects of that type of stimuli on that type of response. Thus in forced compliance experiments, people attribute their behaviour (for instance eating grasshoppers and liking them) to their own choice (1977). The design of such experiments shows, scientifically, that the behaviour and the change of preference are caused by subtle social pressures set up by the experimenters.

Nisbett and Wilson (1977) and Nisbett and Ross (1980) claim it has been shown throughout social psychology, in repeated experiments, that people are poor judges of the causes of their behaviour, even when this behaviour is conscious and verbal such as the change of an opinion. Social psychologists have shown that such causes include social conformity, compliance to subtle conditions of experimental designs, and attributional biases. Peoples explanations of their behaviour ignore such elements. Instead, in their explanations people focus on the events that are salient. Now it seems that perhaps principles of social psychology, whilst not being said to be wrong, have nevertheless censored the explanations of their subjects labelling them as mere folk theories. I believe that it is time that observations of social phenomena should be paired with self-reports and that the study of emotions should involve many methods than can validate each other.

All self reports may merely be expressions of folk theories. If one says and believes that a mental state was caused by some event, this merely means that the event was salient, or that a plausible cause could be identified in the terms preferred by folk theory. The event need have no causal status. All that

has happened is that the person has noticed the event, assimilated it to his or her folk theory, and generated an explanation that has consensus with the terms familiar to his or her local culture. If some particular explanation were also scientifically correct then this would be merely fortuitous, since folk theories are ignorant of the real causes of behaviour.

It seems that not only are causes of emotion outside the range of introspection but apparently obvious physiological perturbations are too. In a study supporting this position Mandler, Mandler, Kremen and Sholiton (1961) looked at the relationship between verbal reports of various autonomic variables such as heart rate and sweat gland activity, comparing them to objective measurements of these variables. Correlations between verbal reports and physiological measurements were not often significant, and sometimes not even positive. Lang (1988) in summarizing data on fear, for which there is extensive evidence from his own and other people's work, concluded that verbal reports seldom account for more than 10% of the variance of behavioral and physiological data. At this point I can answer this by saying that the subjects in these diary studies reported the presence of bodily sensations that were consistent with studies that have induced emotion states in order to test their physiological correlates.

Position number two is in distinct opposition to this line of thinking. It is that these are the arguments of behaviorism, a now outmoded approach to psychology. In cognitive science, we should not rely exclusively on behavioral and physiological

data, but take a more pluralistic view, that self reports and intentional statements are not mere froth on the top of behaviour, but at very least are among the phenomena to be explained. There is no reason to value only behavioral data and to disregard these, since in the end it is to explanations comprehensible to ourselves as human beings speaking in intentional languages of beliefs and desires, to which our explanations have to return, even if we find that folk theories are limited and are not able to explain some phenomena as well as, say, behaviorally or physiologically based theories.

Though Patricia and Paul Churchland argue that all explanations in ordinary language, using folk theoretical terms like belief, desire and emotion, are likely to be mistaken, Clark (1987) for instance argues the opposite. The persistence of folk theories that include such terms does not mean that such theories are stagnant and wrong, as the Churchlands claim. More plausibly it means that folk theories are as well matched to predicting our own and others' behaviour, just as our implicit theories of physics allow us to pick up a jug of water, or recover from stumbling. In other words, to describe aspects of our competence in relation to gravity and other physical forces, we postulate that our nervous systems contain some embodiment of implicit theories of physics. In order to be able to act successfully these embodiments must have evolved to match actual physical laws. Correspondingly our psychological competence is likely to mean that our implicit explanatory theories of action are well matched to the tasks they accomplish. Rather than comparing mentalistic explanations to intuitively derived theories such as the theory that the stars are attached to a crystalline sphere and revolve

round the earth, we should notice that our mentalistic explanations allow prediction of our own and others behaviour with accuracy that is comparable to that of most physical sciences. Indeed, he proposes that psychological understanding of one's fellows is as important for the success for a social animal as recognizing food or predators. To speculate, if one allow that a 10% error rate (say) is acceptable in many scientific predictions, we should compare this with the rates of making joint plans in arrangements to meet someone, or to pick up one's child at a certain time and place, which are as good or better than this.

This debate is not likely to be resolved quickly. The position I propose here is that we should take seriously mentalistic theories in understanding and reporting on emotions. In other words at the moment I am proposing to support the hypothesis put forward by Oatley and Johnson-Laird (1990). The hypothesis is this: for some aspects of emotions, folk theories and the current theories of cognitive science converge. That is to say, emotions as we experience them, and as they are reported in diaries, are both subjective phenomena and they have an objective existence. They are caused by events in relation to goals.

These states often include some awareness of bodily perturbation, and/or of thoughts that are hard to stop, and/or of urges to act. People can give times, places, antecedents for such states. The position should therefore be argued that events with these characteristics, rather than the fleeting facial expressions or the unconscious change in skin conductance, are the events that figure in our explanations of our actions

and reactions to ourselves and others.

It was proposed in the final study that although facial expressions for disgust and hatred were reported there was an admission that there would have been wider reporting of these phenomena if there had been an observational element to the study. This was not said to discredit the other elements of emotional experience reported by subjects but to suggest yet again that several methods in studying emotions should go hand in hand.

This is necessary if we think of a scale of emotional states. At the micro end of this scale are facial expressions and changes in autonomic variables. At the macro end are long-lasting states of disablement recognized in psychiatry, states which include emotions that are more intense, more distressing, and longer lasting than usual — clinical syndromes of depression and anxiety. Whereas it is certainly true that behavioral and physiological methods, and not self-report methods, have been successful in investigating micro level emotions, for the larger emotional states of depression and anxiety, it has been the use of self-report methods that have enabled what is arguably the largest advance in psychiatry in the last 30 years.

Using methods based on self reports, Brown and Harris (1978) have been able to predict 89% of the psychiatric breakdowns that occur to women in the ordinary community. Taking an epidemiological approach, using semi-structured interviewing to make reliable research psychiatric diagnoses in the community, and asking about possible antecedents of psychiatric breakdowns: not only do we have for the first time

some knowledge of the prevalence of depression and anxiety states but also of what causes them.

We can understand that the fine grained patterns of facial expression and autonomic reactivity accompanying emotions changes by the second. They are not salient, but largely unconscious, and if not unconscious nearly always forgotten by the experiencers. Though these and verbal expressions, the words people use during emotions and the non verbal accompaniments of sighs, giggles and tones of voice, are part of the patterning of emotional life, there is no reason to suppose that people would be able to report such changes. At the other end of the scale of size, most psychiatric states are obvious both in their experience to the sufferer and to the clinician. It was demonstrated in the clinical studies that the subjects were aware of their disabling states. The states that people record in their diaries can be said to be midway between the fleeting emotional patterns of the face that can be recorded on video tape and polygraph and the larger states of psychiatric significance. As Nisbett and Ross (1980) argue, we are relatively good at creating understandings in terms of events that are salient to us. Here is where the diary method enjoys some praise from the critics. Emotions of the kind that were recorded in diaries were and can be made salient — this was the purpose of the initial interview given subjects when they were talked through the diary and asked to watch out for emotion states. It is part of the purpose of phoning the subject to remind them to complete their diaries to keep such events salient, despite the press of other concerns of daily life.

Scepticism about self-reports is warranted for fine grained

emotional patterning. If studies were undertaken in which it was possible to monitor, perhaps unobtrusively, such variables as heart rate and skin conductance, it would be possible to predict that most such changes would go un-remarked by the subjects, but that the states that people did record in their diaries were accompanied by such changes. In other words, only some such changes achieve the status of being salient enough to remember and remark upon. Unconsciousness of causes of behaviour can of course be demonstrated where people have no idea what to expect, and where experimenters deliberately set out to deceive — as in forced compliance paradigms. The contrast comes in that when people deliberately look out for events, as when keeping emotion diaries, then the extent to which they can record actual occurrences of feelings, physiology and external events is likely to be improved.

The principal reason for studying incidents of emotions in the way defined is that at this level the events that become conscious are predominantly the ones that figure so largely in explanations of our actions. We do not say, "I had a fleeting smile, a slight raising of the pitch of my voice and a change in skin conductance associated with an event of facial recognition." We say: "I felt so happy to see him again." If anything has implications for later behaviour, it is this state of happiness. The research task, then, in beginning to construct an epidemiology and understanding of emotions in ordinary life, is to improve the reliability and validity of the recording of those episodes emotions that are salient enough for people to notice, reflect upon, talk about. It is to these issues I will now turn.

There are at least three problems to be considered in this connection. The first, which may perhaps be thought of in terms of reliability, concerns sampling. Perhaps the issue can best be put like this. Can we rely on people to remember to complete their diaries? Might not a method by which they were reminded, perhaps by a beeper as used by Csikszentmihalyi and Larson (1984), sounding at random intervals, do much better? Then subjects would be able to sample exactly what they were doing at that moment, whether it was an emotion or not, and what the characteristics of their mental state were. I found it necessary to use phone calls to remind the subjects to fill in their diaries. Although such signalling devices as used by Csikszentmihalyi and Larson can have their uses I feel that in studying everyday emotion experience we should be using the incident itself as a trigger to complete the diary. For incident diaries, the main consideration is not that of sampling a continuously present mood at intervals, it is that of underestimation of the prevalence of discrete incidents of emotion, and a shift of criterion towards those emotions that are salient. An emotion is more likely to be remembered if an effort is made to make elements of these emotions salient to people. Hence the subjects were advised to look out for bodily sensations, emotional acts and persistent distracting thoughts.

A second question of reliability concerns the accuracy of remembered features of each incident. This question I believe

is a more difficult one. Thomas and Diener (1990) reported that after mood was sampled at random moments during two-hour time epochs during the day, subjects were good at remembering the frequency of occasions on which they had felt in (say) a positive mood. But subjects were not good at remembering the intensity of moods. Smith and Ellsworth (1987), moreover, reported on the basis of appraisals taken during an emotion, that some aspects of people's retrospective appraisals were biased or inaccurate. Such reports indicate that for some variables at least there is perhaps some retrospective distortion or indeed no recollection at all. For diaries of incidents of emotion, reliability issues are primarily to do with getting subjects to complete diaries promptly. Thus the issue of forgetting elements of the emotion could be studied as a function of interval before recording.

I believe that whilst the problem has not been eradicated it has been substantially reduced by the use of diaries which is a more prospective method than previous emotion reports research that has utilized retrospective methods. In support of this it was found, in the studies here, that a proportion of actual individual episodes of emotion had been recorded after only one hour of occurrence and that in any twenty-four hour period most if not all subjects had recorded an incident of emotion in their diary.

The second problem is of validity, and here a small step has been taken to cure the problem: two undergraduates at Glasgow, Tristan Aitken and Laurenne Stevenson, collected diaries from nine heterosexual couples. One member of each couple kept a diary in the same way as that for other diary

studies. The other member kept a diary that had been modified slightly — it was for behavioral observations, to record incidents of emotion in the partner. In fact for all nine couples the woman volunteered to keep the diary of her own experiences, and the man to be the behavioral observer. Though the couples were asked not to confer, it was not known whether they have done so and to what extent. (Copies of the Observers Diary and the Personal Emotion Diary can be found in Appendix 5).

Each member of the couples recorded between five and nine incidents and 62 incidents were recorded altogether, with the proportions of happiness, sadness, anger fear and disgust being similar to those I have reported in Study 1. Of the recorded incidents, 52 were noted by both partners with their date, time and descriptions indicating that they were the same incidents, and 10 were recorded by only one partner.

In effect this means that 84% agreement as to the occurrence of incidents was achieved. But strikingly, judgements of the intensity of the emotions did not correspond closely. The correlation between experienced and observed intensities was only 0.26. This illustrates that some elements are certainly inaccessible using observation methods.

As an example of an incident recorded by both members, here is one from Couple Number 5. They were both leaving the house and she was double checking security before they left. She detected he was annoyed because she was wasting time, and noted that he was what caused her emotion, which she called irritation, timed at 11.40am. The emotion he observed

was timed 12 noon, he called it panic. He also knew that she was annoyed at him, but dismissed it as her over-reacting.

Because of the descriptions of this kind, it was decided to sort recorded incidents into three kinds of agreement and one kind of disagreement, as follows:

A. Agreement, with relatively detached observation, so that she experienced an emotion and he was not involved directly but observed it. (Examples: Couple Number 2 - she was practicing her guitar, but it was not going well. He saw that she was annoyed. Both recorded the same time. Couple Number 8 - She recorded a good mood but was unaware of doing anything to cause it, just felt fine, and gave the time as 1pm. He recorded her mood as "contented" and timed it as "morning".)

B. Agreement, in mutually involving incident, in which he did something to cause her emotion and was aware if that emotion, or both partners doing something to cause related emotions. (Example: Couple Number 1 - in bed, she said his embrace got more intimate than she wanted. He picked this mood up. Both called it "unhappy, upset" and gave the same time. Couple Number 2 - both together putting up Christmas tree. Both in a happy mood, infectiously so. They kept each other going. There was a 30 minute difference in timing between the partners.)

C. Agreement including discussion in which it was inferred that she told him about the emotion, or that they discussed an incident in some detail. (Examples: Couple Number 6 - she had just got a new job. They were watching television, and she started talking about how happy she was to have got the job. He also observed her mood lift. Both recorded the same time. Couple Number 9 - she was worried about son's illness that she heard about at 9am. He recorded anxiety, knowing how anxious the news would make her - there was a large time difference presumably due to being at work when the news came.)

D. Discrepancies that occur either when she recorded an emotion that he did not notice, or vice versa. (Examples: Couple Number 3 - they were taking an anniversary trip to Paris. He lost her boarding pass, at which she became irritated, but he did not record this. Couple Number 6 - he recorded her as being happy making Christmas cards. She made no record of this.)

The numbers of incidents in each of these categories were A = 24, B = 17, C = 11, and D = 10. Of course it cannot be said that all categorization was accurate - in particular, some of the agreements of Type A may really have involved discussions of Type C which were not recorded by the male diarist.

So although on the one hand this study falls short of having one person experience emotions while the other acted as a detached scientific observer, it has indicted that despite some inaccuracies of timing, apparently wide differences in judged

intensity and occasional differences of interpretation, incidents of emotion usually have strong concensual validity.

Perhaps even more importantly, they are usually not private experiences: as Oatley and Johnson-Laird (1987) say, emotions communicate to others. At this level of detail 28 of the incidents clearly involved both partners in some active way (Categories B and C) as compared with 34 in which arguably emotions were experienced or noticed mainly individually (Categories A and D). Because of the lack of detail that was asked for in this version of the diary, there may be underestimations made on the amount of mutual involvement in incidents of Type A. The incidents that were clearly mutually involving were important moments around which couples' joint lives turned.

Other researchers have also asked one set of subjects to report experientially while others do so behaviorally. Thus Larsen and Diener (1985) had students complete daily mood reports, and their parents completed questionnaires about them. Stein, Trabasso and Liwag (1991) interviewed parents of children aged two and a half to six, about incidents of happiness, sadness, anger and fear during the preceding week. It was found that there was a high degree of agreement about both the existence of incidents (concordance higher than 0.7) and their content (concordance higher than 0.6) for incidents of happiness and sadness, but much lower agreement about incidents of fear and anger. Even pre-school children, it seems, are beginning to lead a private life, which is not transparent to their parents, particularly for emotions which there might be reasons not to show. Nevertheless this study,

and the pilot study with couples, indicate that first person accounts and observer accounts generally agree. In general, a range of studies is possible in which experienced and observed emotions can be compared.

Effects of emotion schemata

Despite the evidence of consensual validity, there may still be problems. Peoples' self reports, whether by diary or otherwise, might not validly indicate anything about causes of emotional states or physiological changes that can be measured objectively. This theoretical position is upheld by Nisbett and Wilson (1977) who say that people do not typically know the causes of their behaviour. In a study testing this position Wilson, Laser and Stone (1982) had 50 student subjects make ratings on seven point scales of mood (ranging from very bad to very good) and of six predictor variables (the weather, physical health, relationships with opposite-sex friends, food, workload, amount of physical exercise). Subjects also indicated values on eight further predictor variables (number of hours sleep and what day of the week it was). Subjects were also asked to rate on seven point scales how strongly each predictor variable related to their mood. Subjects were moderately accurate in this, but no more accurate than other subjects who were simply given descriptions of the predictor variables and asked to rate how they would be related to mood.

It can be concluded that since subjects can do as well without personal experience of causes of mood as with such data, it

would be unparsimonious to suppose that subjects were attending to any evidence in their daily lives. Rather they were just reading out from their folk theories of what affects mood.

On the question of physiological changes there is a comparable study by Rime, Philpott and Cisamolo (1990). They found that when people reported autonomic changes for remembered emotions the pattern of results was very similar to that of subjects indicating what changes would occur in typical emotions. They conclude that people consult folk-theoretical schemata about such changes rather than recalling actual changes.

This seems a rather pessimistic view. The reason I am not as pessimistic about the value of the diary data as Wilson et al's and Rime et al's misgivings might suggest, is that neither of these studies casts doubt on the primary theoretical concern of whether people are good at knowing and recording whether particular events — such as a meeting with a boyfriend, an argument, or nearly suffering a traffic accident — actually occurred just prior to an emotion. Indeed Wilson et al take for granted their subjects' ability to report on such variables, for instance whether or not anything good or bad had happened in a relationship with an opposite sex friend, as evidence on which their conclusions about mood intensity predictions are based.

It has been known since Bartlett (1932) that rather than accurately storing and retrieving a record of what happens,

people use schemata to reconstruct what must have happened. Moreover, people are not good at judging causality with problemistic relationships and long time intervals (see e.g. Jenkins & Ward, 1965) and this is the case of judging whether, as in Wilson et al's study, variables such lack of sleep affect mood the next day. Although they are striking, the results of Wilson et al are consistent with what is known about memory. Equally, however, since memory theorists now argue for a special kind of episodic memory (Tulving, 1972), it has been recognized that people's memory for events is quite good, especially if these events are not schema incongruent.

Whether during daily life people are good or bad at recognizing emotion states in themselves, and accurately recording antecedents, are research questions that have not yet been answered. As said earlier the theoretical arguments used by Nisbett and Wilson for example are positions that have not been categorically proven either.

To solve the problem two steps need to be taken. One, as Lang (1988) has argued, is to make measures simultaneously of verbal, physiological and behavioral systems during an emotion. In one study Stemmler (1989) managed to cross-validated several measures, finding that real occurrences of fear, anger and happiness were discriminable on autonomic variables as well as by self reports, whereas physiological indices did not discriminate between the states of people recalling fearful and angry scenes. But the only real solution to the problem of the relationship between states of emotion as they are noticed and spoken about in ordinary life, and fully objective events would be for subjects to wear transducers to

monitor changes in autonomic reactivity, say of heart rate and skin conductance, with small recorders for each variable along with another for audio-recording of everything said. Each recorder would also need to record a common timing signal. The second step has already begun to be taken — it is to have observers make judgements of eliciting events and behavioral signs of emotions. This step is not purely behavioral because it requires the observers to know what kinds of things elicit emotion. This is not a matter of mere stimuli but, as I have argued, of events that have significance for the subject's goals.

The third problem is theoretical — it is the problem identified by William James (1884), and related to the problem of validity. Do emotions as we experience them really affect behaviour, or do they merely give tone and colour to experience? To use James's example, do we see a bear, feel afraid and therefore run; or do we see a bear, then run and experience running and other physiological aspects of our reaction as emotion? To put this question in less stereotyped terms: what are the functions and effects of those states that are salient enough to be recognized and experienced as emotions? It has been shown in answer to this that emotions have a communicative function. Not only this but also that the function of emotions seem to be enhanced in that past events converge on current ones to help us evaluate the best plan of action.

Are such states — falling in love, disappointments, vengeful anger — the very centre of explanation of our actions and interactions, as poets, dramatists and novelists have insisted for the 3000 years during which folk-theoretical explanations

have been recorded in writing? Or are we quite wrong in seeking to explain behaviour in such ways? Should we relegate novels and all other accounts in everyday terms to the status of mere pastimes, and get on with the serious business of understanding the neural bases of behaviour ? I think not.

The importance of consciously recognized emotions.

The importance of methods in which people look out for and record incidents of emotion in themselves or others is that such states are the incidents that people identify as explanations of their own and other people's behaviour. Using the self-report measures we can tap into the cognitive assessments made by people in interpersonal relationships. Convincing cases can be made, as they have been by Hebb (1946) and more recently by Gordon (1987), that concepts of emotion are essential to understanding and predicting behaviour. Hebb described how, during the reign of behaviorism when notes kept by attendants at the Yerkes primate colony had to be free of any mentalistic or emotional description, it became impossible to predict aspects of behaviour of chimpanzees. The explanations that Hebb and Gordon see as essential include understanding in essentially folk theoretical terms that if certain kinds of incident occur that are impossible to define purely behaviorally then we must use inferences. For instance an individual may become angry if slighted, and hence liable to attack. These require inferences about certain kinds of incident in relation to putative goals of the individual, and predictions that certain

characteristic actions may be caused by an emotional state. It is in fact these inferences which are often necessary for our safety and survival.

It may be the case that folk theories, and all explanations in terms of predictive effects of emotions are wrong, as a number of distinguished researchers, including William James (1890), have thought. It may be that emotions are mere folk-theoretical froth on the surface of mechanisms of behaviour, and that such states, if they exist in any realm but that of folk theory, have no causal influence on action. We shall, however, not come to know this by insisting that only behavioral and physiological methods are allowed. Such methods would exclude those very explanations in ordinary language that make emotions of such profound psychological interest. Even if psychologists in the future are able to show that such explanations are mistaken, or that folk-theoretical processes merely parallel 'real' mechanisms of behaviour, these explanations do allow a degree of prediction about our own and others behaviour for which at present there is no even approximate alternative. Purely behavioral and physiological methods alone are unable to make contact with the intuitions people have about their emotions or other reasons for action.

Recording incidents of emotion as people understand them, and as they describe them to themselves and others, is essential, although these data need to be related in future to physiological and behavioral observations. For the foreseeable future, people's understandings of the incidents of emotion in their lives will be important for scientific

explanations of emotions, as they are for more personal understanding.

In conclusion, I hope that as a result of this research I have achieved several things: increased the psychological knowledge of emotions as they occur in the course of everyday life; demonstrated the value of the diary method and its ability to be applied to several problems; and in the end hopefully tackled some of the theoretical problems raised by using emotion reports.

From the diary method we are able find out much more about the epidemiology of emotions than can be obtained by other self-report methods. It has been shown that we can ask about what the probable precursors to emotions might be, the frequency of types of emotion, and what effects they have on people in the course of their daily life. We can explore possible sex differences in recorded intensities of emotion. Further, in the present studies the method allowed testing of hypotheses derived from the cognitive theory of emotion by Oatley and Johnson-Laird (1987).

Of course there are problems in opting a diary method. One is that the diary does require a very real commitment from the subject. It can be time-consuming simply because the researcher has to take into account that guidance given to subjects as to how they complete the diary, via the 'mock episode procedure'. If such a procedure is not taken as a necessary prerequisite then a low response rate is probable. Despite these problems the diary method is an important methodological tool and should be relied on more alongside

other methods of investigating emotions. I do feel strongly that the diary method lends itself very well to studying emotions as they occur in the course of everyday life.

I also think that a few final words as to the position I now take on the cognitive theory of emotions is appropriate here. In my opinion the proposals made by Oatley and Johnson-Laird are eloquent, but it is very apparent that there are substantial areas of concern. I feel quite strongly that emotions should be as they say regarded as biological tools for coping in a rather unpredictable world and that they are integral to the management plans and goals.

However there are problems with the inclusion of certain emotion types in the so called set of basic emotion modes. The main problem seems to be with the emotion disgust/hatred. It did not fit well into the criteria that a basic emotion mode can occur without the subject knowing why. This is in opposition to the fact that all other basic emotions, happiness, sadness, anger and fear were said to have occurred with no identifiable causal event. In the light of this I propose that disgust/hatred is perhaps more like the complex emotions such as embarrassment, shame and jealousy. Like these disgust and hatred involve conceptions of the self and they arise at junctures in social plans.

The other major finding with respect to the theory was the preponderance of mixtures of emotions. This ran contrary to the proposal that if mixtures were to occur they would be a rarity. I feel that it was rather naive to propose that two or more emotions could not be experienced simultaneously,

especially when we take into account the occurrence of very complex situations which could possibly tax coping strategies.

I believe that this is one area that the theory as it stands has no explanation for. However, I do not feel that the theory, in order to account for these mixtures, needs to be restructured. Instead the identification of mixtures should be incorporated into the theory with explanations as to the relevance of these mixed feelings to planned actions. It may be that subjectively one will experience conflicting emotions as a consequence of an event but that we know that they are inherently different and that in order to carry on with planned action one has to resolve the feelings and prioritize goals and plans according to desired outcomes.

I began this work by saying that emotions are subjective experiences and I have come full circle. Ultimately emotions are subjective experiences and people have direct access to them. In our own experience we cannot be mistaken in asserting that we are experiencing fear. It can be conceded that we can be mistaken about some relevant aspect of the world that is the cause of fear. Evaluations of others' reports of emotion are based on our own evaluations and intuitions about emotions. Evaluations are nothing more than evaluations they are not pertaining to establish whether the intuitions about the emotions are true or false.

Consensus of opinion about emotion situations at least suggests that there is a common theory and until there are methods which prove that the self-reports are scientifically invalid we should continue to explore emotions in this way, if

only to gather data that future studies utilizing alternative methods may confirm or discredit.

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GLOSSARY OF TERMS AND ABBREVIATIONS

Definition of Terms and Phrases

Emotion mixtures, mixed emotions: these phrases bear relevance to the cognitive theory of emotions. They are used to signify whenever subjects record experiencing more than one emotion at precisely the same time. For example a subject may experience "happiness" but simultaneously feel "anxious" and so report a mixed feeling.

Serialization of emotion: when one emotion say "anger" later changes to "sadness". This is an indication that the subject has evaluated the situation in light of their plans and goals and where their feelings have change accordingly.

Non-attributable emotion: where no actual cause has been identified for the emotion experienced. The word acausal could have been used but this implies that there is no cause whatsoever, i.e nor direct link relationship. The term non-attributable is preferred as it truly reflects that emotions can happen without the experiencer being aware of a preceding cause for their feeling.

Abbreviations used

The following abbreviations were used throughout this thesis in tables of actions performed by the subjects.

U/mcloser = an urge to move closer to, but one that was not actually carried out.

U/aggress = an urge to act in an aggressive way, but one that was not actually carried out

U/wdraw = a wish to withdraw from the situation or person but which was not actually carried.

A/touch = actually moved closer to and touched someone else, hugged or caressed for example.

A/aggress = was aggressive actually hitting someone or something.

A/wdraw = did actually withdraw from the situation or person(s).

APPENDIX 1

APPENDIX 1a

Figure 1 to 4 Oatley & Duncan's Emotion Diary Version 5.3

Figure 1. Cover page of Oatley & Duncan's emotion diary Version 5.3.

EMOTION DIARY

COVER PAGE

We would like you to keep this special diary of your emotions and moods in the next few days.

You can recognise an emotion when

- **a bodily sensation happens** (such as your heart beating faster), **or**
- **you have thoughts coming into your mind that are hard to stop, or**
- **you find yourself acting or feeling like acting emotionally**

You can recognise a mood when

- **you have a feeling of some kind that lasts for more than about an hour**

Please complete a diary page as soon as possible after any emotion or mood happens that is strong enough for you to notice.

Please do one page for each of your **next four emotions or moods.** They may be different or the same kind.

Personal

Please be as frank as possible. We only want to know about emotions generally. So don't put your name on the diary. We will not keep a record of which diary belongs to any particular person.

We would like some personal information though, if you would not mind:

1. Age ..... **2. Sex (Please tick.)** Male ❐ Female ❐

3. Living arrangements (Please tick one.)

(a) Living alone; in your own house, apartment,flat, or room; not shared ❐
(b) Living with husband, wife or lover (with or without children) ❐
(c) Living as single parent with child or children ❐
(d) Living with parents or relatives ❐
(e) Living with friend or friends; in shared house, apartment, flat or room ❐
(f) Other ❐ Please describe .....

4. Your occupation .....

5. Date when you started the diary .....

Figure 2. First side of diary page of Oatley & Duncan's emotion diary Version 5.3.

DIARY PAGE

Fill a diary page (both sides) when you have an emotion or mood.

1. Was it an emotion ❐ or mood ❐ ? (Please tick one.)

2. What is your name for that emotion or mood? .....

3. Would you call it a type of any of the following? (Tick one.)

Happiness / joy ❐
Sadness / grief ❐
Anger / irritation ❐
Fear / anxiety ❐
Disgust / hatred ❐

4. How sure are you about your choice in question 3? (Ring one below.)

Not sure at all 0 1 2 3 4 5 6 7 8 9 10 Completely sure

5. How strong was the feeling? (Ring one below.)

Not really noticeable 0 1 2 3 4 5 6 7 8 9 10 As intense as I have ever felt

6. Did you have any <u>bodily sensations</u>? (Tick one or more.)

Tenseness (of body, jaw, fists) ❐ Trembling ❐
Stomach (nausea, churning, butterflies) ❐ Heart beating noticeably ❐
Feeling sweaty ❐ Feeling hot ❐ Feeling cold ❐

7. Did <u>thoughts come into your mind that were hard to stop</u>, and make it hard to concentrate on anything else? (Tick one or more.)

Replaying an incident from the past ❐
Thinking about how something might happen in the future ❐
Longing for someone, or something ❐
Thinking about how to get even or get your own back ❐
Other thoughts ❐

8. Did you <u>act or feel like acting in some way</u>? (Tick one or more.)

Did you generally act emotionally, such as talking a lot, or not at all? ❐
Did you make a facial expression, such as laughing, crying, frowning? ❐
Did you feel an urge to act or actually act emotionally towards someone, by

moving closer or touching ❐
making an aggressive move ❐
withdrawing ❐
other ❐

Figure 3. Second side of diary page of Oatley & Duncan's emotion diary Version 5.3.

8. When did the emotion or mood start? Time ..... Date .....

9. Roughly how long did it last? .....hours .....minutes.

10. What kind of thing caused the emotion or mood? (Tick one.)
Somebody said something, did something, or didn't do something ❐
Something you did, or didn't do ❐
You remembered a past experience ❐
You imagined something that could happen ❐
Something you read, heard about, or saw on tv, film, theatre ❐
It seemed not to be caused by anything in particular ❐
None of the above ❐

11. Were you with anyone? (Tick one or more.)
Alone ❐ Husband / wife / lover ❐ Family ❐ Friend or friends ❐ Acquaintances or strangers ❐

12. Please say briefly in your own words what you were doing, and what happened, if anything, to start the emotion or mood:
.....
.....
.....
.....
.....

13. Was the feeling mixed, so that there was more than one emotion or mood at exactly the same time? (Tick one.) No ❐ Not sure ❐ Yes ❐
If Yes, what emotions or moods were in the mixture?
..... and.....

14. Did the emotion or mood stay the same or did it change? For instance, did you start feeling angry and later feel sad, or feel happy and later anxious, or suchlike? (Tick one.)
It was the same until it finished ❐ It changed ❐
If it changed: Please say from what ..... to what .....

15. Did the emotion or mood make it harder or easier for you to do something you were going to do? (Tick one.)
Made things more difficult ❐ Made no difference ❐ Made things easier ❐

16. About how long after the emotion or mood are you filling in this page?
.....hours .....minutes

Figure 4. Final page of Oatley & Duncan's emotion diary Version 5.3.

FINAL PAGE

Please fill this page in when you have done all four diary pages.

Did you miss completing a diary page for any emotions or moods?
Number of emotions missed .....
Number of moods missed .....

How easy or difficult was it to do this diary?
Please say briefly .....

How accurate do you think you were?
Rather rough ☐ Moderately accurate ☐ Almost completely accurate ☐

Are there important things about your emotions that we have not asked about?
Please say briefly .....
.....
.....

<u>For women who have periods</u>

Which part of your menstrual cycle were you in when you started the diary? (Please tick where you were when you started.)

*****----------_____----------*****
menstruating middle of cycle menstruating

Do you usually feel any emotional effects at particular times of the month, for instance tension before a period? (Tick one.)
Never ☐ Less than 50% of cycles ☐ More than 50% of cycles ☐

Were any emotions in this diary affected by your menstrual cycle? (Tick one.) No ☐ Not sure ☐ Yes ☐
If yes please say which ones, and how? .....
.....

Thank you very much indeed for doing this diary

APPENDIX 1b

An early version of Emotion Diary used in Study 1

EMOTION DIARY

COVER PAGE

We would like you to keep this special diary indicating some of the features of emotions that you experience. Please make an entry by filling in a diary page (both sides) **each time** you have a **distinct** experience of any of these four kinds of emotion:

- **Joy / happiness**
- **Sadness / grief**
- **Anger / rage**
- **Fear / anxiety.**

Make an entry when one of these kinds of emotion is strong enough for you to notice it distinctively, that is when it is accompanied by a **bodily sensation** (e.g. heart beating faster), **thoughts coming into your mind that are hard to stop**, or you find yourself acting or preparing to act in an emotional way like laughing, or hitting someone. We will describe the exact conditions for registering an emotion on the diary pages. Each diary page gives the characteristics of the emotion that we would like you to indicate. We would like you to do a page for each of the **next five distinct emotions** you have.

Personal data

We would like you to be as frank as possible obout your emotions, so we are not asking you to give your name. We will collect your diary, put it into an envelope with others, and shuffle them before analysing them so that we do not know which diary belongs to any specific person.

We would like some personal information though,. if you would not mind:

1. Age ..... **2. Sex** (Please tick) Male ❐ Female ❐

3. Living arrangements: Please tick one of the following:

(a) Living alone, i.e. having your own room (e.g. in hall of residence), flat or house not shared ❐

(b) Living with husband, wife or lover (with or without children) ❐

(c) Living as single parent with child or children ❐

(d) Living with your own parents or relatives ❐

(e) Living with friend or friends, in shared room, flat or house ❐

(f) Other, please specify.....

DIARY PAGE

Use one page, both sides, for each occurrence of one emotion and indicate which it is in question 1. Only enter an emotion if it is distinctly noticable, that is if you can tick an answer to at least one of the questions 2, 3 or 4 (below). Don't enter emotions when you just think: 'Oh this is quite nice.' or 'I wish that hadn't happened' but without anything described in questions 2, 3 or 4.

1. Which of the following emotions was it? (Please tick one.)

Joy / happiness ❐
Sadness / grief ❐
Anger / irritation ❐
Fear / anxiety ❐.

2. Did you experience any of the following <u>bodily sensations</u>? (Tick one or more.)

Tenseness (of body, jaw, fists) ❐ Trembling ❐
Stomach (nausea, churning, butterflies) ❐ Heart beating noticably ❐
Feeling sweaty ❐ Feeling hot ❐ Feeling cold ❐

3. Did <u>thoughts come into your mind that were hard to stop</u>, and make it hard to concentrate on anything else? (Tick one or more.)

Replaying an incident from the past ❐
Rehearsing for something in the future ❐
Longing for someone, or thinking about being with them ❐
Thinking about how to get even or get your own back ❐
Thinking about how something bad might happen ❐

4. Did you <u>act or feel like acting in some way</u>? (Tick one or more.)

Did you find yourself acting emotionally, e.g. talking a lot, or not at all? ❐
Did you make an emotional expression, e.g. laughing, crying, frowning? ❐
Did you feel yourself noticeably want to do something in relation to someone:
move closer ❐
make an antagonistic or aggressive move ❐
withdraw from ❐
Did you actually do a particular emotional action:
touch, hug, caress etc. ❐
hit, push, throw something etc. ❐
leave the room, walk away etc. ❐

5. Did you have a <u>subjective (inner) feeling</u> of happiness/joy, sadness/grief, anger/rage or fear/anxiety?

Yes ❐ No ❐ Not sure ❐
If yes, what is your name for the feeling?.....
Can you say anything more about what it felt like?.....
.....

6. When did the emotion start? Time ..... Date .....

7. About how long did the emotion last?
Less than a minute ❒ 1 to 5 minutes ❒ 5 to 30 minutes ❒
More than 30 minutes ❒

8. What started the emotion? (Tick one.)
Somebody else saying, doing or not doing something ❒
Something that happened because of what you yourself were doing ❒
Something you remembered ❒
Something you imagined ❒
Something your read, heard, saw on tv, film, theatre ❒
It seemed not to be caused by anything in particular ❒
It was started by something other than any of the above ❒

9. Where did the emotion occur, who were you with, what happened, what were you doing? Please describe briefly
.....
.....
.....
.....

10. Was the emotion part of a fairly long-standing mood, where the mood had lasted for more than half an hour?
Yes ❒ No ❒

11. Was the feeling mixed so that you had more than one emotion at <u>precisely</u> the same time, not alternating? Yes ❒ No ❒
If yes, what emotions were in the mixture?.....

12. Did the emotion itself stay the same throughout, apart from changes in intensity, or did it change from when you first noticed it, for example did you start feeling angry and later feel sad, or feel happy and later anxious, etc?
Did it stay pretty much the same emotion till it finished? Tick if yes. ❒
If it changed: Please say from what..... to what.....
Were there any alternations, going back again to first emotion? Yes ❒ No ❒

13. Did you find that the emotion affected your plans later, so that it made it possible to do something you would not otherwise have done, or made it impossible to do something you would have done? How were your plans were affected? .....
.....
.....

14. About how long after the emotion are you filling in this page?
.....hours.....minutes

FINAL PAGE

Please fill this page in when you have done all five diary pages.

Do you think you missed out any instances of the four kinds of emotions we are asking about: happiness/joy, sadness/grief, anger/rage or fear/anxiety because you couldn't make the diary entry for any reason?
Please estimate number of missed emotions
Number missed of: joy/happiness .....
sadness/grief .....
anger/rage .....
fear/anxiety .....

How easy or difficult was it to do this diary?
Please say briefly.....
.....

How accurate do you think your entries were?
Rather rough ❒ Moderately accurate ❒ Almost completely accurate ❒

Did you have any distinct emotions during this period other than the four kinds we have asked you about?
Please name them ....
....
....
....

For women:
Which part of your menstrual cycle you were in when you did the diary.
Menstruating ❒ Post-menstrual ❒ Mid-cycle ❒ Pre-menstrual ❒
Do you feel different emotional effects at different times in your menstrual cycles? Never ❒ In less than 50% of cycles ❒
In more than 50% of cycles ❒
Do you feel that the emotions that you described in this diary were affected by your menstrual cycle in any way? Yes ❒ No ❒
If yes please say which ones, and how?.....
.....

Are there any important issues about emotions that we have not asked about? Please say briefly.....
.....

Thank you very much indeed for doing this diary
Keith Oatley & Elaine Duncan

APPENDIX 2

Variation on original diary 5.3 for use in Study 3

Number [ ]

EMOTION DIARY

COVER PAGE

We would like you to keep this special diary of some emotions in the next two days. Please watch for these emotions:

- **Anger**
- **Shame**
- **Embarrassment**
- **Jealousy**

Fill a diary page if any of these emotions occurs and is strong enough so that **bodily sensations happen** (such as your heart beating faster), or you have **thoughts coming into your mind that are hard to stop**, or you find yourself **acting or feeling like acting in an emotional way**.

Please do the first page when you have any of these emotions, starting now.

Please do the second page when you have a different one of the emotions on the list.

Personal

Please be as frank as possible. We only want to know about emotions generally. So don't put your name on the diary. We will not know which diary belongs to any particular person.

We would like this information though, if you would not mind.

1. Age ..... **2. Sex (Please tick.)** Male ❒ Female ❒

3. Date when you started the diary.....

Thank you very much indeed for doing this diary

Fill in a page when you have an emotion that we are asking about.

1 Which emotion? (Tick one.) Anger ❒ Shame ❒ Embarrassment ❒ Jealousy ❒

2. Did you have any bodily sensations? (Tick one or more.)
Tenseness (of body, jaw, fists) ❒ Trembling ❒ Heart beating noticeably ❒
Stomach (churning, butterflies) ❒ Sweating ❒ Feeling hot ❒ Feeling cold ❒

3. Did thoughts come into your mind that were hard to stop, and make it hard to concentrate on anything else? (Tick one.) Yes ❒ No ❒

4. Did you act or feel like acting emotionally in any way, for instance feel like hitting someone, feel like running away? (Tick one.) Yes ❒ No ❒

5. How strong was the actual feeling of emotion? (Ring a number below.)
No feeling noticeable 0 1 2 3 4 5 6 7 8 9 10 As strong as I can imagine

6. How long did the emotion last? (Tick one.)
Less than a min ❒ 1 to 5 mins ❒ 5 to 30 mins ❒ More than 30 mins ❒

7. What started the emotion? (Tick one.)
Somebody said something, did something, or didn't do something ❒
Something you did, or didn't do ❒
Something you remembered ❒
Something you imagined ❒
Something you read, heard about, or saw on tv, film, theatre ❒
It seemed not to be caused by anything in particular ❒
None of the above ❒

8. Please say briefly who you were with, where you were, what you were doing and what happened (Don't say anything to identify any particular person.).....
.....
.....
.....

9. Did you express the emotion in any way, for instance by letting someone know what you felt. (Tick one.) Yes ❒ No ❒

10. If you did express the emotion, was anything resolved? (Tick one.)
Yes ❒ Don't know ❒ No ❒

11. About how long after the emotion are you filling in this page?
.....hours.....minutes

Fill in a page when you have an emotion that we are asking about.

1 Which emotion? (Tick one.) Anger ❒ Shame ❒ Embarrassment ❒ Jealousy ❒

2. Did you have any bodily sensations? (Tick one or more.)
Tenseness (of body, jaw fists) ❒ Trembling ❒ Heart beating noticeably ❒
Stomach (churning, butterflies) ❒ Sweating ❒ Feeling hot ❒ Feeling cold ❒

3. Did thoughts come into your mind that were hard to stop, and make it hard to concentrate on anything else? (Tick one.) Yes ❒ No ❒

4. Did you act or feel like acting emotionally in any way, for instance feel like hitting someone, feel like running away? (Tick one.) Yes ❒ No ❒

5. How strong was the actual feeling of emotion? (Ring a number below.)
No feeling noticeable 0 1 2 3 4 5 6 7 8 9 10 As strong as I can imagine

6. How long did the emotion last? (Tick one.)
Less than a min ❒ 1 to 5 mins ❒ 5 to 30 mins ❒ More than 30 mins ❒

7. What started the emotion? (Tick one.)
Somebody said something, did something, or didn't do something ❒
Something you did, or didn't do ❒
Something you remembered ❒
Something you imagined ❒
Something you read, heard about, or saw on tv, film, theatre ❒
It seemed not to be caused by anything in particular ❒
None of the above ❒

8. Please say briefly who you were with, where you were, what you were doing and what happened (Don't say anything to identify any particular person.).....
.....
.....
.....

9. Did you express the emotion in any way, for instance by letting someone know what you felt. (Tick one.) Yes ❒ No ❒

10. If you did express the emotion, was anything resolved? (Tick one.)
Yes ❒ Don't know ❒ No ❒

11. About how long after the emotion are you filling in this page?
.....hours.....minutes

APPENDIX 3

Patient Consent Form.

Letter to General Practitioners seeking permission to interview their patients.

Psychiatric Symptom Interview.

Pain-Timetable.

Semi-Structured Interview Schedule

Anxiety and Depression Scale by Zigmond and Snaith, 1983.

Patient Consent Form

(Reference No)_____

Consent Form

Research in Emotions

This study investigates the frequency and duration of specific emotion episodes in psychiatric and non-psychiatric. Each episodes of happiness, sadness, anger, and anxiety is to be recorded in the small diary given to each patient. The patients will then take part in an interview, which contains questions based on the information recorded in the diaries.

All subjects will be given the same instructions and the diaries all have the same format. I hope to establish which emotions are more frequent and how long they last in the day day life of these two groups of patients.

I have read the above description and I am happy to take part in this study. I also agree to be interviewed by Miss Duncan. I understand I am free to refuse to answer any questions. That anything I say will be confidential. The material used and results received will not be used directly in any treatment I am receiving at the moment. Although it has no specific benefit to my treatment it may be of use to clinical psychology in general

Signature_____

Date_____/_____/_____

Letter to General Practitioners

UNIVERSITY OF GLASGOW

DEPARTMENT OF PSYCHOLOGY
62 Hillhead Street

Tel. 339 8855 ext. 4688

Dear

I am working as a researcher with Professor Keith Oatley at the University of Glasgow on the study of Emotional Experience. To further our research we would like to assess emotions in psychiatric and non-psychiatric patients, to study differences in the intensity and duration of emotions. The method we are using is for patients to fill in a Structured Diary. It simply requires the patient to record episodes of the following five emotions: Happiness/joy, Sadness/Grief, Anger/Irritation, Anxiety/Fear, Disgust/Hatred.

The subject recognizes an emotion when he or she has autonomic nervous system changes, persistent thoughts coming into mind, or feels an urge to do an emotional action. For each emotion the subjects then answer a number of questions in the diary. Four such episodes of emotion are to be recorded and thereafter the patient takes part in an interview which contains some additional questions relating to the intensity, duration, and effect of the emotion incident.

Fully informed consent will be given by each subject. I have enclosed a copy of this consent form for your perusal.

I wonder if you would be kind enough to give us permission to ask your patients you have referred to the Clinical Psychologists at the Southern General Hospital to take part in this research.

I have constructed a form for you to fill in to give your permission, and also enclose a stamped addressed envelope.

Should you wish further information, please do not hesitate to contact me.

With many thanks for your assistance.

Yours sincerely,

Diaries and interviews on emotions
(Research by Duncan & Oatley)

Please tick one paragraph below

I agree to allow patients referred by me to Clinical Psychologists at the Department of Psychological Medicine Southern General Hospital and/or Govan Health Centre between November 89 and June 90 to take part in the research as specified in your accompanying letter of 232/3/90.

I cannot give general agreement for my patient to take part in the research described in your letter, but am prepared to consider giving permission for particular patients if you ask me about them individually.

I am sorry I am unable to give you permission for my patients to take part in this research.

Name.....

Address.....

Signature.....Date.....

Please place this form in the envelope provided and return to:

Elaine Duncan
Department of Psychology
University of Glasgow
62 Hillhead Street,
Glasgow

Thank you for your help

Psychiatric Symptom Interview

PSYCHIATRIC SYMPTOM INTERVIEW

Reference No_____Diary Ref No_____

PSYCHIATRIC SYMPTOM INTERVIEW

All patients attending the **Psychological Medicine Clinic** are to be given the **HAD scale** interview and the **supplementary** questions which follow.

The **HAD scale** is sufficient to be given to patients whom one knows to be suffering some degree of **Anxiety** and/or **Depression**, to determine the extent of their symptoms.

However it was necessary to choose questions from various other sources to help in the diagnosis of **Paranoia, Anorexia Nervosa** and **Hypomania**.

Such questions were adapted from the **American Diagnostic** and **Statistical Manual** (3rd.edition); the **Present State Examination** and the **Research Diagnostic Criteria**.

Each question is rated according to the extent of the symptom or behaviour. The scoring system used is **(0)** if the symptom is **not** present; **(1)** when the symptom is **present** but to a **moderate** degree and **(2)** when the symptom is **severe** and the patient is therefore deemed a **'case'**.

This meaning that the patient is suffering some degree of impairment to their lives as a result of their condition and is therefore in need of treatment.

Condition 1

ANOREXIA NERVOSA

What is your weight now?_____

What is your height?_____

APPETITE

What is your appetite like?

Probes

Are you aware of being finicky about your food?
Are you particular about how your food is prepared/cooked?
Do you find yourself not wanting to eat because something seems fattening, or contaminated in some way?
Do you find eating with other people is difficult sometimes?
Do you enjoy eating with the family?

Rate Appetite

(0)= **Good** appetite and is not unduly finicky about food.
(1)= **Particular** about preparation of food and wants to avoid fattening foods but does not mind eating with other people.
(2)= Is **very pernickety** about food and will always avoid eating in public and with the family. Feels food is contaminated in some way

_____❐

WEIGHT CONTROL

Do you ever induce yourself to vomit, or use laxatives to reduce your weight?

Rate Weight Control

(0)= **Never** take above measures to reduce weight.
(1)= **Occasionally** do one of the above.
(2)= **Purging** has become a necessary or habitual thing for you to do in order to reduce weight.

_____❐

Do you exercise a lot? For how long?_____

Do you ever exercise to stave off hunger? Yes ❐ No ❐

BODY IMAGE

What do you think about your size when you look in the mirror?

Probes

Are you happy with the shape of your body.

Do you think you still **look** over-weight or even gross when you view yourself in the mirror, even after you know you have lost some weight?

Rate Body Image

(0)= **Happy** with shape of body?

(1)= Would like to **change** shape but not too worried about it.

(2)= Is **not at all happy** with body shape and size and describe themselves as being over-weight, fat, or gross.

---❐

FOR WOMEN (only for those who are not pregnant).

How are your menstrual periods?

Regular ❐

Irregular ❐

Have not had period for last 3 months/years ❐

Have you ever had any tests to discover if you have an hormonal imbalance?

Yes ❐ No ❐

Rate Amenorrhea

(0)= **Normal** periods.

(1)= **Some irregularity**/hormonal imbalance established.

(2)= Periods have **ceased** no evidence of hormonal imbalance.

---❐

If patient does have an aversion to eating with other people, is finicky about food imagining it to be contaminated in some way, purge themselves regularly and look very thin then one can say that the patient is an anorexic.

Condition 2

PARANOIA

IRRITABILITY

Have you been very much more irritable than usual recently?

Probes

How do you show it?

Do you keep it to yourself, shout, throw things, or even hit people?

Rate Irritability

(0)= **Not** been unusually irritable recently.

(1)= Have been **more** irritable than usual, and quarrelling.

(2)= Been **unusually** irritable, shouting and hitting people.

---------- ❐

EXPRESSION OF ANGER

Do you ever have outbursts of uncontrollable anger, you feel intensely angry and you cannot stop yourself from confronting people?

Rate Expression of Anger

(0)= **Never**, or less than once a month.

(1)= **Once** or **twice** in the last month.

(2)= **More** than once a week.

---------- ❐

DELUSIONS OF PERSECUTION

Is anyone deliberately trying to harm you, e.g. trying to poison you or kill you?

Probes

How?

Is there an organization like the Mafia behind it?

Is there any other kind of persecution?

Take brief note of what patient says, especially if they mention that people and/or organizations are plotting against them.

Rate Delusions of Persecution

(0)= **No** delusions

(1)= **Partial** delusions

(2)= **Full** delusions.

---❐

INTERMITTENT EXPLOSIVE DISORDER

Have you ever had episodes of aggressiveness which have resulted in serious assaultive acts or destruction of property?

Probes

Is the aggression expressed during the episode grossly out of proportion to the situation?

Would you say you are an aggressive person?

Rate Aggressive Impulses

(0)= **No** evidence of aggressive behaviour, or less than once a month.

(1)= **Once** or **twice** a month but no serious outcomes.

(2)= **Once** a week or **more** with serious consequences resulting.

---❐

Do you express genuine regret about the consequences of your actions?

Yes ❐ No ❐

Rate Intermittent Disorder

(0)= **No** evidence of inappropriate aggression, or less than once a month.

(1)= **Once** or **twice** a month but no serious consequences and has not been in trouble with the law.

(2)= **Once** a week or **more** results in serious consequences and incarceration.

---❐

PASSIVE AGGRESSIVE PERSONALITY DISORDER

Do you ever resent the demands made on you by other people?

Probes

Do you do all that is asked of you?

Do you ever object to being asked to do something?

Rate Resentment

(0)= **No** resentment.

(1)= **Does** question superiors about workload but can come to some agreement.

(2)= **Resents** workload but is **passive/** does not complain.

---❐

Are you ever intentionally inefficient at work?

Probes

Do you ever hold back the progress of others?

Do you ever miss important meetings intentionally?

Rate Inefficiency

(0)= **Efficient** and keeps ahead.

(1)= **Once** or **twice** misses meetings, **not** intentionally.

(2)= **Intentional** inefficiency (irrespective of workload).

---❐

Do you ever put things off so that deadlines are not met?

Yes ❐ No ❐

Rate Passive Aggressive Disorder

(0)= **Not** a passive aggressive.

(1)= **Ocassionally** resents demands and procrastinates.

(2)= **Jeopardizes** work and social life by covert aggression.

---❐

Condition 3

HYPOMANIA

EXPANSIVE MOOD AND IDEATION

Have you sometimes felt particularly cheerful and on top of the world, without any reason?

Probes

Too cheerful to be healthy?

How long does it last?

Think of how appropriate your mood is to the situation you find yourself in.

Rate Expansive Mood

(0)= **Not** inordinarily high spirits.

(1)= **Moderately** expansive mood (euphoria/element of inappropriateness)

(2)= **Intense** form of symptom (elation or exaltation) definitely present and often persists for several hours.

---------- ❒

How long does the feeling of elation last?

A few minutes. ❒

One hour. ❒

Several hours. ❒

Have you felt particularly full of energy lately, or full of exciting ideas?

Probes

Do things seem to go too slowly for you?

Do you need less sleep than usual?

Do you find yourself extremely active, but not getting tired?

Have you developed new interests recently?

Rate Subjective Ideomotor Response

(0)= **No** unusual alteration in levels of energy.

(1)= **Subjective** equivalent of flight of ideas. Images and ideas flash through mind, each suggesting others; at a faster rate than usual.

(2)= **As (1)**, but accompanied by **very high energy** output and activity which does not seem to make subject tired at the time. State persists for several hours at a time.

---------- ❒

IF EVIDENCE OF EXPANSIVE MOOD AND IDEATION:

Probes

Have you seemed super efficient at work, or as though you had special powers or talents quite out of the ordinary?
Have you felt especially healthy?
Have you been buying any interesting things?

Rate Grandiose Ideas And Actions.

(0)= **No** evidence of behaviour to the extent described above.
(1)= **Subjective** feeling of superb health, exceptionally high intelligence, extra-ordinary abilities.
(2)= **Grandiose** ideas have been translated into action during last month, e.g. overspending, gambling. Under the influence of grandiose ideas and expansive affect.

---❐

SLEEP DISTURBANCE

Do you have any trouble getting off to sleep?

Probes

How long do you lie awake?
What happens if you take sleeping tablets?
How often does it happen?

Rate Delayed Sleep

(0)= **No trouble** in getting off to sleep.
(1)= **One hour** or **more** delay (irrespective of sleeping tablets).
(2)= **Two hours** or **more** delay (irrespective of sleeping tablets).

---❐

Do you wake early in the morning?

Rate Early Waking

(0)= Waking pattern **not** disturbed.
(1)= **One hour** or **more** before ordinary time.
(2)= **Two hours** or **more** before ordinary time.

---❐

Additional notes/comments.

Pain-Timetable

PAIN TIMETABLE Patient number.....

Instructions. Any time you have the pain..... that you have come to be treated for, please tick a box on this timetable. Put one tick √ if the pain is noticable, two ticks √√ if the pain is moderately bad, and three ticks √√√ if it is very severe. Please show when you take anything for your pain. Do this by writing 1 for one pill, 2 for two pills and so on.

What kinds of painkillers do you use for this pain? .....

TIME	Pain	Pill	Pain	Pill	Pain	Pill	Pain	Pill	Pain	Pill	Pain	Pill	Pain	Pill
6 - 7														
7 - 8														
8 - 9														
9 - 10														
10 - 11														
11 - 12														
12 - 1														
1 - 2														
2 - 3														
3 - 4														
4 - 5														
5 - 6														
6 - 7														
7 - 8														
8 - 9														
9 - 10														
10 - 11														
11 - 12														
If pain kept you awake at night tick the box here														

Semi-Structured Interview Schedule

INTERVIEW SCHEDULE FOR FIVE TYPES OF EMOTIONS

Reference No_____ Diary reference No_____

PERSONAL DETAILS

Name:_____

Age:_____

Sex: Female ❐ Male ❐

Diary: Complete ❐ Incomplete ❐

Date_____/_____/90 **Time**_____hr_____mins

Medication_____

_____

_____

Therapy_____

_____

Period of Treatment_____

_____

Received HAD/PSE Yes ❐ No ❐

Diagnosis (based on the responses to PSE) _____

_____

_____

Note to Interviewer:-

Before one begins questioning the subject about each emotion episode, ask them to relate what happened in each episode. Let the patient talk freely about the circumstance and consequence of each episode of emotion. This will lead the patient into the interview and help him or her in the responses to the questions which follow.

From the research point one would then be able to categorise the emotion episode as one of four possible generic elicitors:-

Achievement/Loss/Threat/Frustration

In all questions, unless otherwise stated, the scale **0** to **100%** will be analogous to that of the temperature scale of a thermometer. Where **0** represents extremely cold, **50%** a moderate temperature and **100%** is extremely hot. In this interview, degree of temperature will be replaced with, for example, degree of **intensity** of an emotion and bodily sensations. The **probes** should be used as a way of helping the subject to come to a decision. They are prompts, they are not to be impressed upon the subject so much that he/she takes them to be the right interpretation of their situation.

SUBJECT RELATES EPISODE

Please tell me what happened in this emotion episode. Relate as much of the episode as you can remember. Tell me the consequences of your action or inaction and describe how you felt.

Subjects name for the emotion : _____

Is this emotion a type of:

Happiness	❒
Sadness	❒
Anger	❒
Fear	❒
Disgust	❒

On the scale of 0 to 100%, how sure are you that this emotion is one of these types?

Score_____%

TRIGGER(record the antecedent to emotion)_____

EMOTION MIXTURES

Did you experience a mixture of emotions? (e.g Happiness and Sadness)

Yes ❐ **No** ❐

What emotions were in this mixture?

Did You

(a) Experience these emotions all at once, that is, at at exactly the same time?

Yes ❐ **No** ❐

OR

(b) Did you experience one emotion **then** the other?

Yes ❐ **No** ❐

INTENSITY OF EMOTION

Emotion type_____

On a scale of **0** to **100%** please tell me how intense your experience of the said emotion was. With **100%** being very intense **50%** being moderately intense and, **0** not intense at all.

Probes

Compare to the most intense experience
of this emotion you can possibly imagine.
How intense was this experience? Score_____%

DURATION OF EMOTION

How long did this emotion last in its first occurence?

Record Exact Time:_____

POSSIBLE GENERIC ELICITOR: _____

BODILY SENSATIONS

I would like you to tell me how intense your experience of each bodily sensation was. **Compare** to the most intense experience you can imagine a human being is likely to have. **Again** we will judge how strong your experience of **each** of the following bodily sensations were using the **0** to **100%** scale. Were **0** is **not intense** at all, **50%** is **moderate**, and **100%** is **extremely intense.**

(a) HEART

Probes

Extremely intense/causing concern.
Intense but not causing concern.
Not intense at all

Score_____%

(b) TENSENESS

Probes

Were you so tense that you felt stiff, experiencing muscle strain?
Did you notice that you were clenching your fists/jaw?
Slight tension, not straining.

Score_____%

(c) STOMACH

Probes

Felt nauseous.
Stomach cramps and causing concern.
Butterflies.

Score_____%

(d) TREMBLING

Probes

Uncontrollable trembling/shivering.

Score_____%

(e) SWEATING

Probes

Sweating profusely/felt uncomfortable.
Sweating/experiencing mild discomfort.
Not noticeable

Score_____%

(f) FEELING HOT

Probes

You felt extremely hot and uncomfortable.
Fairly hot.
Suffered mild discomfort.

Score_____%

(g) FEELING COLD

Probes

Unbearably cold/could not warm up.
Cold and shivering.
Slight shivers.
Did not notice feeling cold.

Score_____%

THOUGHTS

What were your thoughts during this episode? These examples below are to help the subject think deeply about the **their thought processes** during each emotion episode and should not be forced upon the subject.

Happy thoughts:-	Did you think that things were going well? Were you optimistic about life at this time?
Sad thoughts:-	Did you think that you were useless? Did you think that your life looked very bleak? Just feeling down-hearted/grumpy.
Anxious thoughts:-	Worried about the future/or those close to you.
Angry thoughts:-	Thinking about revenge. Angry at yourself/someone.
Thoughts of disgust or hatred:-	You thought someone or some thing was repulsive. You hoped that you'd never see that person again. Thinking how wrong it was to hate.

THOUGHTS ON THE EPISODE

Please tell me, in your own words, what your thoughts were in connection with this episode.

THOUGHTS ON THE EMOTION

Now that the thoughts connected with the **actual incident** have been established I would like you to tell me your thoughts on the **emotion itself**. What were your thoughts about the whole episode as you look back now?

For example;- You may have thought that your thoughts or actions were inconsistent with your usual behaviour.
Or you know you shouldn't have felt the way you did.
Were you ashamed of your behaviour?

What thoughts do you have about the emotion incident itself?

SELF-PERCEPTION

Did the way you think about or see yourself arise as a result of this episode?(self-image/model)

Probes

Did it make you change or question the way you think about yourself?
Did it make you wonder about how you ought to think about yourself?

SECONDARY EMOTION

Make list of the **secondary** emotions experienced as the patient describes them in the sections above and rate the intensity of each one using the usual scale **0** to **100%**.

For Example Guilt about being angry

_____% _____%
_____% _____%
_____% _____%

ASSOCIATIONS

Did this emotion remind you of an incident or emotion in the past?

Yes ❒ No ❒

If **yes** describe incidence_____

DURATION OF THOUGHTS

How long did you dwell on your thoughts about this incident?

Record Exact Time_____

Did these same thoughts re-occur, later that day, or the next?

Yes ❐ No ❐

How many times?_____

Over how many hours/days?_____

Did these thoughts keep you awake? Yes ❐ No ❐

ACTIONS

We will now examine your behaviour in connection with this emotion.

I would like you to tell me what actions you performed during the emotion episode.

Probes

Perhaps you were moving about a lot.
Waving your arms for instance.
Crying, rushed speech, or maybe frowning.

List actions carried out._____
_____
_____

URGES

Were there any other actions you felt an urge to do but did not carry out.

Probes

You felt like hitting someone.
You had an urge to destroy property.

List urges._____
_____

EFFECT ON PLANS

What effect on your plans did this episode of emotion have. Do you feel that your ambitions and/or plans for the immediate future have been hampered or helped in some way. (Rate help or hindrance on scale)

Probes

Did it **help** your plans.

Made plans a **bit more difficult,** you had to try harder.

Meant that you had to **alter** a planned activity.

Meant that you were **unable** to do several things resulting in you losing a few hours of the day.

Helped Plans? **Yes** ❒ **No** ❒ Score_____%

Hindered Plans? **Yes** ❒ **No** ❒ Score_____%

Did You Understand This Emotion?

❒ **Yes** I understood all aspects of this particular emotion.

❒ **No** I did **not** understand this emotion. How it came about or why I reacted the way I did.

What was it that you did not understand about this emotion?

Probes

Think of your reactions.

How it came about.

The inner feelings you had.

It may have been someone elses reaction to you that you did not understand.

Please tell me, in your own words, what you did not understand.

Thank you for your help

Additional notes/comments

Hospital Anxiety and Depression Scale

Zigmond and Snaith 1983

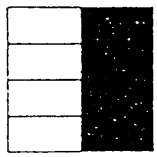
HAD Scale

Name: Date:

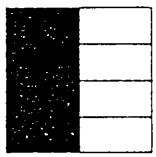
Doctors are aware that emotions play an important part in most illnesses. If your doctor knows about these feelings he will be able to help you more.
This questionnaire is designed to help your doctor to know how you feel. Read each item and place a firm tick in the box opposite the reply which comes closest to how you have been feeling in the past week.
Don't take too long over your replies: your immediate reaction to each item will probably be more accurate than a long thought-out response.

Tick only one box in each section

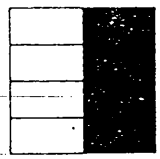
I feel tense or 'wound up':
- Most of the time .....
- A lot of the time .....
- Time to time, Occasionally .....
- Not at all .....



I still enjoy the things I used to enjoy:
- Definitely as much .....
- Not quite so much .....
- Only a little .....
- Hardly at all .....

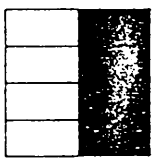


I get a sort of frightened feeling as if something awful is about to happen:
- Very definitely and quite badly .....
- Yes, but not too badly .....
- A little, but it doesn't worry me .....
- Not at all .....

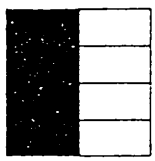


I can laugh and see the funny side of things:
- As much as I always could .....
- Not quite so much now .....
- Definitely not so much now .....
- Not at all .....

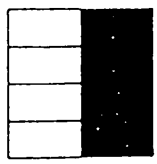
Worrying thoughts go through my mind:
- A great deal of the time .....
- A lot of the time .....
- From time to time but not too often ..
- Only occasionally .....



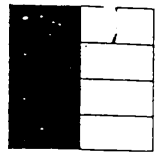
I feel cheerful:
- Not at all .....
- Not often .....
- Sometimes .....
- Most of the time .....



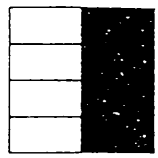
I can sit at ease and feel relaxed:
- Definitely .....
- Usually .....
- Not often .....
- Not at all .....



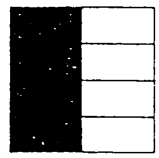
I feel as if I am slowed down:
- Nearly all the time .....
- Very often .....
- Sometimes .....
- Not at all .....



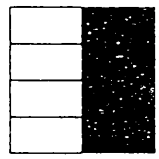
I get a sort of frightened feeling like 'butterflies' in the stomach:
- Not at all .....
- Occasionally .....
- Quite often .....
- Very often .....



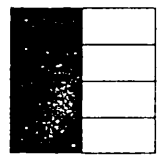
I have lost interest in my appearance:
- Definitely .....
- I don't take so much care as I should.....
- I may not take quite as much care .....
- I take just as much care as ever .....



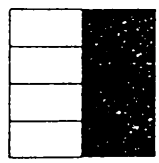
I feel restless as if I have to be on the move:
- Very much indeed .....
- Quite a lot .....
- Not very much .....
- Not at all .....



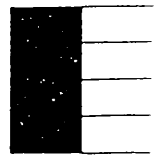
I look forward with enjoyment to things:
- As much as ever I did .....
- Rather less than I used to .....
- Definitely less than I used to .....
- Hardly at all .....



I get sudden feelings of panic:
- Very often indeed .....
- Quite often .....
- Not very often .....
- Not at all .....



I can enjoy a good book or radio or TV programme:
- Often .....
- Sometimes .....
- Not often .....
- Very seldom .....



Do not write below this line

HAD Scale

Name: Date:

	A
	3
	2
	1
	0

	D
3	
2	
1	
0	

	D
0	
1	
2	
3	

	A
	0
	1
	2
	3

	A
	3
	2
	1
	0

	D
2	
1	
0	

	D
0	
1	
2	
3	

	A
	3
	2
	1
	0

	A
	3
	2
	1
	0

	D
0	
1	
2	
3	

	D
3	
2	
1	
0	

	A
	3
	2
	1
	0

	A
	0
	1
	2
	3

	D
0	
1	
2	
3	

FOR HOSPITAL USE

Patients Name/No:

D(8-10) _____

A(8-10) _____

APPEDNIX 4

Interview Schedule for the Study of Hatred and Disgust

Interview Schedule for Episodes of Hatred and Disgust

Dislike

I would like you to recall an incident that happened recently as a result of which you clearly felt you *disliked* something or someone. Try to think of an episode which happened within the last few weeks. (If you have not had such an episode in the last few weeks then please recall details of the most recent episode you can remember).

Record details_____
_____
_____
_____
_____

(2). How *long* did this feeling last, when it first occurred? Only a few minutes or was it a more sustained mood?_____

(3a). Can you remember experiencing any *bodily sensations* during this episode of dislike? (such as hot, cold, heart rate increase).

Yes ❐ No ❐

Record sensations_____
_____

(3b). On a scale of **0 to 100%** how *intense* were each of the bodily sensations you experienced.
(**0 being not noticeable, 50% moderate** and **100%** being **extremely intense**)
(Insert the ratings next to appropriate bodily sensation in question above).

(4a). What *thoughts* came into your mind during this episode of dislike?

_____
_____
_____
_____

(4b). How long did you *dwell* on these thoughts? _____

(4c). Did these same thoughts *re-occur* later that day or the next?

Yes ❐ No ❐

(4d). How long did these *recurring* thoughts last? _____

(4e). Did these thoughts keep you *awake*?
Yes ❒ No ❒

(5a). Did you *act* emotionally in any way?
(such as facial expressions, shouting, laughing, talking a lot, or withdrawing from the situation).
Yes ❒ No ❒
Record actions _____
_____

(5b). Was there anything you *felt like doing* but did not actually do?
Yes ❒ No ❒
Record urges _____
_____

(6a). Was there any other emotion *mixed* with dislike?
Yes ❒ No ❒
(6b). What was this emotion(s)? _____

(6c). Please rate the *intensity* of this other emotion(s), again from 0 to 100%. (Insert the ratings beside each emotion recorded above).

(7a). Did this episode *hinder, help,* or *make no difference* to your plans and goals for that day, or for the future?
Hindered plans ❒ Helped plans ❒ Made no difference ❒

(7b). Describe in what way your plans were hindered or helped _____
_____
_____
_____
_____

(8a). How did this episode of dislike make you *feel about yourself*? Did it change how you viewed yourself and/or others?
Yes ❒ No ❒
(8b). In what way? Did you view yourself in a positive way or a negative way? _____
_____
_____
_____

(9a). Did you *understand* this emotion?

Yes ❒ No ❒

(9b). What was it you did not understand about this emotion or incident?

-o-0-o-

Hatred

I would like you to recall an incident in which you clearly felt you *hated* something or someone. There is no time frame limit, you can recall an episode that happened many years ago.

Record details _____

---

(2). How *long* did this feeling last, when it first occurred? Only a few minutes or was it a more sustained mood? _____

(3a). Can you remember experiencing any *bodily sensations* during this episode of hatred? (such as hot, cold, heart rate increase).

Yes ❒ No ❒

Record sensations _____

(3b). On a scale of **0 to 100%** how *intense* were each of the bodily sensations you experienced.

(0 being **not noticeable, 50% moderate** and **100%** being **extremely intense)**

(Insert the ratings next to appropriate bodily sensation in question above).

(4a). What *thoughts* came into your mind during this episode of hatred?

(4b). How long did you *dwell* on your thoughts of hatred? _____

(4c). Did these same thoughts *re-occur* later that day or the next?
Yes ❒ No ❒

(4d). How long did these *recurring* thoughts last? _____

(4e). Did these thoughts keep you *awake*?
Yes ❒ No ❒

(5a). Did you *act* emotionally in any way?
(such as facial expressions, shouting, laughing, talking a lot, or withdrawing from the situation).
Yes ❒ No ❒
Record actions _____

(5b). Was there anything you *felt like doing* but did not actually do?
Yes ❒ No ❒
Record urges _____

(6a). Was there any other emotion(s) *mixed* with hatred?
Yes ❒ No ❒
(6b). What was this emotion(s)? _____

(6c). Please rate the *intensity* of this other emotion(s), again from 0 to 100%. (Insert the ratings beside each emotion recorded above).

(7a). Did this episode of hatred, *hinder, help,* or *make no difference* to your plans and goals for that day or for the future?
Hindered plans ❒ Helped plans ❒ Made no difference ❒

(7b). Describe in what way your plans were hindered or helped _____
_____
_____
_____
_____

(8a). How did this episode of hatred make you *feel about yourself*? Did it change how you viewed yourself and/or others?

Yes ❒ No ❒

(8b). In what way? Did you view yourself in a positive way or a negative way? _____
_____
_____
_____

(9a). Did you *understand* this emotion?

Yes ❒ No ❒

(9b). What was it you did not understand about this emotion or incident?

_____
_____
_____

(10a). Did you experience an inner, *subjective* feeling of hatred?

Yes ❒ No ❒

(10b). Please describe what it felt like _____
_____
_____

(11a). Are you *still bothered* by the thoughts of hatred connected with this incident.

Yes ❒ No ❒

(11b). And do these thoughts of hatred still *disturb your sleep* pattern now?

Yes ❒ No ❒

(12). Would you consider this incident in which you experienced hatred to have been a *major* one in you life?

Yes ❒ No ❒

(13a). Does this episode of hatred *remind* you of an incident in the past?

Yes ❒ No ❒

(13b). Please tell me about this incident from the past _____
_____
_____
_____
_____

(14). Do you consider this incident to have been a *major* event in your life?
Yes ❒ No ❒

(15). On a scale of 0 to 100% please rate the *intensity* of your feelings of dislike and hatred you have described above.
(0 being **not noticeable, 50% moderate** and 100% being **extremely intense**).

Dislike_____% Hatred_____%

-o-0-o-

Distaste

I would like you to recall an incident that happened recently as a result of which you clearly felt you something or someone was *distasteful*. Try to think of an episode which happened within the last few weeks. (If you have not had such an episode in the last few weeks then please recall details of the most recent episode you can remember).
Record details _____
_____
_____
_____
_____

(2). How *long* did this feeling last, when it first occurred? Only a few minutes or was it a more sustained mood? _____

(3a). Can you remember experiencing any *bodily sensations* during this episodes of distaste? (such as hot, cold, heart rate increase).
Yes ❒ No ❒
Record sensations _____
_____

(3b). On a scale of **0 to 100%** how *intense* were each of the bodily sensations you experienced?
(**0** being **not noticeable, 50% moderate** and **100%** being **extremely intense**)
(Insert the ratings next to appropriate bodily sensation in question above).

(4a). What *thoughts* came into your mind during this episode of distaste?

(4b). How long did you *dwell* on these thoughts? _____

(4c). Did these same thoughts *re-occur* later that day or the next?
Yes ❐ No ❐

(4d). How long did these *recurring* thoughts last? _____

(4e). Did these thoughts keep you *awake*?
Yes ❐ No ❐

(5a). Did you *act* emotionally in any way?
(such as facial expressions, shouting, laughing, talking a lot, or withdrawing from the situation).
Yes ❐ No ❐
Record actions _____

(5b). Was there anything you *felt like doing* but did not actually do?
Yes ❐ No ❐
Record urges _____

(6a). Was there any other emotion(s) *mixed* with distaste?
Yes ❐ No ❐
(6b). What was this emotion(s)? _____

(6c). Please rate the *intensity* of this other emotion(s), again from 0 to 100%.
(Insert the ratings beside each emotion recorded above).

(7a). Did this episode *hinder, help, or make no difference* to your plans and goals for that day or for the future?
Hindered plans ❐ Helped plans ❐ Made no difference ❐

(7b). Describe in what way your plans were hindered or helped _____

(8a). How did this episode of distaste make you *feel about yourself*? Did it change how you viewed yourself and/or others?
Yes ❐ No ❐
(8b). In what way? Did you view yourself in a positive way or a negative way? _____

(9a). Did you *understand* this emotion?
Yes ❐ No ❐
(9b). What was it you did not understand about this emotion or incident?

-o-0-o-

Disgust

I would like you to recall an incident in which you clearly felt you *disgusted* by something or someone. There is no time frame limit, you can recall an episode that happened many years ago.
Record details _____

---

(2). How *long* did this feeling last, when it first occurred? Only a few minutes or was it a more sustained mood? _____

(3a). Can you remember experiencing any *bodily sensations* during this episode of hatred? (such as hot, cold, heart rate increase).

Yes ❐ No ❐

Record sensations _____

_____

(3b). On a scale of **0 to 100%** how *intense* were each of the bodily sensations you experienced?
(**0** being **not noticeable, 50% moderate** and **100%** being **extremely intense**)
(Insert the ratings next to appropriate bodily sensation in question above).

(4a). What *thoughts* came into your mind during this episode of disgust?

_____
_____
_____
_____
_____

(4b). How long did you *dwell* on your thoughts of disgust? _____

(4c). Did these same thoughts *re-occur* later that day or the next?

Yes ❐ No ❐

(4d). How long did these *recurring* thoughts last? _____

(4e). Did these thoughts keep you *awake*?

Yes ❐ No ❐

(5a). Did you *act* emotionally in any way?
(such as facial expressions, shouting, laughing, talking a lot, or withdrawing from the situation).

Yes ❐ No ❐

Record actions _____

_____

(5b). Was there anything you *felt like doing* but did not actually do?

Yes ☐ No ☐

Record urges _____

_____

(6a). Was there any other emotion(s) *mixed* with disgust?

Yes ☐ No ☐

(6b). What was this emotion(s)? _____

(6c). Please rate the *intensity* of this other emotion(s), again from 0 to 100%. (Insert the ratings beside each emotion recorded above).

(7a). Did this episode of disgust, *hinder, help,* or *make no difference* to your plans and goals for that day or for the future?

Hindered plans ☐ Helped plans ☐ Made no difference ☐

(7b). Describe in what way were your plans hindered or helped _____

_____

_____

_____

_____

_____

(8a). How did this episode of disgust make you *feel about yourself*? Did it change how you viewed yourself and/or others?

Yes ☐ No ☐

(8b). In what way? Did you view yourself in a positive way or a negative way? _____

_____

_____

(9a). Did you *understand* this emotion?

Yes ☐ No ☐

(9b). What was it you did not understand about this emotion or incident?

_____

_____

_____

_____

(10a). Did you experience an inner, *subjective* feeling of disgust?

Yes ❒ No ❒

(10b). Please describe what it felt like _____

(11a). Are you *still bothered* by the thoughts of disgust connected with this incident.

Yes ❒ No ❒

(11b). And do these thoughts of disgust still *disturb your sleep* pattern now?

Yes ❒ No ❒

(12). Would you consider this incident in which you experienced disgust to have been a *major* one in you life?

Yes ❒ No ❒

(13a). Does this episode of disgust *remind* you of an incident in the past?

Yes ❒ No ❒

(13b). Please tell me about this incident from the past _____ .

---

(14). Do you consider this incident to have been a *major* event in your life?

Yes ❒ No ❒

(15). On a scale of 0 to 100% please rate the *intensity* of your feelings of distaste and disgust you have described above.

(0 being **not noticeable, 50% moderate** and **100%** being **extremely intense**).

Distaste_____% Disgust_____%

APPENDIX 5

Personal Emotion Diary and Observers Emotion Diary

Table 1

Figure 5

Personal Emotion Diary and
Observers Emotion Diary

PERSONAL INFORMATION

Please be as frank as possible. We only want to know about emotions generally. So don't put your name on the diary. We will not keep a record of which diary belongs to any particular person.

We would like some personal information though, if you would not mind:

Information about you.

1. Age.....

2. Your occupation.....

Information about both of you

3. Living arrangements (Please tick one)

(a) Living with parents or relatives ❐

(b) Living with friend or friends, in shared house, flat or room ❐

(c) Other ❐ Please describe.....

4. Living conditions

Number of rooms in your flat or house?.....

Are you happy with your living conditions/arrangements?

Yes ❐ No ❐

5. How long have you and your partner been living together?

.....years.....months

6. Number of children you have, if any.....

7. How well do you feel you know your partner?

(Ring one below)

Not at all 0 1 2 3 4 5 6 7 8 9 10 Extremely well.

8. How well do you feel your partner knows you?

(Ring one below)

Not at all 0 1 2 3 4 5 6 7 8 9 10 Extremely well.

9. Date when you started the diary.....

PERSONAL EMOTION DIARY

COVER PAGE

We would like you to keep this special diary of your **emotions** and **moods** for the next few days. There are **eight** diary pages provided here in this booklet, so try to record as many instances of emotions or moods as you possibly can. But do not worry if you have not filled in all diary pages before the diary is due for return.

You and your partner **both** have diaries but this particular diary is for recording your **own** emotions and moods. Your partner has a slightly different diary in which to record their observations about the emotions or moods you experience over the next few days.

Since your partner has to be able to observe your emotions or moods then we recommend that you fill out this diary, particularly at times when you are both together.

Please do not to let your partner see any of your entries in the diary, until after you have completely finished. We would like you to fill out your diaries independently of each other.

You can recognise an emotion when

- a **bodily sensation happens** (such as your heart beating faster), **or**
- you have **thoughts coming into your mind that are hard to stop, or**
- you **find yourself acting or feeling like acting emotionally**

You can recognise a mood when

- you have **a feeling of some kind for an hour or more**

Please fill in a diary page whenever any emotion or mood happens that is strong enough for you to notice.

Please do one page for each of your **emotions or moods.** They may be different or all of the same kind.

DIARY PAGE

Fill in a diary page, both sides, when an emotion or mood is strong enough for you to notice.

1. Was your feeling an emotion ❐ or mood ❐ (Tick one)

2. What is your name for that emotion or mood?.....

3. Would you call it a type of any of the following (Tick one)

Happiness / joy ❐
Sadness / grief ❐
Anger / irritation ❐
Fear / anxiety ❐
Disgust / hatred ❐

4. How strong was the feeling

Barely noticeable 0 1 2 3 4 5 6 7 8 9 10 Extremely intense

5 Did you have any <u>bodily sensations</u>? (Tick one or more)

Tenseness (of body, jaw, fists) ❐ Trembling ❐
Stomach (nausea, butterflies) ❐ Heart beating noticeably ❐
Feeling sweaty ❐ Feeling hot ❐ Feeling cold ❐

6. Did <u>thoughts come into your mind that were hard to stop</u>, and make it hard to concentrate on anything else?
(Tick one or more)

Replaying an incident from the past ❐
Thinking about how something might happen in the future ❐
Longing for someone, or something ❐
Thinking about how to get even or get your own back ❐
Other thoughts ❐

7. Describe, below, any <u>verbal</u> and <u>non-verbal</u> behaviour you were aware of doing. (include <u>facial expressions</u>, <u>bodily movements</u>, <u>talking</u> a lot or, not at all, <u>laughing</u>, <u>crying</u>, <u>shouting</u>).....
.....
.....
.....

8. Beside each of the actions above enter a figure from '0' to '10' grading the intensity of each one. (where, '0' equals not intense at all and '10' equals extremely intense)

9. Did you feel an urge to act emotionally towards someone, by

moving closer or touching ❐
making an aggressive move ❐
withdrawing ❐

10. When did the emotion or mood start?
Time .....Date.....

11. Roughly how long did it last? .....hours.....minutes

12. What started the emotion or mood? (Tick one)
Somebody said something, did something, or didn't do something ❐
Something you did, or didn't do ❐
You remembered a past experience ❐
You imagined something that could happen ❐
Something you read, heard about, or saw on tv, film, theatre ❐
It seemed not to be caused by anything in particular ❐
None of the above ❐

13. Were you with anyone? (Tick one)
Your partner ❐ Friend or friends ❐ Acquaintances or strangers ❐

14. Describe your emotional state and general well-being prior to the emotion or mood. (e.g. were you feeling happy, sad, irritable, unwell or in good health).....
.....
.....

15. Please describe, in detail, what you were doing and what happened, if anything, to start the emotion or mood:
.....
.....
.....
.....

16. Did the emotion or mood stay the same or did it change? For instance, did you start feeling angry and later feel sad, or feel happy and later anxious? (Tick one)
It was the same until it finished. ❐ It changed. ❐
If it changed: Please say from what .....to what.....

17. About how long after the emotion or mood are you filling in this page? .....hours.....minutes

FINAL PAGE

Please fill this page in when you have completed your diary

There may have been times when you felt an emotion or mood, but did not fill in the diary for any reason.

Number of emotions missed.....

Number of moods missed.....

How easy or difficult was it to do this diary?

Please say briefly.....

How accurate do you think your entries were?

Rather rough ☐ Moderately accurate ☐ Completely accurate ☐

Do you have anything else to say, either about the emotions or moods you have recorded in this diary, or about the subject of emotions in general? Please say briefly.....

.....

.....

For women who have periods.

Which part of your menstrual cycle were you in when you started the diary?

Menstruating ☐ Post-menstrual ☐ Mid-cycle ☐ Pre-menstrual ☐

Do you usually feel any emotional effects at particular times in your menstrual cycles, for instance tension when premenstrual? (Tick one.)

Never ☐ Less than 50% of cycles ☐ More than 50% of cycles ☐

Were any emotions in this diary affected by your menstrual cycle?

(Tick one.) No ☐ Not sure ☐ Yes ☐

If yes please say which ones, and how? .....

.....

.....

Thank you very much indeed for doing this diary

Laurenne Stevenson & Tristan Aitken

OBSERVERS' EMOTION DIARY

COVER PAGE

We would like you to keep this special diary of your partners' **emotions** and **moods** for the next few days. When you are with your partner record, in this diary, any of their moods and emotions. There are **eight** diary pages provided here in this booklet, so try to record as many instances of observed emotions or moods as you possibly can. But do not worry if you have not filled in all diary pages before the diary is due for return.

You and your partner **both** have diaries but this particular diary is suited to you as the **observer** of emotions or moods. Your partner has a diary in which to record their own emotions.

Since you have to be able to observe your partners' emotions or moods then we recommend that you fill out this diary, particularly at times when you are both together.

Please do not to let your partner see any of your entries in the diary, until after you have completely finished. We would like you to fill out your diaries independently of each other.

Follow these guidelines below for identifying an emotion or mood

- **You can recognise an emotion:**
by changes in your partners' **behaviour** or **actions** and the presence of **facial expressions**. (such as frowning, laughing and so on)

- **A mood is a feeling that has lasted for an hour or more.**

Please fill in a diary page for each emotion or mood that you identify in your partner.

Please do one page for each of the **emotions or moods** you identify. They may be different or all of the same kind.

PERSONAL INFORMATION

Please be as frank as possible. We only want to know about emotions generally. So don't put your name on the diary. We will not keep a record of which diary belongs to any particular person.

We would like some personal information though, if you would not mind:

Information about you.

1. Age.....

2. Your occupation.....

Information about both of you

3. Living arrangements (Please tick one)

(a) Living with parents or relatives ❐

(b) Living with friend or friends, in shared house, flat or room ❐

(c) Other ❐ Please describe.....

4. Living conditions

Number of rooms in your flat or house?.....

Are you happy with your living conditions/arrangements?

Yes ❐ No ❐

5. How long have you and your partner been living together?

.....years.....months

6. Number of children you have, if any.....

7. How well do you feel you know your partner?

(Ring one below)

Not at all 0 1 2 3 4 5 6 7 8 9 10 Extremely well.

8. How well do you feel your partner knows you?

(Ring one below)

Not at all 0 1 2 3 4 5 6 7 8 9 10 Extremely well.

9. Date when you started the diary.....

DIARY PAGE

Fill in a diary page, both sides, when an emotion or mood is strong enough for you to notice.

1. Was your feeling an emotion ❐ or mood ❐ (Tick one)

2. What is your name for that emotion or mood?.....

3. Would you call it a type of any of the following (Tick one)

Happiness / joy ❐
Sadness / grief ❐
Anger / irritation ❐
Fear / anxiety ❐
Disgust / hatred ❐

4. Can you judge how intense your partners' feeling was?
Not intense at all 0 1 2 3 4 5 6 7 8 9 10 Extremely intense

5. Describe, below, any <u>verbal</u> and <u>non-verbal</u> behaviour you observed.
(include <u>facial expressions</u>, <u>bodily</u> <u>movements</u>, whether they were <u>talking</u> a lot or, not at all, <u>laughing</u>, <u>crying</u>, <u>shouting</u> and suchlike)
.....
.....
.....
.....

6. Beside each of the actions you have recorded above enter a figure from '0' to '10' grading the intensity of each one you obsereved.
(where, **'0'** equals **not intense at all** and **'10'** equals **extremely intense**)

7. What do think caused you partners' emotion? (Tick one)
Somebody said something, did something, or didn't do something ❐
Something they did, or didn't do ❐
They remembered a past experience ❐
They were imagining something that could happen in the future ❐
Something read, heard about, or saw on tv, film, theatre ❐
It seemed not to be caused by anything in particular ❐
None of the above ❐

8. Can you say what your partners' thoughts might have been during this emotion?.....
.....
.....

9. When did this emotion or mood start?
Time .....Date.....

10. Roughly how long do you think it lasted? .
.....hours.....minutes

11. Was your partner with anyone at the time, apart from yourself? (Tick one)
Friend or friends ☐ Acquaintances or strangers ☐

12. Describe your partners' emotional state and general well-being prior to the emotion or mood.
(e.g, they were feeling happy, sad, irritable, feeling unwell or in good health).....
.....
.....
.....

13. Please describe, in detail, what your partner was doing and what happened, if anything, to start the emotion or mood.....
.....
.....
.....
.....

14. Do you think that your partners' emotion or mood stayed the same or did it appear to change? For instance, did they start feeling angry and later feel sad, or feel happy and later anxious? (Tick one)
I feel it stayed the same until it finished. ☐ It changed. ☐
If it changed: Please say from what.....to what.....

15. Do you feel this emotion or mood affected their ability to carry out their tasks for that day?
Yes ☐ No ☐

16. About how long after identifying the emotion or mood are you filling in this page? .....hours.....minutes

FINAL PAGE

Please fill this page in when you have completed your diary

How easy or difficult was it to do this diary?
Please say briefly.....
.....

How accurate do you think your entries were?
Rather rough ☐ Moderately accurate ☐ Completely accurate ☐

As a close observer of emotion in your partner were you aware that your own emotional state was being affected by that of your partners' ?

Yes ☐ No ☐
If yes, please describe in what way you were affected.....
.....
.....

Do you have anything else to say, either about your partners' emotions or moods recorded in this diary, or about the subject of emotions in general?
Please say briefly.....
.....
.....

Do you think that your partners' emotions are affected by her menstrual cycle?

Yes ☐ No ☐

If yes, please describe in what way you feel her emotions or moods are affected.....
.....
.....

Thank you very much indeed for doing this diary

Laurenne Stevenson & Tristan Aitken

Table 1. Numbers of incidents caused by different types eliciting context, as a function of emotion type, with data combined from the Student Sample, the Occupational Sample, the Disabled & Able-bodied sample, and the Birth Control Clinic Sample

	Happiness	Sadness	Anger	Fear	Disgust
Eliciting Context					
Other person's action	101	35	143	42	10
Self's action	36	9	22	36	0
Something remembered	16	12	5	13	0
Something imagined	7	6	2	24	0
Something read, seen on tv etc	19	11	4	7	2
Not caused by anything	18	4	8	12	0
Other elicitor	20	5	12	16	4
Totals	201	82	196	150	16

NB. Incidents of disgust/hatred were collected only from the Occupational Sample and the Disabled & Able-bodied samples.

Figure 5. The mean number of four types of emotion incident experienced by 31 disabled people and 25 able bodied comparison subjects, each recording five incidents (after Carson, 1990).