Cognitive behavioural approaches to understanding shared mechanisms of social anxiety and paranoia

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For family I love ‘Aunthanachok’:
Worapoj, Areerat, Worarat and Warit Aunjitsakul

แด่...ครอบครัวอุ่นธนโชค:

วรพจน์, อารีรัตน์, วรรัตน์ และวริทธิ์ อุ่นจิตสกุล

Abstract

Social anxiety disorder (SAD) is a common comorbidity in people experiencing psychosis and this comorbidity causes negative impacts including poor functioning, low self-esteem, depression or lack of social relationship. However, effective interventions for the treatment of SAD in people with psychosis are currently limited. The research described in this thesis aimed to contribute towards answering two big problems – what are 1) the candidate mechanisms of social anxiety in psychosis and 2) the key mechanisms between social anxiety and paranoia in psychosis for treatment development? Thesis content is divided into six chapters including four studies ranging from comprehensive review to empirical investigations in analogue and clinical samples.

The first chapter provides the general background to the subject area of schizophrenia, paranoia and social anxiety, including the phenomenology of the overlapping constructs between paranoia and social anxiety. This chapter addresses the importance of psychological treatment, the need for understanding mechanisms to develop better treatment, and the cultural contexts affecting these potential mechanisms for people with social anxiety in psychosis.

Chapter 2 is a systematic review to identify and analyse candidate factors that maintain social anxiety in the context of psychotic experiences. This review was published in the *Schizophrenia Bulletin* (doi: 10.1093/schbul/sbab026) and found that negative social evaluations, stigma and shame, are candidate factors that commonly associated with individuals with SAD in the context of psychosis. Based on previous cognitive behavioural understandings of SAD, paranoia and stigma, the findings of the systematic review were integrated into a theoretical model to guide future intervention and research into SAD in psychosis.

To test potential mechanisms of social anxiety and paranoia, an empirical survey in an analogue sample was conducted, entitled Personal Attitudes towards Social life related to Oneself (the PASO survey). The survey recruited participants from the general population in Thailand and in the UK, including two parts: a cross-sectional and a prospective PASO study.

The study in Chapter 3 aimed to investigate potential mechanisms of the relationship between social anxiety and paranoia and to compare mechanism outcomes cross-culturally using a cross-sectional design. Eight hundred and forty-two participants completed the survey which 427 from Thailand (68.9% female; mean age 36.2±10.4) and 415 from the UK (80.0% female; mean age 34.3±12.4). External shame was cross-culturally found to be a significant mediator in both Thai and UK samples, while self-esteem and safety behaviours were significant mediators in the UK sample. External shame, self-esteem and safety behaviours could be targeted in the treatment development of social anxiety and paranoia in psychosis intervention studies. This study has been submitted to *Psychiatry Research*.

In Chapter 4, a prospective (3-month follow-up) study using combined both national samples examined the potential mechanisms of social anxiety and paranoia. At follow-up, 422 participants completed the survey which 186 from Thailand (70.4% female; mean age 34.9±9.1) and 236 from the UK (81.4% female; 35.7±12.7). Consistently, cross-cultural data showed that external shame significantly mediated the relationship between social anxiety at baseline and paranoia at follow-up. These data suggested the potential for treatments of social anxiety and paranoia in psychosis by targeting shame-related cognitions. This longitudinal PASO survey has been submitted to *Clinical Psychology and Psychotherapy*.

In Chapter 5, a clinical study examined the mechanisms of the relationship between social anxiety and paranoia in people with schizophrenia in Thailand. One hundred and thirteen participants were recruited (59.3% female; mean age 44.2±13.1). Regarding negative social appraisals, stigma and shame did not show significant indirect effects through social anxiety-paranoia relationship. Meanwhile, *in situ* defence behaviours not anxious avoidance, of safety behaviours, showed a significant indirect effect. Safety behaviours, particularly *in situ* defence behaviours, should be targeted to alleviate social anxiety and paranoia in psychological interventions for people with psychosis. This study has been submitted to *Schizophrenia Research*.

Chapter 6 summarizes all significant and non-significant results drawn from the systematic review (Chapter 2), cross-cultural studies in analogue sample

(Chapter 3 and 4) and clinical study (Chapter 5). Strengths and weaknesses of the research conducted and the relevance and importance of the body of work are also presented in this chapter. Potential mechanisms underlying the social anxiety and paranoia relationship include shame related cognitions and safety behaviours. The next phase of research related to potential factors (i.e., stigma, shame, safety behaviours) should test on the manipulative study to confirm its causal evidence and examine them in clinical trials.

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Publications and presentations arising from this thesis

Systematic Review

- Aunjitsakul W, McGuire N, McLeod H and Gumley A. Candidate factors maintaining social anxiety in the context of psychotic experiences: A Systematic Review. *Schizophrenia Bulletin*, 2021, sbab026, https://doi.org/10.1093/schbul/sbab026

Full papers

- Aunjitsakul W, McLeod H and Gumley A. Understanding psychological mechanisms linking social anxiety and paranoia: a cross-cultural general population survey in Thailand and the United Kingdom. (Submitted to *Psychiatry Research*)

- Aunjitsakul W, McLeod H and Gumley A. Investigating key mechanisms mediating the relationship between social anxiety and paranoia: A 3-month follow-up cross-cultural survey conducted in Thailand and the United Kingdom. (Submitted to *Clinical Psychology and Psychotherapy*)

- Aunjitsakul W, Jongbowonwiwat K, Lambe S, Freeman D, McLeod H and Gumley A. Characteristics of social anxiety, stigma, shame and safety (defence) behaviours associated with paranoia amongst people with a diagnosis of schizophrenia. (Submitted to *Schizophrenia Research*)

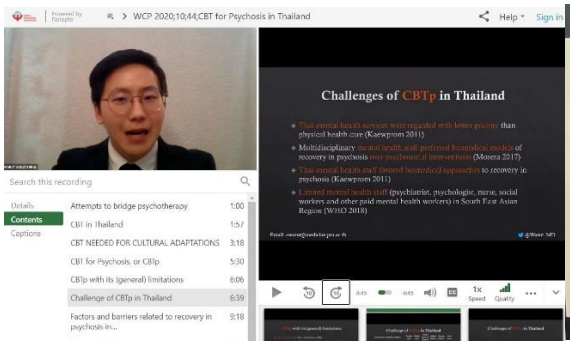
Published conference proceedings

- Aunjitsakul W, McGuire N, McLeod H and Gumley A. S120. Candidate factors maintaining social anxiety in psychotic experiences: a systematic review. *Schizophrenia Bulletin*, Volume 46, Issue Supplement_1, April 2020, Page S81, https://doi.org/10.1093/schbul/sbaa031.186

Oral presentation

- I presented the findings of Chapter 3 (Understanding psychological mechanisms linking social anxiety and paranoia: a cross-cultural general population survey in Thailand and the United Kingdom) at the IHW PGR Online Conference All Aboard! 24 November, 2020

- I presented the findings of Chapter 3 (Understanding psychological mechanisms linking social anxiety and paranoia: a cross-cultural general population survey in Thailand and the United Kingdom) at the 20th WPA World Congress of Psychiatry (Virtual congress) in the psychotherapy section: Ethnopsychotherapy and the need for cultural adaptations of CBT – An international perspective, titled “CBT for Psychosis in Thailand” 10-13 March, 2021.



Presenting CBT for Psychosis in Thailand, World Congress of Psychiatry (2020)

Pitching 3-minute-thesis presentation, BECKFEST (2021)

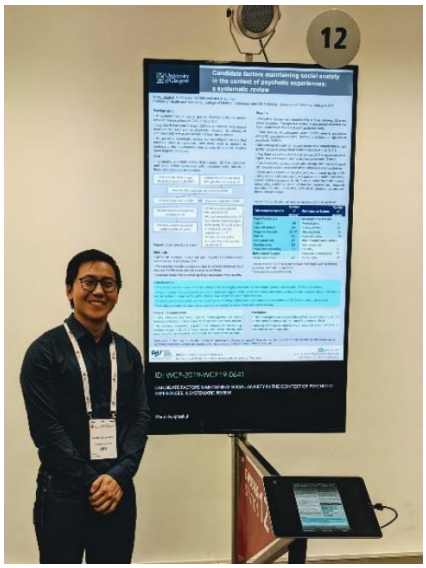
- I presented a three-minute pitch of the whole PhD project at the 22nd annual invitational conference for scientist-practitioners and people with lived experience involved in Cognitive-Behavioural Therapy for psychosis or BECKFEST (Virtual congress) in the elevators pitches of young PhD researchers section, titled “Investigating potential mechanisms to improve precision targeting of psychological interventions for social anxiety in psychosis” 6 May, 2021.

- I presented a findings of the whole PhD project, at the 7th Asian Congress of Schizophrenia Research (Virtual congress) in the symposium - Comorbidities in psychosis: psychopathological, treatment, and big data

perspectives, titled “Investigating potential mechanisms to improve precision targeting of psychological interventions for social anxiety in psychosis” 10-11 September, 2021.

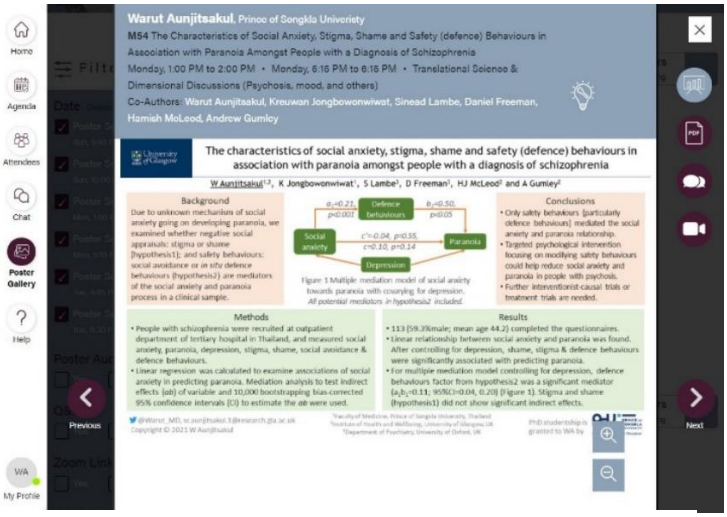
Poster presentation

- Candidate factors maintaining social anxiety in the context of psychotic experiences: a systematic review was presented at the 19th WPA World Congress of Psychiatry in Lisbon 21-24 August, 2019.



World Congress of Psychiatry (2019)

European Congress of Psychiatry (2021)



Schizophrenia International Research Society (2021)

- Candidate factors maintaining social anxiety in psychotic experiences: a systematic review was presented at the Schizophrenia International Research Society (Virtual congress) 4-8 April, 2020.

- Understanding psychological mechanisms underpinning the relationship between social anxiety and paranoia: a cross-cultural general population survey in Thailand and the United Kingdom was presented at the 20th WPA World Congress of Psychiatry (Virtual congress) 10-13 March, 2021.

- Using causal interventionist models to examine the relationship between social anxiety and paranoia: A 3-month follow-up cross-cultural survey conducted in Thailand and the United Kingdom was presented at the 29th European Congress of Psychiatry (Virtual congress) 10-13 April, 2021.

- The characteristics of social anxiety, stigma, shame and safety (defence) behaviours in association with paranoia amongst people with a diagnosis of schizophrenia was presented at the Schizophrenia International Research Society (Virtual congress) 17-21 April, 2021.

Other relevant publications achieved during doctoral training

During the course of this PhD programme I have also co-authored the following publications

Published conference proceedings

- McGuire N, Gumley A, Hasson-Ohayon I, Aunjitsakul W, Aydin O, Bo S, Bonfils K, Bröcker A, de Jong S, DiMaggio G, Inchausti F, Jansen JE, Lecomte T, Luther L, MacBeth A, Montag C, Pedersen MB, Pijnenborg M, Popolo R, Trauelsen AM, van Donkersgoed R, Wu W, Lysaker P, McLeod H. M71. The influence of metacognitive capacities on specific negative symptoms: A systematic review and individual participant meta-analysis of interview-based data, *Schizophrenia Bulletin*, Volume 46, Issue Supplement_1, April 2020, Pages S162–S163

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My gratitude extends to the Faculty of Medicine, Prince of Songkla University, Thailand for the funding opportunity to undertake my studies at the Institute of Health and Well-being, Medical, Veterinary and Life Sciences College, University of Glasgow, United Kingdom.

My happy life over the last four years would not have been possible without 'Thai Siam family'—P' Anna, P' Alex, and P' Yai who fully supported and made me feel at home here, in Glasgow. I have also met, celebrated, and laughed with many wonderful people in this family. I would say 'Happy Birthday to you' again and again. Also thanks all Thai friends for everything. So glad to meet you.

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Deepest thanks go to my family (Khanungwanitkul and Aunthanachok family) for all warm support and eternally care and for being there through the good times and the bad! This accomplishment would not have been possible without them.

Author's Declaration

"I hereby declare that I am the sole author of this thesis, except where the assistance of others has been acknowledged. The conception and design, data acquisition, organisation and running of studies, including the recruitment of participants, and data analysis and interpretation has been undertaken by me with input from supervisors (Professor Andrew Gumley and Professor Hamish McLeod).

It has not been submitted in any form for another degree or professional qualification."

Warut Aunjitsakul

September 2021

Abbreviations

Abbreviations have been kept to a minimum in this thesis. Where used, they have been introduced within the respective chapter.

Chapter 1 Introduction

1.1 Schizophrenia and its importance

Schizophrenia is a mental disorder characterized by disruptions in thought processes, perceptions, emotional responsiveness and social interactions (Tandon et al., 2013; Marder and Cannon, 2019). The major symptoms of schizophrenia include positive symptoms like delusions, hallucinations or disorganized speech, and negative symptoms such as diminished emotional expression, alogia or avolition (Tandon et al., 2013; Marder and Cannon, 2019). The definition of schizophrenia has evolved over time, and it has originated from three major phenomenological conceptualisations (Tandon et al., 2013). They are: 1) the Kraepelinian concept that emphasizes avolition, chronicity, and poor outcome (Kraepelin, 1971); 2) the Bleulerian view that dissociative pathology is primary and fundamental, which accentuates the negative symptoms (Bleuler, 1950); and 3) the Schneiderian approach, which stresses reality distortion or positive symptoms (Schneider, 1959). In light of these concepts, there has been a modest expansion of the criteria for the diagnosis of schizophrenia. Bleuler's emphasis in relation to negative symptoms and interpersonal pathology was taken into account in the Diagnostic and Statistical Manual for Mental Disorders, 1st edition (DSM-I) and 2nd edition (DSM-II). The Schneiderian first-rank symptoms, chronicity and poor function were more prominent in DSM-III (Tandon and Carpenter, 2012). According to diagnostic criteria of schizophrenia in DSM-5, two or more of the following should be present (with at least one of the first three): 1) delusion; 2) hallucinations; 3) disorganized speech; 4) grossly disorganized or catatonic behaviours; and 5) negative symptoms (e.g., diminished emotional expression or avolition), and each symptom should present for a significant portion of time during a one-month period (American Psychiatric Association, 2013). Individuals diagnosed with schizophrenia must present social and occupational dysfunction, and their symptom duration must be met at least 6 months. Also, those who meet the criteria of schizoaffective and mood disorder or have symptoms attributable to a substance or general medical condition must be excluded (American Psychiatric Association, 2013).

Using standard categorical diagnoses, a lifetime schizophrenia prevalence of approximately 0.33% to 0.75% is found amongst the general population (Saha et

al., 2005; Moreno-Kustner et al., 2018). People with schizophrenia present with continuous and relapsing episodes of psychosis (Patel et al., 2014; Jablensky et al., 1992). They may have cognitive impairment, a lower quality of life and well/being, poorer social relationships, adverse drug effects, or depression and anxiety (Patel et al., 2014; Aunjitsakul, 2018; Buckley et al., 2009; van Os and Kapur, 2009; Aunjitsakul, W., Teetharatkul, T., Vitayanont, A., Liabsuetrakul, T., 2021). In the past, schizophrenia has been viewed as a debilitating and deteriorating disorder with a poor outcome. Nowadays, this view is no longer supported by the evidence as most patients can live independently and are hospitalized for shorter durations, typically only a few weeks (Frese et al., 2009; Tiihonen et al., 2017).

1.1.1 Treatments of schizophrenia

In the past decades, the rate of new development for pharmacological agents for people with psychosis has slowed since the 1960's but that the development of psychological treatments has expanded dramatically since the 1990's (van Os and Kapur, 2009; Marder and Cannon, 2019), such as, Cognitive Behavioural Therapy for psychosis, Cognitive Remediation Therapy, and some 3rd wave cognitive behavioural treatment approaches (Jones et al., 2018; Khoury et al., 2013). Firstly, in pharmacological treatment, antipsychotic agents have assumed the main role in treating people with schizophrenia; they are used during the acute phase followed by maintenance therapy (Patel et al., 2014; Marder and Cannon, 2019). Such medications help alleviate psychotic symptoms (e.g., hallucinations and delusions), enhance socialization, improve self-care and mood, and prevent relapse; as a consequence, patients can return to normal functioning (Patel et al., 2014; Marder and Cannon, 2019). However, those taking antipsychotic medications may suffer adverse effects such as extrapyramidal symptoms (e.g., psychomotor retardation, cognitive impairment), weight gain and metabolic syndrome (Mangurian et al., 2016); these side effects, in turn, lead to nonadherence to treatment (Patel et al., 2014).

A second type of treatment is non-pharmacological therapy; it is useful after active symptoms subside, in particular in the long term. This is because it helps people with schizophrenia adapt their functioning to the baseline (Dickerson and

Lehman, 2011; van Os and Kapur, 2009), prevents them from relapse, and ensures they remain adherent to their medications (Lindenmayer et al., 2009). There are two effective psychological therapies in improving clinical outcomes: family intervention (FI), which is effective at reducing relapse in psychosis; and cognitive behavioural therapy (CBT), which is effective for symptom reduction (Garety, 2003; Wykes et al., 2008; Jones et al., 2018; Taylor and Perera, 2015). In 2014, it was suggested that CBT be offered to people with psychosis as a first-line treatment by the National Institute for Health and Care Excellence (NICE) guideline (National Institute for Health and Care Excellence, 2009; Taylor and Perera, 2015). Currently, FI and CBT are equally acceptable and accessible in mental health services (Garety, 2003) and have now been incorporated in early intervention services or rehabilitation programs for people with psychosis (National Institute for Health and Care Excellence, 2009). However, the evidence for rehabilitation in psychosis is not well established (Morin and Franck, 2017; McGorry et al., 2008; Marshall and Rathbone, 2011). Other psychological approaches like meta-cognitive training, narrative therapy, mindfulness therapy, and compassion-focused therapy are emerging therapies and could be useful in practice (Dickerson and Lehman, 2011; Braehler et al., 2013). The emergence of more and more psychological treatment options needs to be complemented by the development of accompanying mechanistic/theoretical developments that allow us to refine and improve treatments based on evidence rather than the good guesses and inspiration of clinicians. This thesis, therefore, focuses on finding ways to develop as well as improve treatment for people with psychosis.

1.1.2 Psychiatric comorbidities of schizophrenia

People with schizophrenia can also suffer from comorbidities alongside any burden of their illness and treatment side effects. Common comorbidities of schizophrenia involve depression and anxiety (Buckley et al., 2009; Siu et al., 2018). From 41% to 50% of depression cases are a comorbidity of psychosis; other comorbidities include substance abuse (44-47%), posttraumatic stress disorder (6-29%), obsessive-compulsive disorder (12-23%), social anxiety disorder (19-21%), and panic disorder (7-15%) (Buckley et al., 2009; McEnery et al., 2019; Siu et al., 2018). Social anxiety is one of the most common problems that has acquired more interest because deficits in social functioning are associated with transitioning to more psychosis (Addington et al., 2017). Furthermore, those

with established psychosis could experience socially anxious fears due to their social cognitive deficit (i.e., awkwardly response in social gathering) or suffering from adverse drugs effect (i.e., tremor or rigidity), resulting in difficulty in their daily living, social events or employment (Aunjitsakul, 2018; Fett et al., 2011; Achim et al., 2013; Aunjitsakul, W., Teetharatkul, T., Vitayanont, A., Liabsuetrakul, T., 2021; Mangurian et al., 2016; Teetharatkul, 2021). Also, many people with schizophrenia report problems with social relationships and activities (Agid et al., 2012; Fett et al., 2011; Achim et al., 2013; Aunjitsakul, 2018), and those with comorbid social anxiety report low functioning, low self-esteem, high symptom severity, poor quality of life, severe depression, and a higher rate of suicide attempts (Karatzias et al., 2007; Vrbova et al., 2017b; Pallanti et al., 2004). Although social anxiety causes significant problems, which are not only social problems but also psychological distress, treatment-relevant research on social anxiety in psychosis is limited, and this topic remains largely unexplored (Michail and Birchwood, 2009). Comorbid social anxiety is the focus of treatment development for people with psychosis in this thesis.

1.2 Paranoid Thoughts

Paranoid thoughts are frequently found amongst patients with schizophrenia and delusional disorder (Picardi et al., 2018; Bentall, 2009); about 74.3% of people with first-episode commonly present with persecutory delusions (Paolini et al., 2016) and paranoia is the most commonly reported delusion among individuals diagnosed with schizophrenia spectrum illnesses (Bentall, 2009). Moreover, paranoid ideations were also found across general population (Freeman, 2005; Bird et al., 2019), which from 18.6% reporting that people were against them to 1.8% reporting potential plots to cause them serious harm (Freeman et al., 2005b). Persecutory delusions refer to the individual believing that harm is occurring, or is going to occur, to him or her, and that the persecutor has the intention to cause harm (Freeman and Garety, 2000). It can be used interchangeably with terms such as paranoia, delusions of persecution, and delusions of reference (Freeman, 2007b). With the characteristics of paranoid thoughts, it can be from less to severe intensive or persistent forms of thinking. In other words, mild fear of social disapproval through to delusional fears of persecution has been seen as a continuum that may vary across people, and

within people, with fluctuating persecutory fears (Freeman et al., 2005b; Freeman, 2007b).

Paranoid thought typically originates from worry related thinking that can lead to plausible ideas continuing to the implausible ideas in one's mind (Freeman and Garety, 1999), and worrying can also exacerbate paranoid ideation (Sun et al., 2018). As a result of the process of repetitive self-focused thought and ineffective anticipatory problem solving through worry, individuals with suspicious thoughts in relation to others (due to feeling left out, inferior or less competent) can then exacerbate mild fears into persecutory fears, (Freeman, 2007b; Birchwood et al., 2000). Anxiety and paranoia can mutually reinforce each other over time, particularly in individuals with higher negative beliefs about worries including relationships, lack of confidence, aimless future, work incompetence and finances. (Sun et al., 2019). Because negative beliefs about self in relation to society can cause feelings of being different, apart, inferior, and vulnerable, these feelings can lead to rumination and are ultimately linked to the feeling of social threat or paranoid ideation (Freeman et al., 2005b). There is a continuum from socially anxious fear to paranoid ideation in the general population (Freeman et al., 2005b; Hajdúk et al., 2019); this overlapping construct has been called the paranoia hierarchy model, see **Figure 1.1** (Freeman et al., 2005b). This social anxiety-paranoia continuum is a bidirectionally relationship, meaning that some people with social anxiety can develop into paranoia and conversely some may develop social anxiety following a psychotic episode. It is noted that people diagnosed with psychotic disorders may suffer from social anxiety (Michail and Birchwood, 2009), because of stigma (of mental illness) (Michail and Birchwood, 2013) or being overweight due to the medications (Mangurian et al., 2016), for instances. Therefore, social anxiety follows the appearance of psychotic symptoms, rather than precedes it. This model helps to shed some light on our understanding of the phenomenology of psychosis, because paranoid ideation (a weaker form of psychosis) can be found in non-clinical populations, providing an opportunity to gain clinically-useful information to inform future research and therapy development (Freeman et al., 2005b).

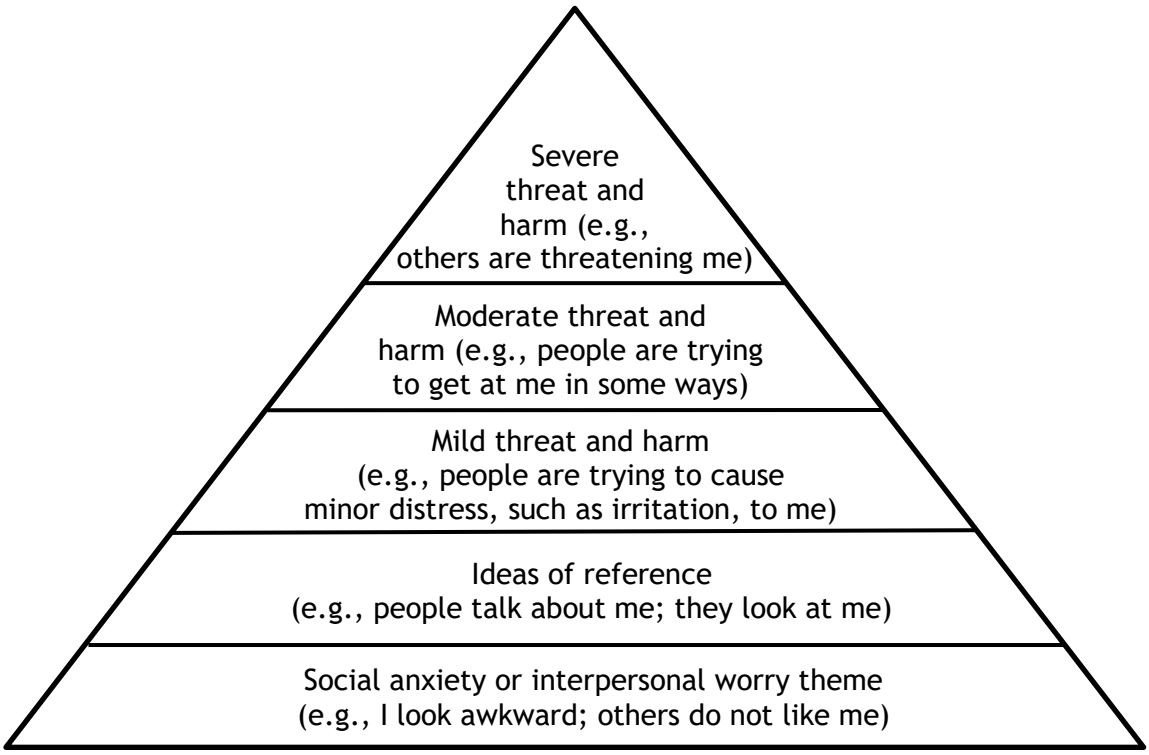

Figure 1.1 The paranoia hierarchy model (modified from Freeman et al. (2005b))

Because the research approach to understanding the role of psychological mechanisms in psychotic experiences has been used too infrequently (Freeman et al., 2005b; Brown et al., 2019) and the mechanisms by which social anxiety develop into paranoia are uncertain, therefore, it is useful to dissect this relationship in order to achieve the kind of causal evidence that would enable the development of novel treatments for people with psychosis (Brown et al., 2019). The conduct of manipulationist or interventionist-causal approach studies have encouraged testing of the casual evidence (Brown et al., 2019). This approach helps to define causation in terms of "what would happen under interventions" (Kendler and Campbell, 2009). In this thesis the relationship between social anxiety and paranoia was explored with using this approach to identify the key mechanisms with the potential to produce change in the primary clinical outcome (either social anxiety or paranoia) in the context of psychosis. In addition, paranoia may be less susceptible to sociocultural influence; it is thought to be constant and prevalent across time and cultures (Paolini et al., 2016). Therefore, investigating paranoid thinking across cultural contexts could enable a broader understanding of the evolution and phenomenology of psychosis (Picardi et al., 2018; Paolini et al., 2016). Moreover, using the interventionist causal models could provide practical improvements in mental

health research, namely increasing precision to prevent and treat psychological and psychiatric disorders (Kendler and Campbell, 2009).

1.3 Social Anxiety Disorder (SAD)

Social anxiety disorder, also known as social phobia, is the most common anxiety disorder, with a lifetime prevalence estimate as high as 12% using DSM-IV criteria (Kessler et al., 2005). Meanwhile, a prevalence from global survey data shows a higher proportion with 22.9% to 57.6% meeting threshold for SAD using Social Interaction Anxiety Scale (SIAS) (Mattick, 1998), conducted across seven countries: Brazil, China, Indonesia, Russia, Thailand, US and Vietnam (Jefferies and Ungar, 2020). In individuals with a psychotic disorder, recent meta-analysis showed that a pooled prevalence rate of their comorbid SAD was 21% (16% to 26%) (McEnery et al., 2019). In 1966, social phobia was classified as a phobic disorder, defined broadly as exaggerated fear of scrutiny or evaluation by others that led to distress and/or avoidance when engaging in performance or social interactions (Marks and Gelder, 1966). The criteria for the diagnosis of social phobia have changed over time; in 1994, DSM-IV added "SAD" as an alternative name (American Psychiatric Association, 1994) because it conveys the sense of pervasiveness and impairment more strongly than does social phobia (Heimberg, 2014). DSM-5 made SAD the primary name, aiming to raise awareness of the seriousness of the disorder amongst both clients and healthcare providers (American Psychiatric Association, 2013). The SAD criteria are broader and focus on the fear of negative evaluation rather than humiliation and embarrassment (Heimberg, 2014). This helps capture a larger group of patients who may benefit from evidence-based treatments for SAD; it was asserted that the percentage of respondents seeking treatment if their symptoms were labelled as SAD was higher than if they were labelled as social phobia (Bruce, 2012).

People with SAD are typically shy when meeting new people, quiet in groups, and withdrawn in unfamiliar social settings (Stein and Stein, 2008; Hidalgo et al., 2001). In social events, they might or might not show signs of feeling uncomfortable (e.g., blushing, avoiding eye contact). However, they may invariably have different experiences of intense emotions (e.g., fear, embarrassment) or physical symptoms (e.g., shaking, palpitation, sweating, trouble concentrating), or both. Due to fear of being seen as unfavourable in the

eyes of others, they may avoid speaking in public, expressing opinions, or even socializing with others (Stein and Stein, 2008; Hidalgo et al., 2001).

1.3.1 The cognitive models of social anxiety

Cognitive behavioural models have been developed to aid the understanding of how social anxiety develops and is maintained by Clark and Wells (Clark and Wells, 1995), and Rapee and Heimberg (Rapee, 1997). Based on the cognitive models, maladaptive self-beliefs and assumptions (e.g., I am stupid) give rise to negative interpretations of experience, negative feelings, and counter-productive safety behaviours aimed at preventing failure and embarrassment (Beck, 1976; Beck, 1985). Clark and Wells proposed a cognitive behavioural model for SAD, emphasizing beliefs about self as a social object (Clark and Wells, 1995). It was described that when an individual with social anxiety enters social events, negative beliefs are activated, and negative appraisals of performance occur. They then shift attention to a self-focus on a biased and distorted inner image of self. In this distressed state, the individual engages in safety behaviours (e.g., avoiding eye contact) to deal with negative beliefs about how one is perceived by others and these safety behaviours then prevent disconfirmation of the socially anxious fears (Clark and Wells, 1995).

Additionally, either before or after social encounters, those with social anxiety may anticipate worrying thoughts (anticipatory fear) or focus on post-event processing of socially distressing events; these contribute to the maintenance of negative social beliefs and assumptions about the social self (Clark and Wells, 1995). Rapee and Heimberg also shared similar principles of negative social beliefs, but they additionally maintained that the individual with social phobia is characterized by maladaptive self-related processing that could be external (e.g., scanning the environment for signs of negative evaluation), triggering further social fear in the mind (Rapee, 1997).

1.3.2 Cognitive Behavioural Therapy for SAD

With respect to the efforts to understand SAD via cognitive behavioural models, CBT for SAD has been proposed as an effective treatment for people with social anxiety (Acarturk et al., 2009; Mayo-Wilson et al., 2014). The current NICE

guideline recommends the use of CBT for people with SAD (Pilling, S. et al., 2013); it suggests the delivery of education about social anxiety, cognitive restructuring, as well as the examination and modification of core beliefs (National Collaborating Centre for Mental Health (UK), 2013). Additionally, the use of experiential exercises to help people with SAD learn the adverse effects of self-focused attention, and modifying safety-seeking behaviours are core components of recommended treatments (National Collaborating Centre for Mental Health (UK), 2013). However, clinical guidelines are silent on the treatment of SAD with comorbid conditions such as psychosis (Michail et al., 2017), despite the increasing and well-established evidence on the mechanisms of therapeutic change of the development of psychological intervention for people with mental illness.

In addition, three pilot studies testing group CBT for social anxiety in people with psychosis found effectiveness in treating their symptoms of social anxiety, depression, distress and psychotic symptoms (Halperin et al., 2000; Kingsep et al., 2003; Montreuil et al., 2016). However, methodologically rigorous studies, with embedded process evaluation assessing the effectiveness and identifying mechanisms of change, of CBT interventions for the treatment of social anxiety disorder require more research attention (Michail et al., 2017).

1.4 How are persecutory paranoia and social anxiety constructed?

From the evolutionary perspective, anxiety has long been evolved to deal efficiently with the danger. The manifestation of anxiety is recognized as useful in situations in which “flight, fight or hiding” are the adaptive responses to avert specific threat (Marks and Nesse, 1994). Thus, anxiety serves to prepare a person for threats (Beck, 1985). Anxiety-proneness and anxious symptoms are dispersed as a continuum from the general to the clinical population (Kessler et al., 2003; Angst et al., 2009). The preceding symptoms of anxiety are often accompanied by subtle cognitive changes and psychotic phenomena (Startup et al., 2007); it has been found that approximately 43% of individuals with schizophrenia present with anxiety disorder (Cosoff and Hafner, 1998).

With respect to worry, socially anxious fear could share the same roots as persecutory fear, owing to the fact they are both associated with a negative self-evaluation by others in society, are mentally generated, and can be extended from plausible ideas (e.g., others talk about me) to implausible ideas (e.g., people hate me and threaten me) (Freeman and Garety, 1999; Sun et al., 2019; Startup et al., 2007). Hence, anxiety can play a potential role at all stages of persecutory belief formation. There is strong evidence of the link between social anxiety and paranoia; it has been demonstrated in non-clinical populations that paranoid thoughts are built upon common interpersonal anxieties (Freeman et al., 2005b; Freeman et al., 2005a), see a paranoia hierarchy model in **Figure 1.1** (Freeman et al., 2005b). Additionally, socially anxious thoughts strongly correlate with persecutory delusions (Huppert and Smith, 2005), and predict the occurrence of paranoid thoughts (Freeman and Garety, 2003; Freeman et al., 2005a) and the persistence of persecutory delusion (Startup et al., 2007). Given the robust evidence regarding the relationship between social anxiety and paranoia, it is surprising that research exploring the mechanism by which social anxiety can escalate into paranoia is rather scant (Marks and Nesse, 1994; Hinds et al., 2010); therefore, questions remain about why people suffering from social anxiety go on developing persecutory fear. Hence, this thesis will explore the mechanisms that underly anxiety and the perception of severe threats.

1.5 What is the gap of knowledge in treating social anxiety in people with psychosis?

The NICE guideline recommends offering CBT to an individual with a single diagnosis of SAD (National Collaborating Centre for Mental Health (UK), 2013; Mayo-Wilson et al., 2014; Ponniah and Hollon, 2008). Cognitive therapy is developed to test fears concerning various social situations with behavioural experiments and cognitive restructuring; a tailor-made version of CBT (e.g., self-focused attention or safety behaviours) was later developed (Clark and Wells, 1995; Clark et al., 2003; Kim, 2005; Morgan and Raffle, 1999) and suggested to be used with individuals suffering from SAD (National Collaborating Centre for Mental Health (UK), 2013). Other psychological interventions are also effective in improving social anxiety and recommended for the treatment of SAD. Other examples of interventions include social skills training and exposure therapy (Ponniah and Hollon, 2008; Mayo-Wilson et al., 2014; National Collaborating

Centre for Mental Health (UK), 2013); nonetheless, they are less effective than CBT (Mayo-Wilson et al., 2014).

In addition, CBT is also suggested to be offered to people with psychosis (Taylor and Perera, 2015; Kuipers et al., 1997; National Institute for Health and Care Excellence, 2009), since its effectiveness in reducing psychotic symptoms amongst people with psychosis (Sensky et al., 2000; Bechdolf et al., 2004; Garety et al., 2008; Klingberg et al., 2011; Wykes et al., 2008; van der Gaag et al., 2014; Burns et al., 2014; Turner et al., 2014) or those at risk of psychosis (Lewis et al., 2002; Stafford et al., 2013; Bird et al., 2010) has been repeatedly confirmed. Also, CBT can be effective in preventing or delaying the transition to full psychosis when used with individuals identified as being at risk of developing psychosis (Stafford et al., 2013). There are different levels of CBT for psychosis (CBTp). These include full CBTp, defined as the intention to provide at least 16 sessions over at least six months by a qualified CBT therapist (Morrison, 2017) and CBT-informed interventions, defined as interventions provided by mental health practitioners not meeting the criteria of a full CBTp therapist. Some examples of informed intervention version are: Coping Strategy Enhancement (Tarrier et al., 1993), nurse-delivered CBT-informed interventions (Turkington et al., 2002), and targeted CBTp interventions that rely on specified mechanisms determined by a CBTp therapist (e.g., Worry Intervention (Freeman et al., 2015), AVATAR therapy (Leff et al., 2014), Cognitive Therapy for Command Hallucinations (Birchwood et al., 2014), Individual Resiliency Training (Penn, 2014), as well as SlowMo digital intervention (Garety et al., 2021) and Feeling Safe Programme (Freeman et al., 2021) targeting paranoia. Although CBTp provided effectiveness in treatment psychotic symptoms and emotional distress, there were adverse events requiring for thoroughly considerations. For examples; there may be significant advantages to experiences like hearing voice or seeing visions and beliefs (i.e., grandiose ideas), treatment effects might lead to decreasing that advantages and in turn cause emotional distress; or historic formulation linking multiple problems could make them feel overwhelming or distressing due to reexperiences of traumatic memories (Morrison, 2017). Apart from interventions aimed at reducing psychotic symptoms, other treatments such as psycho-education, self-assertiveness, social skill training, or interventions focusing on recovery management skills also help improve clinical

outcomes in people with psychosis (Morin and Franck, 2017; Ustun and Kucuk, 2020; Lee et al., 2013; Lecomte et al., 2008a; Lecomte, T. et al., 2019a).

Current evidence clearly shows that there are effective psychological interventions for people with a single diagnosis of either SAD or psychosis. However, there is currently no treatment of choice for alleviating social anxiety symptoms amongst individuals with psychosis (Michail et al., 2017). Even though people with psychosis suffer significantly from comorbid SAD, psychological interventions for SAD in psychosis as well as the important mechanisms that underly social anxiety in people with psychosis have not yet been fully understood (Michail et al., 2017; Michail and Birchwood, 2013; Wykes et al., 2008). According to the evidence from past meta-analyses showing an effect of CBTp on social anxiety (Wykes et al., 2008; Michail et al., 2017), this points to a possible shared mechanism that is able to be addressed in psychological treatments. Therefore, the development and maintenance mechanisms are needed to understand better, through the findings of the empirical studies of this thesis, in order to refine the treatment approach for people with SAD in the context of psychosis.

1.6 Interventionist casual model

The nature of causation and explanation of a given phenomenon is of substantial relevance to informing treatment development research, and, in such inquiry, it is important to provide a framework, which can determine the correctness of a causal mechanism (Kendler and Campbell, 2009). However, insufficient attention has been paid to the nature of causal mechanisms in psychiatry (Kendler and Campbell, 2009; Garety and Freeman, 2013), and studies testing causal roles for psychological processes in psychosis are limited (Brown et al., 2019; Freeman, 2011). This thesis adopted an interventionist causal approach (Kendler and Campbell, 2009) to identify factors to be targeted in the development of treatment for SAD in psychosis. Three principles of the interventionist causal approach were followed to critically analyse outcomes in determining the potential mechanisms underpinning social anxiety in psychosis. They were: firstly, the single factor should be measurable; secondly, the putative causal process is amenable to change by the causal factor; and lastly, the causal factor

is relevant to a theoretical understanding to guide therapy (Kendler and Campbell, 2009).

It has been found that the concomitants associated with the health of a society such as less perceived social support and less social inclusion may be given to understand the causes of paranoid ideations (Freeman et al., 2011). Following the interventionist casual model (Kendler and Campbell, 2009), if a key mechanism related to social concerns is identified, it could be a target intervention to prevent and treat symptoms of paranoia and other psychotic symptoms (Garety and Freeman, 2013). Thus, potential mechanisms related to social concerns have been investigated for the feasible treatment targets of social anxiety in psychosis and then this evidence could be used to justify testing in a causal-interventionist treatment trial (Brown et al., 2019; Garety and Freeman, 2013). The merit for testing a mechanism is determined by evidence that it affects the relevant outcome variables in relation to social anxiety or paranoia in psychosis.

1.7 Cross-cultural issues

Culture is a general term that is used in everyday life; nonetheless, there is still uncertainty of how the word itself should be understood (Valsiner, 2009). There are many arguments for the definition of culture due to its fluidity with theories used. The most essential characteristics of cultures are that they are multidimensional phenomenon that encompass processes, products, and results of human activity, material and spiritual, which are transmitted from generation to generation in a non-biological way (Mironenko and Sorokin, 2018). The United Nations Educational, Scientific and Cultural Organization (UNESCO) employs a definition, which is generally accepted: “culture refers to the set of distinctive spiritual, material, intellectual, and emotional features of society or a social group, and it encompasses, in addition to art and literature, lifestyles, ways of living together, value systems, traditions, and beliefs” (UNESCO, 2001). In addition, the word ‘culture’ can be used interchangeably with ‘ethnic group’ or ‘race’ (UNESCO, 2001).

1.7.1 Culturally adapted psychological intervention to global mental health

An evidence-based psychosocial intervention for individuals of diverse cultural backgrounds is a valuable concept for the improvement of culturally adapted therapies (Naeem et al., 2021). In contrast to surgical or medical interventions, psychological interventions are underpinned by the social, cultural, political and religious values of their original developers (Kirmayer, 2012). A great deal of research has highlighted that cultural differences could influence the development of psychosocial interventions (Bhugra and Bhui, 1998; Bhui, 2010; Barrera et al., 2013; Edge et al., 2018; Rathod and Kingdon, 2014; Sue et al., 2009). The significant impacts on mental health due to cultural factors include expression and functional outcomes, health seeking behaviours, attitudes of patients, and the practitioners and mental health systems (Mario Hernandez et al., 2009). Considering symptom expression, e.g., emotional recognition, Asian patients are more likely to report somatic symptoms, such as dizziness, while not reporting their emotional symptoms at the first place. However, when questioned further, they do acknowledge their emotional symptoms. In contrast, American patients tend to describe their emotions to clinicians (Keh-Ming, 1999; Gopalkrishnan, 2018). This example supports the view that patients in different cultures tend to selectively express or present symptoms in culturally acceptable ways (Kleinman, 1977), resulting in different ways of training psychiatrists and others and symptom management in diverse cultural settings (Griffith et al., 2016). Lack of culturally adapted healthcare management can lead to a disparity in care for people in different cultures, causing poor access to available services, poor treatment outcomes, and increased costs for the society (Kirmayer, 2012; Alegria et al., 2010). Therefore, it is encouraged that cultural responsiveness be both addressed and ensured, and that appropriate and effective treatment interventions including clinical services, which are relevant to the cultural backgrounds of diverse populations, be incorporated into practice (Alegria et al., 2010; Kirmayer, 2012). So, expanding horizons of adapted psychological interventions by investigating from adjacent cultures could be mutually beneficial. Action-oriented managements of mental health could be provided globally, and equally (de Jong, 2014).

There are four core dimensions that are different between Asian and Western cultures; they consist of individualism–communalism, cognitivism–emotionalism, free will–determinism, and materialism–spiritualism (Laungani, 2005). It can be explained that Asians are more like to be community-oriented, to make less use of a reasoning approach, to be inclined towards spiritual explanations, and be prone to a deterministic view of life (Laungani, 2005; Roland, 2005). Furthermore, Confucianism (respect for familial and social hierarchy, filial piety, discouragement of self-centredness, emphasis on academic achievement, and the importance of interpersonal harmony) (Roland, 2005; Li et al., 2017) and Taoism (leading a simple life, being connected with nature, and non-interference with the course of natural events) are valued by a great number of Eastern individuals and associated with sound mental and emotional health (Li et al., 2017). In Thailand (my country), because the majority of Thai people are Buddhists, they generally adhere to Buddhist principles and integrate them into their daily life and culture (Udomratn, 2008). For example, they believe in 'Karma' or the law of cause and effect as being the rule of nature (Udomratn, 2008), take a nonlinear view of life and focus on the present (Li et al., 2017), and emphasize that one's thinking can cause a person to suffer (Scorzelli, 2001). A rise in the use of culturally adapted psychotherapy in Asia has been observed; nonetheless, available data on comparisons between culturally adapted and non-adapted therapies are limited (Hwang et al., 2015; Kohn et al., 2002). Further comparisons and contrasts could help identify additional commonalities and differences between these two groups of therapy (Hwang et al., 2015; Kohn et al., 2002). The challenges of adapted therapies are supported to take a step forward by seeking to align more closely with cultural psychiatry, in order to achieve comprehensive mental health coverage around the globe, not only in Asian and Western countries but also both high- and middle- and low- income countries (de Jong, 2014). Consequently, there is a need to further adapt therapies for patients from different religious, racial, and cultural backgrounds.

1.7.2 Influences of cultures towards the social anxiety and paranoia relationship and its mechanisms.

Paranoid thinking is widely observed in many studies amongst Western populations (Freeman et al., 2005b; Johns et al., 2004; Kaymaz and van Os, 2010; Linscott and van Os, 2010). So far, there have been no cross-cultural

studies in non-Western populations focusing on paranoid thinking and its links to social anxiety in either the general or clinical populations. Due to the fact that culture shapes aspects of mental ill-health and social evaluation concerns such as prevalent beliefs of malevolence affecting the content of persecutory delusions (Skodlar et al., 2008), levels of social discrimination associated with mental illness (Moleiro, 2018), or experiences of shame in different contextual norms and values (Ha, 1995), it is likely that the expression of the continuum of social anxiety to paranoid thoughts is affected by a cultural dimension.

To demonstrate how differences in cultural valuations between Western and non-Western cultures affect phenomena of social anxiety or paranoid ideation, a couple of examples are presented below. Firstly, one must please others or depend on authority; these values are commonly found as functional beliefs in Eastern cultures (Naeem et al., 2019), and in Thai culture as well. Secondly, shyness, inhibition, and humility are valued as a sign of personal maturity in collectivistic cultures (e.g., Thailand, Japan), whereas the expectation that one's achievement and success should receive the greatest reward and social admiration flourishes in individualistic cultures (e.g., UK, US) (Hofmann et al., 2010). These culturally transmittable values and norms can influence an individual's perception and cognition and lead to diverse views in each society (Alegria et al., 2010; Naeem, 2019; Algahtani et al., 2019), consequently this could affect the development of social anxiety and paranoia relationship.

In part of the mechanisms of the social anxiety and paranoia relationship, social evaluative concerns (e.g., stigma, shame, low social rank) (Link, 1999; Gilbert, P., Andrews, B., 1998; Cheung, 2004) could play a key role for treatment development, and these concerns can be affected by social norms and values in different contexts (Skodlar et al., 2008; Moleiro, 2018; Ha, 1995). One example in which culture affects social evaluative concerns is through how patients with different ethnicities present or cope with their symptoms. Asian American people tend not to dwell on upsetting thoughts and think that reticence or avoidance is better than outward expression of their symptoms to the others (Kleinman, 1977; Gopalkrishnan, 2018). So, they place a higher emphasis on suppression of affect and rely on themselves to cope with distress to prevent their symptoms exposing to societies (Narikiyo and Kameoka, 1992). Meanwhile,

African Americans tend to take an active approach in facing personal problems, rather than avoiding (Broman, 1996). They are more inclined to depend on handling distress on their own (Sussman et al., 1987; Gopalkrishnan, 2018). This could be that Asian people more concern with themes of social rule breaking or being egotistical, leading to the modesty and self-effacing style, whereas the African group concerns more on their self-image or being hypervigilant, leading to the boastful and self-assertive style.

In addition to the mechanisms, individuals with mental illness, who accept and internalise the stigma associated with a diagnosis, perhaps become so embarrassed or ashamed that they often conceal symptoms and fail to seek treatment (Wahl, 1999; Gopalkrishnan, 2018). Those with experiences of stigma generally face social and economic problems with access to resources and opportunities, such as housing and employment (Penn and Martin, 1998). In some Asian countries, individuals can suffer from extreme stigma because mental illness is thought to reflect poorly on family lineage and thereby diminishes marriage and economic prospects for other family members (Ng, 1997; Gopalkrishnan, 2018). Shame cognitions (i.e., being unattractive) that closely relate to stigma, comprise of two types, firstly, external shame refers to more concerns about negative judgement in the mind of others; and secondly, internal shame refers to more focuses inwardly to the self or self-criticism (Goss, 1994a). Shame also links to clinical outcomes where external shame was associated with paranoia while internal shame was associated with social anxiety (Matos et al., 2013). However, shame expression is affected by different cultures (Ha, 1995). Therefore, it is possible that the above-mentioned influences, i.e., norms and values across cultures affects the development of differences in social anxiety or paranoid thinking, not only social anxiety and paranoia relationship but also broader social evaluative concerns including stigma or shame (Terry and Hogg, 1996; Ran et al., 2021).

Because there is no one-size-fits-all approach to mental health treatment (Alegria et al., 2010), it is important to investigate the association between social anxiety and paranoid thinking including factors related to social evaluation concerns across cultures, in order to understand how different socio-cultural contexts affect the formation of the continuum between social anxiety and

paranoid thought. This would, in turn, help develop suitable psychological treatments for people of a given cultural background.

1.8 Current thesis and aims

This chapter presents the conceptual origins of this thesis. It includes the overall description of schizophrenia, paranoia, and social anxiety as well as highlights the cognitive behavioural model of social anxiety (Clark and Wells, 1995; Rapee, 1997; Beck et al., 1985), which will be used as the theoretical approach in this thesis. The paranoia hierarchy model, which emphasizes the important association of the phenomena of social anxiety and persecutory delusion (Freeman et al., 2005b), and the interventionist causal model, that has been developed to help identify target mechanisms for therapy (Kendler and Campbell, 2009), are described. This chapter also illustrates the rationale for the need for psychological intervention in the treatment of SAD in psychosis, which supports the view that CBT for SAD in people with psychosis could reduce social anxiety (Michail et al., 2017). Moreover, cross-cultural aspects in relation to global mental health and future research are also raised in this chapter due to the understanding that different valuations of beliefs and norms affect the development of mental health illness and its treatment approaches.

This considerable gap in the current knowledge of this topic underlines the need for the examination of the therapeutic mechanisms underpinning CBT for SAD in the context of psychosis. To establish the basis for future treatment development, firstly, the potential mechanisms underpinning social anxiety in people experiencing psychosis were identified. Secondly, mechanisms underpinning the social anxiety and paranoia relationship were investigated. This thesis aims at understanding how people move along the continuum from “normal range” social anxiety and mild paranoia through to severe and distressing persecutory fears. Therefore, the studies in this thesis employed a comprehensive range of study designs—from systematic literature review (to identify candidate factors of social anxiety in psychosis) to analogue and clinical samples (to investigate social anxiety-paranoia continuum and its mechanisms in broaden samples). A robustness of the social anxiety and paranoia relationship with its mechanism was also confirmed by cross-sectional and longitudinal studies as well as a diverse cross-cultural approach, crossing national settings

between Thailand and the UK in order to represent a non-Western and a Western English-speaking country. Existing knowledge including the cognitive behavioural approaches, paranoia hierarchy model and interventionist causal approach have also been addressed in this thesis to help guide and identify the practical mechanisms.

In summary, this thesis aims to identify candidate mechanisms of social anxiety in psychosis and to explore the potential mechanisms of the relationships between social anxiety and paranoia in people with psychotic experiences and cross-culturally compare those mechanisms. To this end, this thesis will focus on four overarching research questions described below.

1.9 Research questions

The current thesis aims to address the following research questions:

1. What are the candidate mechanisms maintaining social anxiety in people with psychotic experiences? (Chapter 2)

2. What are the potential mediators of the cross-sectional relationship between social anxiety and paranoia across two national settings from Thailand and the UK? (Chapter 3)

3. What are the potential mediators of the prospective relationship between social anxiety and paranoia amongst the combined two national samples from Thailand and the UK? (Chapter 4)

4. Do negative social appraisals and safety behaviours mediate the relationship between social anxiety and paranoia in a clinical sample of a non-Western background? (Chapter 5)

1.10 Thesis structure

In Chapter 2, a systematic review of the broad literature on the candidate factors maintaining social anxiety in the context of psychotic experiences is conducted. Chapters 3 and 4 focus on an empirical survey assessing the attitudes of social anxiety towards paranoia in the general populations of Thailand and the

UK using internet-based questionnaires. A cross-sectional survey (Chapter 3) investigated the mechanisms of social anxiety in psychosis and compared the mechanism outcomes cross-culturally, while a later survey (Chapter 4) prospectively examined the mechanisms explaining the relationship between social anxiety and paranoia. Chapters 5 describes the empirical studies conducted to examine the mechanisms of social anxiety and paranoia in people with schizophrenia in Thailand. The final chapter (Chapter 6) is a general discussion, which integrates the findings from this thesis' empirical studies, drawing overarching conclusions as well as identifying key limitations and suggestions for future research. The research questions from one to four are addressed in chapters 2, 3, 4 and 5, respectively.

Chapter 2 Candidate factors maintaining social anxiety in the context of psychotic experiences: A Systematic Review

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Aunjitsakul, W., McGuire, N., McLeod, H.J. and Gumley, A. 2021. Candidate Factors Maintaining Social Anxiety in the Context of Psychotic Experiences: A Systematic Review. Schizophr Bull. doi: 10.1093/schbul/sbab026

Contributions: I developed research question, prepared systematic review protocol and protocol registration. I was responsible for database search. NM and I screened the studies and extracted data. I conducted data synthesis and wrote the initial draft, with inputs from my supervisors (HM and AG). I also took the lead in submitting manuscript and responding to reviewer comments with input from my supervisors.

2.1 Abstract

Social anxiety is common in psychosis and associated with impaired functioning, poorer quality of life and higher symptom severity. This study systematically reviewed factors maintaining social anxiety in people with attenuated, transient, or persistent psychotic experiences. Other correlates of social anxiety were also examined. MEDLINE, Embase, CENTRAL and PsycINFO were searched for relevant literature up to 19 October 2020. Forty-eight articles were eligible for narrative synthesis: 38 cross-sectional studies, eight prospective studies, one uncontrolled trial and one qualitative study. From 12060 participants, the majority was general population (n=8771), followed by psychosis samples (n=2532) and those at high-risk of psychosis (n=757). The methodological quality and risk of bias were assessed using the Mixed Methods Appraisal Tool. Ninety percent of studies were rated as high to very-high quality. Poorer quality studies typically failed to adequately control for confounds and provided insufficient information on the measurement validity and reliability. Prominent psychological factors maintaining social anxiety included self-perceptions of stigma and shame. Common correlates of social anxiety included poorer functioning and lower quality of life. In conclusion, stigma and shame could be targeted as a causal mechanism in future interventional studies. The integration of findings from this review leads us to propose a new theoretical model to guide future intervention research.

Keywords: Shame, Social Anxiety, Social Stigma, Models (Theoretical), Psychotic Disorders, Quality of Life

2.2 Introduction

Social anxiety disorder (SAD) is a common mental health problem for people at risk of psychosis (prevalence 6.1-42.3%) (Rietdijk et al., 2013; Lim et al., 2015; Hui et al., 2013) or with an established psychotic disorder (pooled prevalence 16-26%) (McEnery et al., 2019). SAD is characterized by exaggerated fears of evaluation by others, leading to distress and/or avoidance of social interactions (Heimberg et al., 2014). It is a disabling disorder and a preceding cause of anxiety, affective and substance dependence/abuse disorders (Wittchen and Fehm, 2001). Many people with schizophrenia report having problems with social relationships and activities (Agid et al., 2012). With comorbid SAD, people with schizophrenia report significantly lower functioning, lower self-esteem, higher symptom severity (Karatzias et al., 2007), poorer quality-of-life (QoL) (Vrbova et al., 2017b), higher depression (McEnery et al., 2019) and higher rates of suicide attempts (Pallanti et al., 2004). Despite SAD being a significant problem for people with psychosis (McEnery et al., 2019; Michail and Birchwood, 2009), there has been little treatment-relevant research (Michail et al., 2017).

Cognitive behavioural therapy (CBT) is a recommended psychological intervention for people with schizophrenia (Taylor and Perera, 2015; Kuipers et al., 1997; National Institute for Health and Care Excellence, 2009), effectively reducing psychotic symptoms in people with psychosis or those at-risk of psychosis (Sensky et al., 2000; Lewis et al., 2002; Bechdolf et al., 2004; Garety et al., 2008; Klingberg et al., 2011; Stafford et al., 2013; Bird et al., 2010). In addition to the evidence that CBT is the treatment of choice for a single diagnosis of SAD (Mayo-Wilson et al., 2014; Acarturk et al., 2009), the mechanisms of therapeutic change are increasingly well understood. In particular, the use of experiential exercises to help people with SAD learn the adverse effects of self-focused attention and safety-seeking behaviours are core components of recommended treatments (National Collaborating Centre for Mental Health (UK), 2013). However, clinical guidelines are silent on treatment choice when SAD is a comorbid condition (Michail et al., 2017), and it remains to be ascertained how CBT for SAD in people with psychosis may reduce social anxiety (Michail et al., 2017; Michail and Birchwood, 2013; Wykes et al., 2008). Hence, further examination of the therapeutic mechanisms underpinning CBT for SAD in psychosis require further investigation (Michail et al., 2017).

To understand mechanisms underpinning SAD and psychosis, we adhered to three principles recommended in the interventionist-causal model approach (Kendler and Campbell, 2009) to identify candidate causal factors. These are: 1) a focus on a single factor that is measurable; 2) the putative causal process is amenable to change by the causal factor; and 3) the causal factor is integrated with a theoretical understanding to guide therapy. We set out to determine, integrate, and critically analyse the evidence for psychological factors in the maintenance of social anxiety in people with psychosis. Additionally, we explored other correlates of social anxiety.

2.3 Methods

2.3.1 Protocol and registration

The present systematic review was reported according to the Preferred Reporting Items of Systematic Reviews and Meta-Analyzes (PRISMA) (Beller et al., 2013). The protocol was registered on PROSPERO and can be accessed at www.crd.york.ac.uk/PROSPERO/display_record.asp?ID=CRD42018117616.

2.3.2 Search strategy and information sources

Four databases were searched on 19 October 2020: Cochrane Central Register of Controlled Trials (1996 to October 2020); Embase (1947 to October 2020); Ovid MEDLINE(R) (1946 to October 2020); and PsycINFO (1806 to October 2020).

Search terms used for population were ((psychosis) or (psychotic) or (schizophreni*) or (schizoaffective) or (delusion*) or (paranoi*) or (clinical high risk*) or (ultra high risk*) or (attenuated) or (at risk mental state*) or (recent onset) or (first episode psycho*) or (early psycho*)) and outcomes were ((social anxi*) or (social phob*)). Limits were applied for English language and human. Electronic search strategies for Embase and MEDLINE are shown in **Supplementary Table 2.1**. A manual search was completed for identified articles from the electronic search, and their reference lists, those articles meeting criteria for inclusion were subjected to forward and backward citation to identify further eligible papers. The journal Schizophrenia Bulletin was hand-searched. Authors were contacted when published studies had insufficient data or where there was a need for more data to clarify results. We also asked active

researchers for unpublished or recently submitted studies. Ten percent of study selection, data extraction and quality assessment were independently performed by two researchers with excellent agreement, the rest was performed by one researcher (**Supplementary Table 2.2**). Due to difference in study designs, we used the Mixed Methods Appraisal Tool (MMAT)–version 2018 (Hong QN, 2018) for critical appraisal. MMAT is widely used for evaluation of study strengths and weaknesses (Hong et al., 2018). The process details which the co-raters (Warut Aunjitsakul and Nicola McGuire) rated papers to check reliability of the quality assessment are shown in Supplementary Table 2.6.

2.3.3 Eligibility criteria

We examined studies involving people diagnosed with psychosis, those experiencing attenuated and milder forms of psychotic experiences (e.g., schizotypy), since psychotic experiences are seen in the general population (van Os and Reininghaus, 2016; Freeman et al., 2005b), and distributed along a continuum (van Os and Reininghaus, 2016; Unterrassner et al., 2017).

Inclusion criteria were:

1) study samples included people diagnosed with schizophrenia and psychosis spectrum disorders or people deemed to be at high risk of developing psychosis and psychotic experiences;

2) analogue studies measuring psychotic-like experiences such as paranoia; and

3) measurement of any psychological factors linked to social anxiety and psychotic experiences.

Exclusion criteria were:

1) literature reviews, single-case series or case reports;

2) studies of mixed diagnostic samples that do not present data in sub-groups or only provide pooled or aggregated data.

2.3.4 Data synthesis

We planned a narrative synthesis due to the anticipated high heterogeneity of populations, measurements, and outcomes. Psychological "maintenance factors" that lead to the persistence of social anxiety in psychotic experiences such as stigma, low self-esteem, and metacognition were considered. We also explored factors associated with social anxiety and referred to these as "correlated factors".

2.4 Results

2.4.1 Identification of the studies

A total of 4527 records was identified through database searching and seven records from additional sources. After duplicates were removed, 3586 records were screened, resulting in 79 full-texts to be assessed against eligibility criteria. Excluded papers with reasons are presented in **Supplementary Table 2.3**. A total of 48 papers were included for narrative synthesis (**Figure 2.1**).

2.4.2 Study and participant characteristics

Included studies were cross-sectional (n=38), prospective (n=8), uncontrolled trial (n=1) and qualitative (n=1), published between 1992 and 2020, and originated from North America (n=15), UK (n=10), Asia (n=10), Europe (n=9), Australia (n=3) and Africa (n=1). The total number of participants across 48 studies was 12060, of which the majority were from the general population (n=8771); followed by people with established psychosis (n=2532) and high psychosis risk samples (n=757), other participant details see **Supplementary Table 2.4**.

2.4.3 Assessment of social anxiety or social phobia and psychosis

Table 2.1 shows the measures used to assess the level of social anxiety/social phobia and psychosis, including their brief details and evidence of psychometric properties. The Liebowitz Social Anxiety Scale (Liebowitz, 1987), the Social Interaction Anxiety Scale, and the Social Phobia Scale (Mattick and Clarke, 1998)

were most frequently used for social anxiety or social phobia assessment. The Positive and Negative Syndrome Scale (Kay et al., 1987), the Scale for the Assessment of Positive Symptoms (Andreasen, 1984) and the Scale for the Assessment of Negative Symptoms (Andreasen, 1983) were most commonly used to index psychosis.

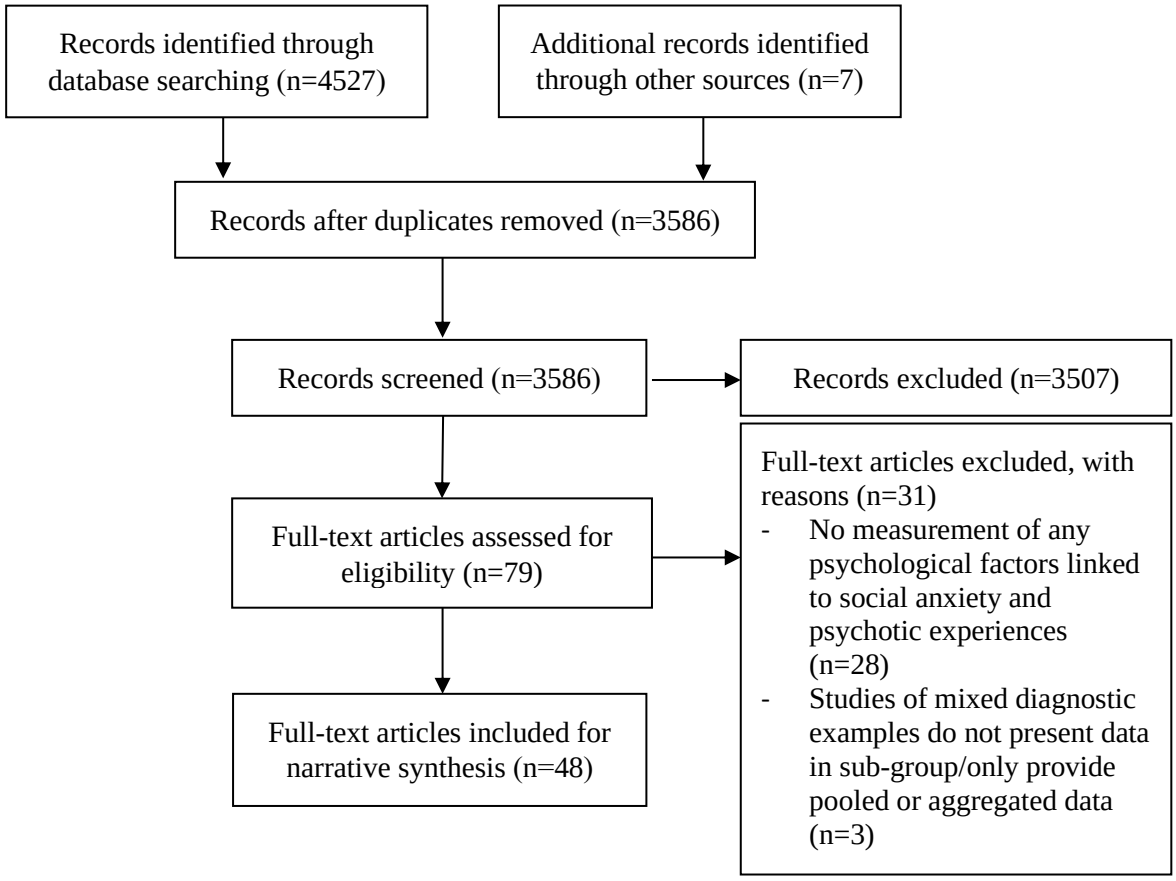

Figure 2.1 Study selection process.

Table 2.1 Measurements used to assess level of social anxiety or social phobia and psychosis.

Measurements used for social anxiety or social phobia	Frequency of use	Measures	Items	Evidence of reliability/validity
Liebowitz Social Anxiety Scale (LSAS), LSAS self-rating (LSAS-SR)	18	Fear and avoidance of social situations and used mostly in the social anxiety research (Liebowitz, 1987) and in schizophrenia (Pallanti et al., 2004)	24	Good reliability and validity in social anxiety (Fresco, 2001; Hambrick, 2004), and good reliability in schizophrenia (Pallanti et al., 2004)
Social Interaction Anxiety Scale (SIAS)	14	Anxiety in interpersonal encounters, used alongside with SPS and mostly in the social anxiety research (Mattick and Clarke, 1998)	20	Good reliability and validity (Mattick and Clarke, 1998), good discriminant validity with SPS and SPAI (Peters, 2000)
Social Phobia Scale (SPS)	6	Performance anxiety in situations where the individual fears being observed and scrutinized by others, used alongside with SIAS and mostly in the social phobia research (Mattick and Clarke, 1998)	20	Good reliability and validity (Mattick and Clarke, 1998), good discriminant validity with SIAS and SPAI (Peters, 2000)
Fear of Negative Evaluation (FNE)	3	Anxiety about being negatively evaluated by others and mostly in the social phobia research (Watson and Friend, 1969)	12	Good reliability and validity (Watson and Friend, 1969)
State trait anxiety inventory (STAI)	3	Various experiences of anxiety including social anxiety. Trait anxiety refers to persistent anxiety, while State anxiety reflects momentary anxiety (Spielberger, 1983)	40	Good reliability (Barnes et al., 2016) and validity (Kabacoff et al., 1997)
Multidimensional Anxiety Questionnaire (MAQ)	3	Various experiences of anxiety including social anxiety, assessing worries about social embarrassment and social avoidance (Reynolds, 1999), used in schizophrenia (Lysaker and Salyers, 2007)	40	Good reliability and validity in people with mental illness (Reynolds, 1999), and good validity in schizophrenia (Lysaker and Salyers, 2007)
Brief Social Phobia Scale (BSPS)	1	Fear, avoidance and physiological symptoms associated with common social situations (Davidson et al., 1991)	11	Acceptable reliability and validity (Davidson et al., 1991)

Social Avoidance and Distress Scale (SADS)	1	Fear, discomfort, subjective distress and the avoidance of social situations and used mostly in social anxiety (Watson and Friend, 1969)	28	Good reliability and validity (Watson and Friend, 1969)
Social Phobia and Anxiety Inventory (SPAI)	1	Somatic, cognitive, and behavioural aspects of social phobia across a wide range of social situations and settings (Turner et al., 1989)	45	Good reliability and validity (Turner et al., 1989; Bunnell et al., 2013), good discriminant validity with SIAS and SPS (Peters, 2000)
Interaction Anxiousness Scale (IAS)	1	Subjective experience of anxiety associate with social interactions (Leary, 1983)	15	Good reliability and validity (Leary, 1983)
Unsicherheits-Fragebogen (U-scale) †	1	Experiences of social anxiety (Ullrich R, 1977)	65	The scale was proved to be valid and transferable across samples (Revenstor F, 1977)
Simulated social interaction test (SSIT)	1	Social skills responded to eight social interactions (e.g., disapproval/criticism, social visibility/assertiveness) (Curran, 1982)	8	Good reliability and validity in schizophrenia (Tsang and Pearson, 2000)
Measurements used for characterizing psychosis	Frequency of use	Measures	Items	Evidence of reliability/validity
Positive and Negative Syndrome Scale (PANSS)	28	Psychopathology (positive, negative and emotional discomfort) in schizophrenia (Kay et al., 1987)	30	Good to excellent reliability (Bell et al., 1994)
Scale for the Assessment of Positive Symptoms (SAPS)	5	Positive symptoms of schizophrenia, used alongside with SANS (Andreasen, 1984)	34	Good validity and reliability (Andreasen, 1984)
Scale for the Assessment of Negative Symptoms (SANS)	5	Negative symptoms of schizophrenia, used alongside with SAPS (Andreasen, 1983)	25	Good validity and reliability (Andreasen, 1989)
Brief Psychiatric Rating Scale (BPRS)	3	Psychopathology during the week prior to the assessment (Overall and Gorham, 2016)	18	Good validity and reliability (Andersen et al., 1989)

Clinical Global Impression (CGI)	2	All symptomatology together (psychotic symptoms, anxiety, and depressive) in one number (CGI-severity subscale) (Guy W, 1976)	1	Strong validity and good reliability, but lack of correlation coefficient with depression (Haro et al., 2003)
Green Paranoid Thoughts Scale–Persecutory Paranoia Subscale (GPTS)	1	Two specific subtypes of paranoia: social reference paranoia and persecutory paranoia (Green et al., 2008)	16	Good validity and reliability (Green et al., 2008)
Details of Threat questionnaire (DoT)	1	Nature of the perceived threat arising from persecutory delusions: the power of persecutor, the strength of delusional conviction, the perceived impact or awfulness of threat and perceived controllability of the threat (Freeman et al., 2001)	4	NA
Community Assessment of Psychic Experiences (CAPE)	1	Lifetime prevalence of positive, negative and depressive symptoms on scales regarding frequency and distress in general population (Stefanis et al., 2002)	42	May overestimate the prevalence of positive symptoms, psychiatrists required to validate patient's self-report (Hanssen et al., 2003)
Paranoid checklist	1	A multi-dimensional representation of paranoid ideation rating on frequency, conviction and distress associated with paranoia (Freeman et al., 2005b)	18	Good validity and excellent reliability (Freeman et al., 2005b)
Inventory of hostility and suspiciousness	1	Paranoia and related concepts: Interpersonal Suspiciousness/Hostility, Negative Mood/Withdrawal, Anger/Impulsiveness, Mistrust/Wariness and Perceived Hardship/Resentment (Rawlings and Freeman, 1996)	47	Satisfactory validity and reliability (Rawlings and Freeman, 1996)

† Unsicherheits-Fragebogen scale assessing for social anxiety

2.4.4 Quality assessment

Using MMAT, methodological quality of included studies ranged from 2** to 5***** quality criteria met, of which 43 studies (89.6%) were met at least 4**** quality criteria (**Table 2.2** and **Table 2.3**). The most frequent limitations were the absence of expected confounding or appropriate methods to control for confounders (Pallanti et al., 2004; Jang et al., 2005; Park et al., 2009; Michail and Birchwood, 2009; Michail and Birchwood, 2013; Blanchard et al., 1998; Chudleigh et al., 2011; Newman Taylor and Stopa, 2013; El Masry N et al., 2009; Russo et al., 2018) and failure to use measures with established validity and reliability (Jang et al., 2005; Park et al., 2009; Achim et al., 2016; El Masry N et al., 2009; Kumazaki et al., 2012; Lowengrub et al., 2015; Huppert and Smith, 2005; Rajshekhar B et al., 2016; Cacciotti-Saija et al., 2018; Nemoto et al., 2020). Other reasons for lower quality were the high risk of non-response bias (Piccirillo, M.L., Heimberg, R.G., 2016; Khalil and Stark, 1992; Rus-Calafell et al., 2014), insufficient representativeness of the study population (Schutters et al., 2012; Piccirillo, M.L., Heimberg, R.G., 2016; Rietdijk et al., 2009) and incomplete outcome data (Park et al., 2009; Achim et al., 2016), which decreased the generalizability of the results (**Supplementary Table 2.5**).

2.4.5 Psychological factors maintaining social anxiety in the context of psychotic experiences

Psychological factors maintaining social anxiety in people with psychotic experiences contexts were extracted and described (**Table 2.2**). We divided these factors into four main categories: Cognitive, Metacognitive, Behavioural and Other (**Supplementary Table 2.7**). Generally, the studies related to metacognitive factors revealed inconsistent patterns with social anxiety outcomes, while other factors appeared more consistent.

Table 2.2 Studies addressing psychological maintenance factors of social anxiety in psychotic experiences contexts.

Citation	Design	Sample characteristic (N)	Measurements 1. Diagnostic criteria 2. Symptom scales		Maintenance factors	Findings	Quality criteria met[†]
			Psychosis	Social anxiety			
Michail and Birchwood (2013)	Cross-sectional	Total 135 FEP (60) FEP+SAD (20) SAD (31) NC (24)	1. ICD-10 2. PANSS	1. ICD-10 2. SIAS, SPS	**Stigma** - PBIQ **Shame** - OAS **Social rank** - SCS	FEP+SAD reported higher levels of PBIQ: entrapment, loss of social goals, poorer illness control and lower perceived social status (F1,79=14.5, F1,79=12 and F1,79=13.1 and F1,79=12 respectively) than FEP. Plus, FEP+SAD reported higher level of OAS (F1,135=123.1) and lower level of SCS (F1,135=49.6) than SAD. All ps<0.01.	4****
Gumley et al. (2004)	Cross-sectional	Total 38 SZ (19) SZ+SAD (19)	1. DSM-IV 2. PANSS	1. DSM-IV	**Stigma** - PBIQ **Self-esteem** - RSES	SZ+SAD reported higher levels of PBIQ: self vs illness (F1,36=5.0, p<0.05); entrapment (F1,36=12.7, p<0.01); and shame (F1,36=10.6, p<0.01)) and lower level of RSES (F1,36=10.2, p<0.01) than SZ.	5*****
Birchwood et al. (2007)	Cross-sectional	Total 79 SZ (56) SZ+SAD (23)	1. ICD-10 2. PANSS, IS	2. SIAS, FNE	**Stigma** - PBIQ **Social rank** - SCS **Shame** - OAS	SZ+SAD reported less controllable of being psychosis and more entrapping (multivariate F=15.6, p<0.001), and more SCS (F=27.4, p<0.001) compared to SZ. Regarding regression analysis, the PBIQ shame (OR=1.4, p=0.038), PBIQ group fit (OR=1.3, p=0.018) and OAS (OR=1.1, p =0.039) were associated with the presence of SAD, after controlling depression.	5*****
Lysaker et al. (2010b)	Prospective	SZ (78)	1. DSM-IV 2. PANSS	2. MAQ social anxiety	**Stigma** - ISMIS	Regarding stepwise regression, baseline ISMIS discrimination experience and PANSS negative symptoms significantly predicted MAQ social anxiety at five months, after controlling social anxiety at baseline (R^2=0.45, p<0.001).	5*****
Pyle et al. (2015)	Prospective	CAARMS (288)	1. CAARMS 2. GPTS-PP	2. SIAS	**Stigma** - PBEQ	Based on hierarchical regression, SIAS at baseline predicted SIAS at six months (B=0.218, partial r=0.205, t=2.347, p=<0.05). Plus, internalized stigma: negative appraisal and social acceptance experiences, did not predict SIAS at follow-up.	5*****

Vrbova et al. (2017a)	Cross-sectional	Total 61 SZ (42) SZ+SAD (19)	1. ICD-10 2. PANSS, CGI	2. LSAS	**Stigma** - ISMIS	SZ+SAD reported higher level of ISMIS (t=4.251, p<0.0001).	5*****
Sutliff et al. (2015)	Cross-sectional	Total 42 SZ (24) SZ+SAD (18)	1. DSM-IV 2. PANSS	2. LSAS	**Social rank** - SCS	SZ+SAD reported lower level of SCS than SZ (t=2.90, p=0.006).	5*****
Aherne, Keith (2014)	Cross-sectional	FEP (45)	1. ICD-10 2. Paranoid checklist	2. SIAS, SPS	**Shame** - TADS - CES - IES-R - ISS - OAS	Regression model showed TADS, CES, IES-R, ISS and OAS were associated with SPS (R^2=0.299, F1,37=6.587, p<0.000) and SIAS (R^2=0.242, F1,37=7.134, p<0.000). TADS, CES, IES-R, ISS and OAS was associated with paranoia (R^2=0.092, F4,37=3.007, p=0.032).	5*****
Romm et al. (2011)	Cross-sectional	FEP (144)	1. DSM-IV 2. PANSS	2. LSAS-SR	**Self-esteem** - RSES	Regarding regression analysis, RSES and PANSS suspiciousness were associated with LSAS-SR (B=-0.04, p=0.000 and B=0.07, p=0.047, adjusted R^2 =0.46).	5*****
Romm et al. (2012)	Cross-sectional	Total 144 FEP (30) FEP+NonGSAD (46) FEP+GSAD (68)	1. DSM-IV 2. PANSS, IS	2. LSAS-SR	**Self-esteem** - RSES	FEP+GSAD reported lower level of RSES than FEP+NonGSAD and FEP alone (F40.39, p<0.001).	5*****
Lysaker et al. (2008a)	Prospective	SZ (39)	2. PANSS	2. LSAS	**Self-esteem** - MSEI	Regarding regression analysis, baseline MSEI predicted LSAS at six months (R^2=0.06, p<0.05), after controlling for baseline LSAS (F2,36=17.93, p<0.001).	5*****
Lecomte, T. et al. (2019b)	Cross-sectional	Total 47 SZ (25) SZ+SAD (22)	1. DSM-IV-TR	2. BSPS, SIAS	**Self-esteem** - SERS-SF **ToM** - FEIT - FEDT - METT - Emotional recognition (a real-life situation**)**	SZ+SAD reported lower level of SERS-SF compared to SZ (p<0.01). There were no significant differences between SZ and SZ+SAD for any of the total scores for emotional recognition.	5*****
Newman Taylor and Stopa (2013)	Cross-sectional	Total 48 SZ (13) SAD (13) Panic (10) NC (12)	1. DSM-IV-TR 2. PS	1. DSM-IV-TR 2. SIAS	**Negative self-referent appraisals**	There were no significant differences of automatic thought (SCQ), underlying assumptions (SAQ-R) and schema (EBS) between people with SZ (with persecutory delusions) and social phobia.	4****

					- SCQ - SAQ-R - EBS		
Voges and Addington (2005)	Cross-sectional	SZ (60)	1. DSM-IV 2. PANSS	1. DSM-IV 2. SPAI	**Negative self-referent appraisals** - SISST	Patients reported SISST negative self-statement subscale positively correlated with lower level of SPAI (r=0.74, p<0.004).	5*****
Wong (2020)	Cross-sectional	SZ (137)	1. DSM-IV 2. SAPS, SANS	1. LSAS-SR	**Negative self-referent appraisals** - SUMD - IRIS - SPQ - SAPS	After removing all non-significant paths in the hypothetical model, the final model suggested only two direct paths to social anxiety: ideas of reference (standardized path coefficient β=0.26, p=0.002) and negative symptoms (β=0.29, p<0.001)	5*****
Stopa et al. (2013)	Cross-sectional (Qualitative study)	Total 18 SZ (9) Social phobia (9)	1. DSM-IV-TR	1. DSM-IV-TR	**Negative self-referent appraisals** (interview)	Three common themes of interpersonal threat experiences were found in both groups: participants' experience of threat, reactions while under threat, and subsequent reflections on threat situations, as well as the superordinate theme of narrative coherence. Key differences emerged between the groups in their perceptual experiences, ability to stand back from the threat following the event, and narrative coherence.	5*****
Piccirillo, M.L., Heimberg, R.G. (2016)	Cross-sectional	General population (179)	2. GPTS	2. SIAS	**Post-event processing** - PEP questionnaire	Higher SIAS and higher GPTS persecutory paranoia subscale (GPTS-PP) were significantly associated with higher levels of PEP at post social exclusion intervention (SIAS: B=0.36, p<0.001 and GPTS-PP: B=0.16, p<0.05) and one week later (SIAS: B=0.09, p<0.05 and GPTS-PP: B=0.09, p<0.05).	3***
Achim et al. (2013)	Cross-sectional	Total 140 SZ (29) SZ+SAD (26) NC (84)	1. DSM-IV 2. PANSS	2. LSAS	**Mentalization** - BICS	Across all SZ patients or when assessed separately for the SZ− or the SZ+ groups, there were no significant correlations between level of LSAS and BICS. All ps>0.26.	5*****

Lysaker et al. (2010a)	Cross-sectional	Total 88 (all SZ) Paranoia+/Poorest ToM (14) Paranoia-/Low-middle ToM (29) Paranoia+/High-middle ToM (23) Paranoia-/Highest ToM (22)	1. DSM-IV 2. PANSS	2. LSAS	**Theory of Mind** - ToM test battery ‡	Paranoia+/high-middleToM group reported higher levels of LSAS than other groups: paranoia+/poorestToM; paranoia-/highestToM and paranoia-/low-middleToM (LSAS avoidance: F=5.03, p<0.01; and LSAS fear: F=3.31, p<0.05), where paranoia+ refers to significantly higher paranoia than paranoia-.	5*****
Pepper et al. (2018)	Cross-sectional	Total 199 ASD (53) EP (51) SAD (64) NC (31)	1. DSM-IV	1. ADIS-IV/V	**Theory of Mind** - FPRT - FBPST - FEEST - EQ - RMET - Movie Stills task (with and without face condition)	SAD reported higher score of RMET (p<0.01) and Movie Still with (p<0.001) and without face (p<0.01) than EP. There were no significant differences of ToM (FPRT, FBPST, FEEST and EQ) between SAD and EP.	5*****
Lysaker et al. (2011)	Cross-sectional	Total 98 (All SZ) Low mastery (33) Intermediate-mastery (52) High mastery (13)	1. DSM-IV	2. MAQ social anxiety	**Metacognitive mastery** - MAS	Intermediate-mastery group reported more MAQ social anxiety (F=3.48, p<0.05).	5*****
Achim et al. (2016)	Cross-sectional	Total 82 SZ (29) SZ+SAD (12) NC (41)	2. PANSS	1. DSM-IV 2. LSAS	**Reasoning bias** - brief-IPSAQ	SZ+SAD reported significantly lower level of brief-IPSAQ externalizing bias subscale than controls. There were no significant differences of brief-IPSAQ personalizing bias subscale amongst the three groups (F2,79=0.39, p=0.68).	4****
Rus-Calafell et al. (2014)	Non-randomised controlled trials	SZ (12) Intervention: avatars for social skills enhancement	1. DSM IV-TR 2. PANSS	2. SADS, AI, SSIT	**Social avoidance** - SADS	When compared between pre- and post-treatment, and post-treatment and follow-up, patient reported significantly improvement of levels of social anxiety: SSIT anxiety subscale (F2,22=39.76, p<0.05, Cohen's d=0.48); and SADS avoidance (F2,22=14.80, p<0.05, Cohen's d=0.58).	4****
Gajwani et al. (2013)	Cross-sectional	UHR (51)	2. SIPS	2. SIAS, SPS	**Attachment** - RAAS	RAAS was associated SIAS and SPS (β=0.47, p<0.001, R^2=0.22 and 0.39, p<0.01, R^2=0.15). A significant relationship between SIAS and RAAS was mediated by BDI (F 2,49=14.66, p<0.001, R^2=0.38).	5*****

Michail and Birchwood (2014)	Cross-sectional	Total 135 FEP (60) FEP+SAD (20) SAD (31) NC (24)	1. ICD-10 2. PANSS	1. ICD-10 2. SIAS, SPS	**Attachment** - RAAS	FEP+SAD and SAD reported higher level of insecure adult attachment than FEP and NC ($x^2 1=38.5$, $p<0.01$).	5*****
Russo et al. (2018)	Cross-sectional	Total 120 UHR (60) NC (60)	1. CAARMS	2. SSI social anxiety subscale	**Attachment** - PAM anxiety and avoidance subscale	Amongst UHR, there were no significant correlations between SSI social anxiety and insecure anxiety ($r=0.36$, $p=0.07$), and SSI social anxiety and avoidant attachment ($r=0.28$, $p=0.14$).	3***
Achim et al. (2011)	Cross-sectional	Total 62 FEP (31) NC (31)	1. DSM-IV 2. PANSS	2. LSAS	**Empathy** - IRI	Amongst FEP, there was significant correlations between LSAS and IRI perspective taking subscale ($r=-0.51$, $p=0.004$).	5*****
Armando et al. (2013)	Cross-sectional	Total 169 PLEs+SAD (32) SAD (96) Control Group (41)	1. CAPE	1. DSM-IV	**Intolerance of uncertainty** - IUS	PLEs+SAD reported higher levels of IUS and BDI-II, BAI and CAPE negative than those SAD alone ($p<0.0001$).	5*****

ADIS, Anxiety Disorders Interview Schedule for DSM-IV or V; AI, Assertion Inventory; ASD, Autism Spectrum Disorder; BAI, Beck Anxiety Inventory; BDI, Beck Depression Inventory; BDI-II, BDI 2nd edition; BFNE, Brief Fear of Negative Evaluation scale; BICS, Batterie Intégrée de Cognition Sociale; CAARMS, Comprehensive Assessment of At Risk Mental State; CAPE, Community Assessment of Psychic Experiences; CES, Centrality of events Scale; CGI, Clinical Global Impression; DSM-IV, Diagnostic and Statistical Manual of Mental Disorders 4th edition; DSM-IV-TR, DSM-IV Total Revision; EBS, Evaluative Beliefs Scale; EP, Early Psychosis; EQ, Empathy Quotient of Cambridge Behaviour Scale; ES, Effect Size; FBPST, False Belief Picture Sequencing Task; FEDT, Facial Emotion Discrimination Test; FEEST, Facial Expressions of Emotions: Stimuli and Tests; FEIT, Facial Emotion Identification Test; FEP, First Episode Psychosis; FNE, Fear of Negative Evaluation scale; FPRT, Faux Pas Recognition Task; GPTS, Green Paranoid Thoughts Scale; GSAD, Generalized SAD; IAS, Interaction Anxiousness Scale; ICD-10, International Classification of Diseases 10th edition; IES-R, Impact of Event scale-Revised; IHS, Inventory of Hostility and Suspiciousness; IPSAQ, Internal Personal and Situational Attributions Questionnaire; IRI, Interpersonal Reactivity Index; IRIS, Ideas and Delusions of Reference Interview Scale; IS, Insight Scale; ISMIS, Internalised Stigma of Mental Illness Scale; ISS, Internalised Shame Scale; IUS, Intolerance of Uncertainty Scale; LSAS, Liebowitz Social Anxiety Scale; LSAS-SR, LSAS Self Rating version; MAQ, Multidimensional Anxiety Questionnaire; MAS, Metacognition Assessment Scale; METT, Ekman's Micro-Expression Training Tool; MSEI, Multidimensional Self-Esteem Inventory; NC, Normal Control; OAS, Other as Shame Scale; PAM, Psychosis Attachment Measure; PANSS, Positive and Negative Syndrome Scale; PBEQ, Personal Beliefs about Experiences Questionnaire; PBIQ, Personal Beliefs about Illness Questionnaire; PEP, Post-Event Processing; PLE, Psychotic-Like Experiences; PS, Paranoia Scale; RAAS, Revised Adult Attachment Scale; RMET, Reading the Mind in the Eyes; RSES, Rosenberg Self-Esteem Scale; SAD, Social Anxiety Disorder; SADS, Social Avoidance and Distress Scale; SANS, Scale for the Assessment of Negative Symptoms; SAPS, Scale for the Assessment of Positive Symptoms; SAQ-R, Social Attitudes Questionnaire Revised; SCQ, Social Cognitions Questionnaire; SCS, Social Comparison Scale; SERS-SF, Self-Esteem Rating Scale-Short Form; SIAS, Social Interaction Anxiety Scale; SIPS, Structured Interview for Prodromal Syndromes; SISST, Social Interaction Self Statement Test; SPAI, Social Phobia and Anxiety Inventory; SPS, Social Phobia Scale; SPQ, Schizotypal Personality Questionnaire; SSI, Schizotypal Symptoms Inventory Brief Version; SSIT, Simulated Social Interaction Test; SUMD, Scale to Assess Unawareness of Mental Disorder; SZ, SchiZophrenia spectrum disorder; TADS, Trauma And Distress Scale; ToM, Theory of Mind; UHR, Ultra High Risk; VR-CBT, Virtual-Reality-based Cognitive Behavioural Therapy

† Scoring as number of quality criteria met; for example, 4**** means 4 criteria (of totally 5) of a study design were met.

‡ ToM test battery includes the Hinting Test, the Bell-Lysaker Emotional Recognition Task, the eyes test and the Picture arrangement subtest of Wechsler Adult Intelligence Scale III

Cognitive factors

The most frequently reported factors were cognitive variables, with the most common being stigma and shame, followed by self-esteem, social rank, and negative self-referent appraisals.

Stigma and shame

Seven studies focused on stigma and shame (Michail and Birchwood, 2013; Gumley et al., 2004; Birchwood et al., 2007; Lysaker et al., 2010b; Pyle et al., 2015; Vrbova et al., 2017a; Aherne, Keith, 2014). The presence of SAD was significantly associated with higher stigma and external shame amongst patients with First Episode Psychosis (FEP) (Birchwood et al., 2007; Michail and Birchwood, 2013), and schizophrenia spectrum disorders (SZ) (Gumley et al., 2004; Vrbova et al., 2017a). Amongst FEP, stigma (OR=1.3, p=0.018) and external shame (OR=1.1, p=0.039) were associated with social anxiety after controlling for depression (Birchwood et al., 2007). Severity of social anxiety in FEP was significantly associated with childhood trauma; shame memories; traumatic impact from memories; and internal and external shame (Aherne, Keith, 2014), using the Trauma and Distress Scale (Patterson P, 2002); Centrality of Event Scale (Berntsen and Rubin, 2006); Impact of Event Scale-Revised (Wilson J.P., 1997); Internal Shame Scale (Cook, 1994); and Other as Shamer Scale (Goss, 1994b), respectively. A five-month follow-up study of SZ found that SAD at follow-up was predicted by the Discriminative Experiences of Stigma Scale (Ritsher et al., 2003) at baseline and negative symptoms (total R^2=0.46 and 0.42, p<0.001) (Lysaker et al., 2010b). Amongst those at risk of psychosis internalized stigma did not predict social anxiety at six-month follow-up once baseline social anxiety was controlled for (Pyle et al., 2015).

Self-esteem

Five studies investigated low self-esteem in people with SAD and paranoia (Gumley et al., 2004; Romm et al., 2011; Romm et al., 2012; Lysaker et al., 2008a; Lecomte, T. et al., 2019b). SZ with SAD was associated with poorer self-esteem than those without SAD (Gumley et al., 2004; Lecomte, T. et al., 2019b). Amongst FEP with generalized SAD, self-esteem was lower compared to FEP with

non-generalized SAD and FEP without SAD (Romm et al., 2012). Generalized SAD is characterized by a more pervasive fear of most social situations, whereas non-generalized SAD is restricted to more specific situations (e.g., a fear of public speaking but no experience of anxiety in casual social gatherings), according to DSM-IV (American Psychiatric Association, 1994). Amongst FEP, SAD was associated with low self-esteem (ß=-0.04, $p<0.001$, adjusted $R^2=0.46$) (Romm et al., 2011). A prospective study of SZ, SAD at six-month follow-up was predicted ($p<0.001$) by the level of self-esteem ($R^2=0.06$, $p<0.05$) after controlling SAD at baseline (Lysaker et al., 2008a).

Social rank

Three studies investigated how people compare themselves to others focusing on appraisals of social rank (Sutliff et al., 2015; Michail and Birchwood, 2013; Birchwood et al., 2007). FEP plus SAD (Birchwood et al., 2007; Michail and Birchwood, 2013) and SZ plus SAD (Sutliff et al., 2015) reported seeing themselves as having lower social rank compared to people with psychosis alone. Furthermore, FEP plus SAD reported lower social rank than those with only SAD (Michail and Birchwood, 2013).

Negative self-referent appraisals

Negative self-referent appraisals were investigated in four studies (Voges and Addington, 2005; Newman Taylor and Stopa, 2013; Wong, 2020) including one qualitative study (Stopa et al., 2013). SZ who had higher social anxiety rated themselves more negatively ($r=0.74$, $p<0.001$), while those with lower social anxiety rated themselves more positively ($r=-0.37$, $p<0.004$) (Voges and Addington, 2005). SZ (persecutory delusions) and social phobia showed no significant differences in automatic thoughts, underlying assumptions and core beliefs (Newman Taylor and Stopa, 2013). In people with early operationalized psychosis, ideas of reference was found directly related to social anxiety (standardized path coefficient ß=0.26, $p=0.002$), using path analysis (Wong, 2020).

A qualitative approach was used to examine interpersonal threat experiences in people with SZ (persecutory delusions) and SAD, between the two groups there

were three major processes including ‘experience of threat’, ‘reactions’ while under threat, and subsequent ‘reflections’ on threat situations. There were differences found only in the SZ group, which were poor metacognitive awareness in perceptual experiences, inability to stand back from the threat following the event and lack of narrative coherence (Stopa et al., 2013).

Metacognitive factors

Six studies examined metacognitive factors in social anxiety amongst patients with psychosis. Metacognitive factors included Theory of Mind (ToM) (Lysaker et al., 2010a; Pepper et al., 2018; Lecomte, T. et al., 2019b); metacognitive mastery (Lysaker et al., 2011); mentalization (Achim et al., 2013); or reasoning biases (Achim et al., 2016).

Starting with *ToM* findings, compared to FEP, people with SAD alone had higher scores for emotional recognition tasks (Pepper et al., 2018). In another study comparing those with FEP and SAD, there were no significant differences in emotional recognition (Pepper et al., 2018). Comparing SZ and SZ plus SAD there were no differences in emotional recognition (Lecomte, T. et al., 2019b). In SZ, the level of ToM and paranoia were combined for cluster analysis. Those with SZ in the high-middleToM/paranoia+ group (where paranoia+ refers to significantly higher paranoia than paranoia-) reported greater social anxiety level than other groups (poorestToM/paranoia+; highestToM/paranoia- and low-middleToM/paranoia-) (Lysaker et al., 2010a).

With regards to *metacognitive mastery* (Semerari, 2003), (the ability to utilize knowledge of mental states to intentionally manage conflicts and subjective distress), SZ with intermediate levels of mastery reported higher social anxiety than those with low and high mastery group ($p<0.05$) (Lysaker et al., 2011). When assessed separately for the SZ with or without SAD groups, there were no significant correlations between *mentalization* and social anxiety (Achim et al., 2013).

Lastly, *reasoning biases*, including personalizing and externalizing biases were measured amongst three groups: SZ, SZ with SAD and normal control. Compared across three groups, there were no significant differences levels of personalizing

bias. SZ with SAD reported a significantly lower level of externalizing bias than control (Achim et al., 2016).

Behavioural factors

Social avoidance has been targeted in a single-arm trial using Virtual Reality to deliver a treatment to enhance social skills in SZ finding improved social anxiety (effect size=0.48, $p<0.05$) and reduced social avoidance (effect size=0.58, $p<0.05$) at post-treatment and follow-up, respectively (Rus-Calafell et al., 2014).

One study (Piccirillo, M.L., Heimberg, R.G., 2016) investigated post-event processing (PEP)—a ruminative process occurring after a distressing social event and attempts to reduce the likelihood of negative social consequences (Clark and Wells, 1995). In other words, PEP is a covert behaviour that functions as a safety behaviour preventing disconfirmation of negative social anxiety beliefs. This study included undergraduate students in the game to assess the perception of exclusion, and two confederates as additional participants to act and lead participants believing that they were excluded (Piccirillo, M.L., Heimberg, R.G., 2016). The game was preset so that in the first five passes the participant received the ball twice, then the two confederates chose to toss the ball to each other for the duration of the game–the participant was socially excluded. PEP, SIAS and GPTS-PP were measured at pre- and post-social exclusion intervention, and 24-hour and 1-week followed-up. It was found that higher levels of social anxiety and paranoia predicted the higher PEP after the intervention (SIAS: $B=0.36$, $p<0.001$ and GPTS-PP: $B=0.16$, $p<0.05$) and one-week later (SIAS: $B=0.09$, $p<0.05$ and GPTS-PP: $B=0.09$, $p<0.05$).

Other maintenance factors

Other factors maintaining social anxiety in psychosis were examined including attachment (Gajwani et al., 2013; Michail and Birchwood, 2014; Russo et al., 2018), empathy (Achim et al., 2011) and intolerance of uncertainty (Armando et al., 2013).

Three studies examined self-reported *attachment*. FEP plus SAD or SAD alone reported better adult attachment than those with FEP and normal controls

(Michail and Birchwood, 2014). Amongst ultra-high risk (UHR) participants, an insecure adult attachment was associated with social anxiety using SIAS (ß=0.47, $p<0.001$, $R^2=0.22$) and SPS (ß=0.39, $p<0.01$, $R^2=0.15$) and the relationship between adult attachment and SIAS was mediated by depression (Gajwani et al., 2013). However, amongst people with UHR, there were no significant correlations between social anxiety and insecure anxious attachment, or avoidant attachment (Russo et al., 2018).

Empathy was reported using the Interpersonal Reactivity Index (Davis, 1980), consisting of cognitive (perspective taking and fantasy scales) and affective components (empathic concern and personal distress scales). Amongst FEP, the lower perspective-taking of empathy scale was associated with higher social anxiety ($r=-0.51$, $p=0.004$). Other empathy scales were not associated with social anxiety (Achim et al., 2011).

People with Psychotic-Like Experiences (PLE) with SAD reported higher *Intolerance of Uncertainty (IU)* than those with SAD alone and healthy controls ($p<0.001$) (Armando et al., 2013).

2.4.6 Correlates of social anxiety

Correlates were categorized into seven groups: functioning, QoL, well-being, family factors, personality factors, anomalous experiences and others (subclinical paranoia, persecutory threat, traumatic experiences, suicidality and hopelessness, social anhedonia and executive functioning; see **Table 2.3**). Evidence related to correlates of social anxiety generally showed consistent findings, associations with functioning and QoL/well-being were commonly investigated compared to others.

Table 2.3 Studies addressing correlated factors of social anxiety in psychotic experiences contexts.

Citation	Design	Sample characteristic (N)	Measurements 1. Diagnostic criteria 2. Symptom scales		Correlated factors	Findings	Quality criteria met †
			Psychosis	Social anxiety			
Nemoto et al. (2020)	Prospective	SZ (118)	1. DSM-IV 2. PANSS, CGI severity scale	2. LSAS	**Quality of life** - WHO-QOL26 **Functioning** - GAF - SFS **Well-being** - SWNS	Regarding a stepwise regression adjusted with demographic data, change in LSAS was significantly associated with change of the outcome models in predicting WHO-QOL26 (β=-0.01, p=0.005, adjusted R^2=0.167), SFS (β=-0.33, p<0.001, adjusted R^2=0.212) and SWNS (β=-0.25, p<0.001, adjusted R^2=0.234).	4****
Kumazaki et al. (2012)	Prospective	Total 36 SZ+Worsened ‡ LSAS (12) SZ+Stable LSAS (24)	1. ICD-10 2. PANSS	2. LSAS	**Quality of life** - WHO-QOL26 **Functioning** - GAF - SFS	WHO-QOL26 significantly predicted level of LSAS at follow-up (adjusted 0.85, p<0.05, respectively) after controlling baseline of LSAS. PANSS, SFS and GAF were not significantly associated with development of social anxiety.	4****
Vrbova et al. (2017a)	Cross-sectional	Total 61 SZ (42) SZ+SAD (19)	1. ICD-10 2. PANSS, CGI	2. LSAS	**Quality of life** - Q-LES-Q **Personality factors** - TCI-R **Hopelessness** - ADHS	SZ+SAD reported lower level of Q-LES-Q (t=4.863, p<0.0001) and ADHS (t=2.710, p<0.01) than SZ. SZ+SAD revealed higher level of TCI-R harm avoidance and lower self-directed subscales (t=4.203, p<0.0001 and t=4.447, p<0.0001) than SZ.	5*****
Kwong et al. (2017)	Cross-sectional	SZ (159)	1. DSM-IV 2. PANSS	2. LSAS	**Quality of life** - SF-36 MCS and PCS subscales	Total score of LSAS significantly correlated with SF-36 MCS (r/t §=-0.484, p<0.001) and PCS (r/t=-0.302, p<0.001).	5*****
Lowengrub et al. (2015)	Cross-sectional	Total 50 SZ (31) SZ+SAD (19)	1. ICD-10 2. PANSS, CGI	2. LSAS	**Quality of life** - SQLS	Total score of LSAS significantly correlated with SQLS (r=-0.47, p<0.01).	4****
Huppert and Smith (2005)	Cross-sectional	SZ (32)	2. PANSS, SAPS, SANS, IHS	1. DSM-IV, ADIS 2. SIAS, SPS	**Quality of life** - QOLI	Levels of QOLI significantly correlated with level of SPS (r=-0.48, p<0.01), SIAS (r=-0.48, p<0.01) and ADIS social phobia (r=-0.42, p<0.05).	4****

Blanchard et al. (1998)	Prospective	Total 52 SZ (37) NC (15)	1. DSM-III-R 2. BPRS	2. BFNE, IAS	**Well-being** - WB **Social anhedonia** - SAS	Amongst SZ, level of SAS positively correlated with level of IAS and BFNE (r=0.64 and 0.48), while WB negatively correlated with level of IAS and BFNE (r=-0.52 and -0.48), all ps<0.005.	4****
Rajshekhar B et al. (2016)	Cross-sectional	Total 64 SZ (47) SZ+SAD (17)	1. ICD-10 2. PANSS	2. SIAS	**Well-being** - WHO-5 **Functioning** - GAF	SZ+SAD reported lower level of WHO-5 (t=2.66, p=0.01) and GAF (t=2.1437, p=0.036) than SZ.	4****
Romm et al. (2012)	Cross-sectional	Total 144 FEP (30) FEP+NonGSAD (46) FEP+GSAD (68)	1. DSM-IV 2. PANSS, IS	2. LSAS-SR	**Quality of life** - QOLI **Functioning** - GAF - Premorbid adjustment scale	FEP+GSAD reported lower level of premorbid social functioning, academic functioning, GAF and QOLI (F=7.62 and 15.13, 12.51 and 10.91, all ps<0.001) than FEP and FEP+NonGSAD.	5*****
El Masry N et al. (2009)	Cross-sectional	Total 107 SZ (67) SZ+SAD (19) SAD (21)	1. DSM-IV 2. SAPS, SANS	2. LSAS	**Quality of life** - SF-36	SZ+SAD reported lower levels of SF-36 subscales: general health, vitality, social function, role-emotional and mental health than SZ, all ps<0.05.	3***
Chudleigh et al. (2011)	Cross-sectional	Total 60 FEP (20) At-risk of psychosis (20) NC (20)	1. CAARMS 2. BPRS	2. BSPS	**Functioning** - SFS - WHODAS	Amongst FEP, level of SFS: performance and competence of independence subscales correlated with BSPS (r=-0.52 and r=-0.58), plus level of WHODAS: self-care and getting along with people subscales correlated with level of BSPS (r=0.71 and r=0.53). All all ps<0.01.	4****
Voges and Addington (2005)	Cross-sectional	SZ (60)	1. DSM-IV 2. PANSS	1. DSM-IV 2. SPAI	**Functioning** - SFS	SPAI significantly correlated with SFS (r=-0.32, p<0.001).	5*****

Pallanti et al. (2004)	Cross-sectional	Total 107 SZ (51) SZ+SAD (29) SAD (27)	1. DSM-IV 2. SAPS, SANS	1. DSM-IV 2. LSAS	**Quality of life** - SF-36 **Functioning** - SAS* **Suicidality** - Suicide behaviour (by interview) and the number of lifetime suicide	SZ+SAD reported lower level of SAS* (F4.85, p<0.04), higher number of suicide attempts (F5.19, p<0.03) and lethality of suicide attempts (F34.14, p<0.001) than SZ. SZ+SAD reported lower level of SF-36: general health, vitality, social functioning, role-emotional and mental health subscales (F1,78=8.71, 4.79, 25.41, 9.94 and 8.96; p<0.01, p<0.05, p<0.001, p<0.01 and p<0.01, respectively) than SZ.	4****
Aikawa et al. (2018)	Cross-sectional	Total 207 SZ (177) SZ+SAD (30)	1. DSM-IV 2. PANSS	1. MINI 2. LSAS	**Functioning** - SFS	Lower level of SFS, female, younger age of onset and longer untreated duration were associated with LSAS (β=-0.42, p<0.001, adjusted R^2=0.255).	5*****
Lecomte, T. et al. (2019b)	Cross-sectional	Total 47 SZ (25) SZ+SAD (22)	1. DSM-IV-TR	2. BSPS, SIAS	**Functioning** - SFS	SIAS was associated with SFS engaging in conversations subscales (β=-0.61, p<0.001, adjusted R^2=0.35).	5*****
Cacciotti-Saija et al. (2018)	Cross-sectional	SZ (51)	1. DSM-IV-TR 2. SAPS, SANS	2. SIAS	**Functioning** - SFS	SIAS (β=-0.56, p<0.001) and SANS (-0.37, p<0.01) were associated with SFS (adjusted R^2=0.66).	4****
Khalil and Stark (1992)	Cross-sectional	SZ (53)	1. ICD-9	2. U-Scale	**Family factors** - EMBU - AfS	Level of social anxiety (U-scale) positively correlated with a paternal rejection (p<0.005), but not correlated with mother. Those with SZ who scored their key relatives as more critical and hostile attributed to themselves (Afs) reported higher scores on social anxiety dimensions: fear of failure and criticism (p<0.01), social contact anxiety (p<0.001), inability to refuse (p<0.001) and decency (p<0.01).	4****
Michail and Birchwood (2014)	Cross-sectional	Total 135 FEP (60) FEP+SAD (20) SAD (31) NC (24)	1. ICD-10 2. PANSS	1. ICD-10 2. SIAS, SPS	**Family factors** - MOPS **Traumatic experiences** - CTQ	FEP+SAD and SAD reported higher level of traumatic experiences (CTQ: emotional abuse (F1,97=4.8, p<0.05) and sexual abuse (F1,97=3.7, p<0.05)) and dysfunctional parental behaviours (MOPS: paternal indifference (F1,97=5.6, p<0.05) and paternal abuse (F1,97=6.1, p<0.05)) than FEP and NC.	5*****

Schutters et al. (2012)	Prospective	General population (2548)	1. DIA-X/M-CIDI	1. DSM-IV	**Personality factors** - RSRI - TPQ	Regarding multinomial logistic regression analysis, people having comorbid paranoid with social phobia associated with RSRI behavioural inhibition and TPQ harm/avoidance (Relative Risk=26.22 and 1.12, all ps<0.001), when compared to those without a history of social phobia or paranoid symptoms.	4****
Park et al. (2009)	Cross-sectional	Total 54 SZ (27) NC (27)	1. DSM-IV-TR 2. PANSS, SAS**	2. STAI trait anxiety	**Anomalous experiences** - SAS	SZ reported higher level of STAI than NC in happy condition (t=-5.00, df=42.7, p<0.01). Amongst SZ, STAI correlated with SAS** in happy (r=0.56, p<0.01) and angry conditions (r=0.54, p<0.01), and with SAS in happy condition (r=0.38, p<0.05).	2**
Jang et al. (2005)	Cross-sectional	Total 30 SZ (15) NC (15)	2. PANSS	2. STAI state anxiety	**Anomalous experiences**	Virtual avatar could evoke level of STAI, showing positive correlation between the STAI and PANSS negative subscales: blunted affect (evoked by happy avatar: r=0.549, p=0.034; and neutral avatar: r=0.536, p=0.039); and passive/apathetic social withdrawal (happy avatar: r=0.536, p=0.039; and neutral avatar: r=0.658, p=0.008).	3***
Lysaker and Hammersley (2006)	Cross-sectional	Total 71 (All SZ) WCST impaired+no delusions (39) WCST impaired+delusions (11) WCST not impaired+no delusions (15) WCST not impaired+delusions (6)	1. DSM-III-R 2. PANSS	2. LSAS, STAI	**Executive functionings** - WCST	Patients having impaired cognitive flexibility with significant delusion group reported higher level of LSAS (F=4.12, p<0.05) than all other groups. Subgroup analysis showed this group reporting higher on LSAS particularly fear subscale (Fisher LSD p<0.05).	5*****

Rietdijk et al. (2009)	Prospective	General population (7076)	1. DSM-III-R 2. CIDI Psychosis section	2. CIDI Social anxiety section	**Subclinical paranoia** - CIDI Psychosis section	Of 489 subjects who did have lifetime sub-clinical paranoid symptoms but no lifetime social phobia at baseline, 23 subjects (4.7%) developed social phobia (OR=4.07; 95% CI=2.50-6.63; p<0.001). The OR remained significant after controlling for neuroticism (OR=2.62; 95% CI=1.57-4.36; p<0.001).	4****
Michail and Birchwood (2009)	Cross-sectional	Total 111 FEP (60) FEP+SAD (20) SAD (31)	1. ICD-10 2. PANSS, DoT	1. ICD-10 2. SIAS, SPS, BFNE	**Persecutory threat** - DoT	FEP+SAD (n=9/20 (45%)) had higher number of express persecutory threat (DoT) than FEP alone (n=7/60 (11.6%)), $x^2 1=10.4$, p<0.01.	4****
Lysaker et al. (2008b)	Cross-sectional	SZ (143)	1. DSM-IV 2. PANSS	2. MAQ social anxiety	**Hopelessness** - BHS	MAQ social anxiety significantly correlated with BHS hope (r=-0.44, p<0.001).	5*****

ADHS, Adult Dispositional Hope Scale; ADIS, Anxiety Disorders Interview Schedule for DSM-IV; AfS, Angehbrigen-Fragebogen fur Schizophrene patienten (assessing for patient's attitude towards him); BHS, Beck Hopelessness Scale; BFNE, Brief Fear of Negative Evaluation scale; BPRS, Brief Psychiatric Rating Scale; BSPS, Brief Social Phobia Scale; CAARMS, Comprehensive Assessment of At Risk Mental State; CGI, Clinical Global Impression; CIDI, Composite International Diagnostic Interview; CTQ, Childhood Trauma Questionnaire; DIA-X/M-CIDI, Munich-CIDI (a modified CIDI version 1.2); DoT, Details of Threat questionnaire; DSM-III-R, Diagnostic and Statistical Manual of Mental Disorders 3rd edition Revision; DSM-IV, DSM 4th edition; DSM-IV-TR, DSM-IV Total Revision; EMBU, Egna Minnen av Barndoms Uppfostran (assessing for memories of parental behaviour); FEP, First Episode Psychosis; GAF, Global Assessment of Functioning scale; GSAD, Generalized SAD; IAS, Interaction Anxiousness Scale; ICD-9, International Classification of Diseases 9th edition; ICD-10, ICD 10th edition; LSAS, Liebowitz Social Anxiety Scale; LSAS-SR, LSAS Self Rating version; MAQ, Multidimensional Anxiety Questionnaire; MINI, Mini International Neuropsychiatric Interview; MOPS, Measure Of Parental Style; NC, Normal Control; PANSS, Positive and Negative Syndrome Scale; Q-LES-Q, Quality of Life Enjoyment and Satisfaction Questionnaire; QoL, Quality of Life; QOLI, Lehman Quality Of Life Interview; RSRI, Retrospective Self-Report of Inhibition; SAD, Social Anxiety Disorder; SANS, Scale for the Assessment of Negative Symptoms; SAPS, Scale for the Assessment of Positive Symptoms; SAS, Social Anhedonia Scale; SAS*, Social Adjustment Scale score; SAS**, Schizotypal Ambivalence Scale; SF-36, 36-tem Short Form health survey (Mental and Physical Component Summary (MCS and PCS)); SFS, Social Functioning Scale; SIAS, Social Interaction Anxiety Scale; SPAI, Social Phobia and Anxiety Inventory; SPS, Social Phobia Scale; SQLS, Schizophrenia Quality of Life Scale; STAI, State Trait Anxiety Inventory; SWNS, Subjective Well-being under Neuroleptic drug treatment Short form; SZ, SchiZophrenia spectrum disorder; TCI-R, Temperament and Character Inventory-Revised; TPQ, Tridimensional Personality Questionnaire; U-Scale, Unsicherheits-Fragebogen scale (assessing for social anxiety); WB, Well-Being scale; WCST, Wisconsin Card Sorting Test; WHO-5, World Health Organisation-5 Well-Being Index; WHODAS, WHO Disability Assessment Scale II; WHO-QOL26, WHO-Quality of Life 26

† Scoring as number of quality criteria met; for example, 4**** means 4 criteria (of totally 5) of a study design were met.

‡ worsened means an LSAS total score a ≥30% increase from baseline.

§ r/t means Pearson's product-mean correlation analyses and independent t-tests were performed to examine the relationships of SF-36 scores with continuous and categorical variables.

Functioning

Ten studies reported on SAD and functioning across psychosis groups (Romm et al., 2012; Pallanti et al., 2004; Rajshekhar B et al., 2016; Chudleigh et al., 2011; Voges and Addington, 2005; Aikawa et al., 2018; Cacciotti-Saija et al., 2018; Lecomte, T. et al., 2019b; Kumazaki et al., 2012; Nemoto et al., 2020). FEP plus generalized SAD reported a lower level of premorbid social functioning and daily functioning compared to FEP plus nongeneralized SAD or FEP alone (Romm et al., 2012). In SZ, those with SAD returned lower functioning scores than SZ alone (Rajshekhar B et al., 2016; Pallanti et al., 2004). The lower level of Social Functioning Scale (SFS) (Birchwood et al., 1990) was related to the greater social anxiety amongst FEP (Chudleigh et al., 2011), and SZ (Voges and Addington, 2005). Furthermore, in SZ the lower SFS was associated with the higher social anxiety in a cross-sectional study (β=-0.42, $p<0.001$, adjusted R^2=0.255) (Aikawa et al., 2018) and a longitudinal study (β=-0.33, $p<0.001$, adjusted R^2=0.212) (Nemoto et al., 2020). Lower social anxiety was associated with the higher SFS (β=-0.56, $p<0.001$, adjusted R^2=0.66) (Cacciotti-Saija et al., 2018) and SFS Engaging in conversations subscale (β=-0.61, $p<0.001$, adjusted R^2=0.35) (Lecomte, T. et al., 2019b). A prospective study of SZ reported that higher level of SFS was not associated with worsening social anxiety at 5-year follow-up, the development of worsened of social anxiety defined by an LSAS score ≥30% from the baseline value (Kumazaki et al., 2012).

Quality of life and well-being

Nine studies examined QoL related to SAD with psychosis (Kumazaki et al., 2012; Vrbova et al., 2017a; Kwong et al., 2017; Lowengrub et al., 2015; Huppert and Smith, 2005; Romm et al., 2012; El Masry N et al., 2009; Pallanti et al., 2004; Nemoto et al., 2020). In FEP, those with generalized SAD reported lower QoL than FEP with nongeneralized SAD or FEP alone (Romm et al., 2012). Amongst SZ, those with SAD significantly reported lower QoL than those with SZ alone (Vrbova et al., 2017a; Pallanti et al., 2004; El Masry N et al., 2009). Additionally, a higher severity of social anxiety was associated with a lower level of QoL (Kwong et al., 2017; Lowengrub et al., 2015; Huppert and Smith, 2005). In prospective studies of SZ, higher social anxiety was associated with lower QoL

(β=-0.01, p=0.005, adjusted R^2=0.167) (Nemoto et al., 2020), and lower QoL predicted increased social anxiety at 5-year follow-up (adjusted OR 0.85, p<0.05) after adjusting the baseline social anxiety (Kumazaki et al., 2012).

When QOL is conceptualized as the broader notion of wellbeing, those with SZ and SAD had significantly lower well-being compared to those without SAD (Rajshekhar B et al., 2016). Also, amongst SZ higher SAD was associated with lower well-being (Blanchard et al., 1998), and the higher social anxiety was prospectively associated with the lower patients' well-being (β=-0.25, p<0.001, adjusted R^2=0.234) (Nemoto et al., 2020).

Family factors

A study of FEP found that parental rearing style reported by those with SAD (FEP plus SAD or SAD alone) revealed higher dysfunctional paternal indifference ($F_{1,97}$=5.6, p<0.05) and abuse ($F_{1,97}$=6.1, p<0.05) than those without SAD (FEP alone and normal control) (Michail and Birchwood, 2014). Furthermore, higher social anxiety in SZ was significantly associated with the higher paternal rejection, but not maternal rejection. Those with SZ who scored their key relatives (e.g., spouse, father or mother) as more critical and hostile towards themselves reported higher scores on social anxiety (Khalil and Stark, 1992).

Temperament and personality factors

In an analogue study, general population were interviewed using Munich-Composite International Diagnostic Interview (M-CIDI) (Lachner et al., 1998) to define any/subclinical/clinical paranoid or phobia symptoms. They were then observed prospectively including completed temperamental and personality measurements. Lifetime comorbid condition (paranoia and social phobia symptoms) was associated with behavioural inhibition temperament (Relative Risk=26.22, p<0.001) and harm avoidance personality (Relative Risk=1.12, p<0.001) compared to individuals without a history of social phobia or paranoid symptoms (Schutters et al., 2012). In SZ, those with SAD had higher harm avoidance and lowered self-directed personality than those without SAD (t=4.203, p<0.0001 and t=4.447, p<0.0001) (Vrbova et al., 2017a).

Anomalous experiences

Two virtual reality studies examined perceptual disturbances in SZ (Jang et al., 2005; Park et al., 2009). The first study provided avatars with happy and neutral face conditions to evoke patients' social anxiety. Amongst SZ higher social anxiety was correlated with higher PANSS negative subscales: blunted affect and passive/apathetic social withdrawal, when evoked by happy ($r=0.55$, $p=0.034$ and $r=0.54$, $p=0.039$) or neutral faces ($r=0.54$, $p=0.039$ and $r=0.66$, $p=0.008$), respectively (Jang et al., 2005). Another avatar study in SZ reported higher social anxiety in the happy condition, compared to normal controls ($t=-5.00$, $p<0.01$). In SZ group, the higher social anxiety was related to the higher schizotypal ambivalence ($r=0.56$, $p<0.01$) and social anhedonia scores ($r=0.38$, $p<0.05$) when evoked by happy conditions, and related to the higher schizotypal ambivalence scores ($r=0.54$, $p<0.01$) when evoked by angry conditions (Park et al., 2009).

Other factors

In a general population prospective study, *sub-clinical paranoid* symptoms were a predictor of the development of social phobia, controlling for neuroticism (OR=2.62; 95%CI=1.57-4.36; $p<0.001$) (Rietdijk et al., 2009). Amongst FEP, those with SAD expressed more *persecutory threat* than those with FEP alone (Michail and Birchwood, 2009). Considering reported *traumatic experiences*, people with SAD (FEP plus SAD or SAD alone) reported higher emotional abuse ($F1,97=4.8$, $p<0.05$) and sexual abuse ($F1,97=3.7$, $p<0.05$) than those without SAD (FEP alone and normal controls) (Michail and Birchwood, 2014).

Regarding *suicidality and hopelessness*, those with SZ and SAD reported a higher number of suicide attempts ($F5.19$, $p<0.03$) and lethality of suicide attempts ($F34.14$, $p<0.001$) compared to SZ alone (Pallanti et al., 2004). SZ with SAD reported lower hope than those without SAD ($t=2.710$, $p<0.01$) (Vrbova et al., 2017a), and the lower hope was associated with higher social anxiety ($r=-0.44$, $p<0.001$) (Lysaker et al., 2008b). *Social anhedonia* was investigated in SZ, where greater social anhedonia correlated with higher social anxiety (Blanchard et al., 1998).

SZ were investigated for *executive functioning*, delusion severity and social anxiety. SZ who had impaired cognitive flexibility plus a significant delusion (PANSS Delusions Score≥5) reported higher social anxiety (LSAS: $F=4.12$, $p<0.05$) than other groups (impaired cognitive flexibility plus no delusion, not impaired plus no delusion, not impaired plus delusion) (Lysaker and Hammersley, 2006).

2.5 Discussion

This review sought to identify, describe, and critically analyse candidate factors that maintain social anxiety in people experiencing psychosis. We synthesized the data using interventionist-casual model criteria that stipulate the candidate factors should be: 1) measurable; 2) amenable to change in a putative casual process; and 3) theoretically relevant. We also justified the factors and developed an integrated-theoretical model for improvement of targeted treatment of SAD with psychosis.

2.5.1 Psychological maintenance factors

We identified a number of factors from the eligible studies included in the current review. We clustered the findings according to Cognitive, Metacognitive and Behavioural factors. Amongst people with psychosis or schizophrenia who had an additional diagnosis of SAD, there were higher levels of perceived stigma and shame, lower levels of self-esteem and social rank and more negative self-appraisals. These findings were derived from high quality studies.

Although there were identified metacognitive factors including ToM, metacognitive mastery, mentalization and reasoning biases, not all relationships between social anxiety and metacognition were linear. This is perhaps because those people with a lower level of metacognition might not be aware of a socially feared event, while those with higher level might have a better adaptation to deal with problems with social anxiety, resulting in reduced severity, when compared to those with a moderate level (Lysaker et al., 2010a; Lysaker et al., 2011). It was evidenced that metacognitive beliefs were found to empirically contribute to social anxiety (Gkika et al., 2018), and metacognitive processes of people with psychosis can be changed in an experimental study (Garety and Freeman, 2013). Though there is promising evidence, findings on

metacognitive factors were mixed and synthesis of these findings is made difficult by different approaches to the definition and measurement of metacognition.

We found limited evidence that behavioural factors have been systematically investigated. This is a neglected area of research and our findings show promise in delineating the role of social avoidance and other defensive behaviours (i.e., PEP) in the maintenance of social anxiety. Because safety behaviours, such as social avoidance play a role in maintaining social anxiety (Clark and Wells, 1995), then intervention on these factors should reduce social anxiety experiences in psychotic contexts.

Importantly, although largely findings were drawn from cross-sectional studies, we found consistent evidence for the potential role of cognitive factors, which the candidate factors can be the *stigma and shame*. Because they fit with the substantial characteristics of potential mechanism in the interventionist-causal approach (Kendler and Campbell, 2009), which the stigma and shame were measurable (Cook, 1994; Wei et al., 2018; Goss, 1994b) and can be developed in the theoretical understanding to guide therapy (Birchwood et al., 2007). Furthermore, these factors are likely to be amenable to change with psychological interventions targeting these factors as a causal mechanism. Therefore, cognitive factors such as appraisals of stigma and shame may be amenable for the development of interventionist-causal approaches to SAD in psychosis.

2.5.2 Correlates of social anxiety in psychosis

Social anxiety was frequently associated with two correlates including poorer functioning and lower QoL, followed by lower well-being, family factors and personality factors, anomalous experiences, and other correlates presented in the result section. From our review, lower functioning was consistently associated with higher social anxiety amongst people with psychosis. The poor functioning also influences the defeatist performance belief (DPB) (Campellone et al., 2016), which is overgeneralized negative thoughts about one's ability to successfully perform tasks. This DPB is important because it can lead to preventing the initiation of goal-directed behaviours and engagement in social

interactions (Campellone et al., 2016). We also commonly found that higher social anxiety was related to poorer QoL and well-being. It is evident that lower QoL and lower well-being was associated with higher symptoms of psychosis (Aunjitsakul, 2019; Chino et al., 2009). Notably we found consistent evidence that social anxiety was correlated with poorer functioning and QoL. It is important that functioning and QoL should be included as outcomes in future intervention studies targeting SAD in psychosis (Nemoto et al., 2020; Aunjitsakul, 2018).

2.5.3 Integration of theoretical model and its implication

Based on our findings we propose a theoretical integration as shown in **Figure 2.2**, based on previous work on social anxiety (The British Psychological Society, 2011; Clark and Wells, 1995); paranoia (Freeman et al., 2005b); and stigma (Birchwood et al., 2007).

Three major processes of the model were constructed. We will use stigma and shame to explain the model. With the proximal social assumptions, individuals with bio-psycho-social vulnerabilities are, firstly, aware that other people are critical when encountering feared social situation. Due to negative processing the self as a social object, individuals may feel different, vulnerable or stigmatized, the *internalized negative self-representation* is formed.

Secondly, activation of the internalized self-representations, are then subject to metacognitive processing. The individual with internal stigma- and shame-based representations may perceive their *self as ridiculed* (e.g., I look awkward), or at risk of social *harm from others* (e.g., others are threatening). One can perceive threat at different level consistent with the hierarchy model (see the shading box in **Figure 2.2)** (Freeman et al., 2005b). Then, their perceived assumptions will be assessed relating to: social attitudes, called *other-to-self focus* (e.g., neighbours disgust people like me); and self-image, called *self-to-self focus* (e.g., I am indeed despicable).

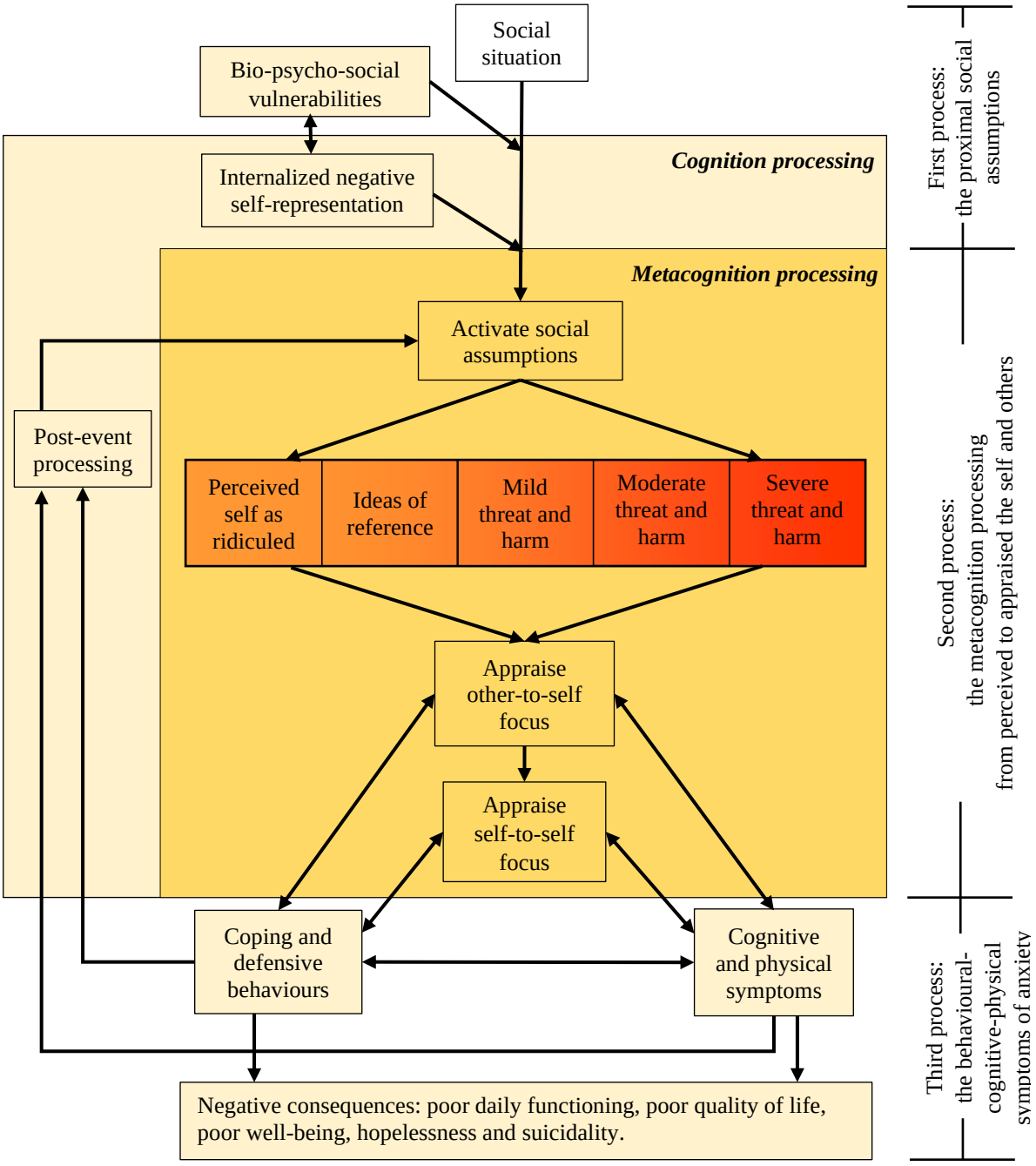

Figure 2.2 The cognition model processing of social anxiety to severe threat.

Note: the orange-red shading box shows the intensity continuum of social anxiety to paranoia; the redder colour the more paranoia, as followed: Perceived self as ridiculed/embarrassment (e.g., I look awkward/sick); Ideas of reference (e.g., people talking about me); Mild threat and harm from others (e.g., people trying to cause minor distress, such as irritation); Moderate threat and harm (e.g., people deliberately trying to approach me, such as being hostile towards me); and Severe threat and harm (e.g., people trying to cause significant physical psychological or social harm).

Lastly, negative appraisals about stigma and shame result in *defensive behaviours* (e.g., avoiding eye contact), and *cognitive* (e.g., hypervigilance due to anticipating other attitudes) *and physical symptoms* (e.g., sweating, tremor) of anxiety. These symptoms interact in vicious circles via PEP. These defensive behaviours also maintain and prevent disconfirmation of the negative belief of social anxiety in psychosis. *Negative consequences* may appear as poorer daily functioning, QoL, well-being, and increased hopelessness and suicidality. Additionally, although negative affect can be a negative consequence, nonetheless, it was not included in the model, because negative affect also increases accessibility of negative appraisals and feelings of stigma/shame that, in turn, increases social anxiety.

Our model aims to help people suffering from social anxiety in the context of psychosis. Although the psychological factors related to experiencing discrimination (stigma/shame) are not unique to SAD in psychosis, these factors are very relevant in SAD in psychosis compared to the established cognitive model of social anxiety (Clark and Wells, 1995). Due to our findings being drawn mostly from cross-sectional studies with limited evidence of experimental and manipulationist tests, additional studies will be needed to develop better effective treatment of SAD in psychosis. Stigma and shame should be tested in interventionist-causal manipulation designs, using social anxiety as the dependent variable and stigma/shame as the mediator variables.

2.5.4 Strengths and limitations

This review has a number of strengths. The factors that maintain significant social anxiety problems in psychosis and other relevant correlates were thoroughly examined. We used rigorous methods (e.g., independent study selection), took a broad and inclusive approach, and assessed the quality of the literature. But there are also limitations to be considered. We did not include non-English-language studies and unpublished grey literature which may have resulted in publication bias and exclusion of some relevant evidence. However, we believe this limitation is minimal as we utilized a comprehensive literature searching and covered studies from diverse geographical regions (Africa, Asia-Pacific, North America, and Europe). Secondly, the quality assessment, indicates that many studies did not address confounding factors and may not have proven

the validity/reliability of study measures. This could lead to erroneous conclusions (Skelly et al., 2012) and minimize trustworthiness (Hong et al., 2019) of a study. Majority of studies, nonetheless, were met at least 4**** (of 5*****) quality criteria. We observed a gender disparity across studies with men over-represented in the psychosis samples. In contrast, the general population and high-risk samples showed comparable proportions of male and female participants. Lastly, the heterogeneity of data prevented us from applying meta-analysis.

2.5.5 Directions for future research

Most studies were cross-sectional and conducted with Westernized English-speaking populations. Cross-cultural studies are required to improve understanding of the role that culture plays in the experience of stigma and the expression of psychopathology (Tseng W, 2001). It is already known that the content of persecutory delusion is likely to depend on culturally prevalent threats or beliefs about malevolent influence (Suhail, 2003; Skodlar et al., 2008) and so it is relevant to examine whether these effects extend to social anxiety related beliefs and appraisals. The development of experimental designs using interventionist causal methods with targeted factor and focus whether modifying safety behaviours associated with reducing social anxiety in psychosis should be tested. Moreover, due to lack of evidence on other psychotic experiences, given the potential impact of psychotic experiences; for example, voices in social interactions (Freeman, 2007a), this also seems to be an important topic for exploration.

2.6 Conclusion

Our analysis of the literature suggest that stigma and shame are key candidate psychological mechanisms with a strong role in maintaining social anxiety in the context of psychosis. Given the generally strong methodological quality of the included studies we can be reasonably confident that these cognitive factors warrant further investigation. For example, further studies using psychometrically robust methods and applying mediation analyses will help disentangle the different factors involved the spectrum of problems from social anxiety to paranoia. Both stigma and shame meet the criteria for being treated

as relevant factors in an interventionist-causal model that we offer. This clinical model could be used as a basis for treatment development. Given that social anxiety was reliably associated with poorer functioning and QoL there is an important clinical need to improve targeted treatments for these problems.

Chapter 3 Understanding psychological mechanisms linking social anxiety and paranoia: a cross-cultural general population survey in Thailand and the United Kingdom

This chapter has been submitted to *Psychiatry Research*.

Aunjitsakul, W., McLeod, H.J. and Gumley, A.

Contributions: I developed research question, prepared study materials, conducted the study, prepared the dataset, and performed data analyses. I drafted the manuscript with inputs from my supervisors (HM and AG). I also took the lead in submitting manuscript and responding to reviewer comments with input from my supervisors.

3.1 Abstract

Effective interventions for treating social anxiety in psychosis and understanding mechanisms between social anxiety to paranoia are limited. This study investigated stigma, internal and external shame, social rank appraisals, self-esteem and safety behaviours as mediators between social anxiety and paranoia in a cross-cultural Thai and UK samples. Participants aged ≥18-year-old completed a cross-sectional internet-delivered survey. Social anxiety, paranoia, depression, and hypothesised mediating variables were measured. Thailand and UK samples were analysed separately to explore cultural differences. Associations between social anxiety and paranoia were calculated by linear regression. Mediation analysis was used to test indirect effects of mediators. Eight-hundred and forty-two people completed the survey (427 from Thailand and 415 from the UK). Linear relationships between social anxiety and paranoia were found across countries. In multiple mediation analyses, the social anxiety and paranoia relationship controlling for depression was fully mediated by external shame in both countries and self-esteem and safety behaviours in the UK. External shame was a significant mediator cross-culturally explaining the indirect pathway of the social anxiety and paranoia relationship. Self-esteem and safety behaviours were significant mediators in the UK only. Interventions targeting external shame, self-esteem and safety behaviours could be developed in the next phase psychosis intervention studies.

Keywords: Cross-Cultural Comparison, Mediator, Safety behaviour, Shame, Paranoid Disorders, Psychotic disorders

3.2 Introduction

Levels of paranoid cognition can be understood as part of a hierarchy with overlapping boundaries between experiences such as social anxiety (concerns about the self as a focus of attention by others) and paranoia (more extreme fears that one is vulnerable to harm from others) (Freeman et al., 2005b). Social anxiety disorder (SAD) is a common comorbidity in people experiencing psychosis (McEnery et al., 2019) and causes significant negative impacts including poorer quality of life, impaired functioning and depression (McEnery et al., 2019; Vrbova et al., 2017b; Karatzias et al., 2007). Despite this, psychological interventions for comorbid SAD in people with psychosis are scarce and it is still unknown why only some people with social anxiety go on to develop severe paranoia. Progress will come from elucidating the psychological factors that govern the relationship between social anxiety and paranoia.

In considering potential factors mediating the relationship between social anxiety and paranoia, firstly, we measured factors related to negative social evaluation concerns including stigma (negative schemas about mental illness as an indicator of dangerousness or incompetence) (Link et al., 1999); shame (being unattractive to others) (Gilbert, P., Andrews, B., 1998); and low social rank (being inferior or subordinate) (Cheung, 2004). A recent systematic review suggested that these negative social appraisals could be potential factors guiding psychological interventions for SAD in psychosis (Aunjitsakul et al., 2021). Secondly, self-esteem disturbances are also a potential factor of social anxiety in psychosis (Aunjitsakul et al., 2021) because they relate to negative self-appraisals of social worth including social incompetence, functioning and interaction (Roe, 2001; Smith, 2006). Lastly, evidence shows the role of safety behaviours in the development, maintenance and treatment of social anxiety (Clark, 1995) and paranoia symptoms (Freeman et al., 2007b). Thus, stigma, shame, low social rank, low self-esteem and safety behaviours could be important causal mechanisms by which social anxiety exacerbates paranoia (Michail et al., 2017). Additionally, since depression commonly co-occurs in social anxiety and psychosis (Varghese et al., 2011), thereby, this is an important confounding variable in elucidating possible mechanisms between social anxiety and paranoia.

The continuum model of paranoia enables use of analogue samples to explore the processes that may underpin more extreme forms of persecutory beliefs (Freeman et al., 2005b). There is also likely to be a cultural dimension to how the continuum of social anxiety to paranoia is expressed, given how culture shapes other aspects of mental ill-health such as prevalent beliefs about malevolence content of persecutory delusions (Skodlar et al., 2008); levels of stigma and shame associated with mental illness (Moleiro, 2018); or experiences of shame in different contextual norms and values (Ha, 1995). It is now well established from a variety of studies amongst Western populations that paranoid thinking is relatively common in non-clinical populations (Kaymaz and van Os, 2010; Linscott and van Os, 2010; Freeman et al., 2005b; Johns et al., 2004). So far, there have been no cross-cultural studies of non-Western populations focusing on paranoia and its links to social anxiety in samples drawn from the general population.

This study firstly set out to examine the potential factors mediating the relationship between social anxiety and paranoia in general populations. Secondly, we aimed to compare these processes using cross-cultural samples between non-Western and Western settings, recruited from Thailand and the UK. We hypothesised that in both Thailand and UK samples there will be an independent direct effect of social anxiety predicting paranoia (controlling for depression). We then explored hypothesised mediators of this association including stigma, shame, social rank, self-esteem, and safety behaviours.

3.3 Methods

The Personal Attitudes towards Social life related to Oneself (PASO) survey was a cross-sectional internet-based questionnaire study sampling people from the general population in Thailand and the UK. Following the ethical principles of the Declaration of Helsinki, the survey was approved by the Ethics Committee of the Faculty of Medicine, Prince of Songkla University, Thailand (Code: REC.62-179-3-1) and College of Medical, Veterinary & Life Sciences, University of Glasgow, UK (Code: 200180144).

3.3.1 Participants

Eligible participants were aged at least 18-year-old, currently living in Thailand or the UK, with a fluent understanding of either Thai or English.

3.3.2 Measurements

Nine instruments were used in this study. Of these, two have both English and Thai versions - the Depression Anxiety Stress Scale (DASS) and the Rosenberg Self Esteem Scale (RSES). The other instruments were translated from English into Thai, then back-translated to English by two independent translators (Warut Aunjitsakul and the other in a different academic field), according to guidelines for the process of cross-cultural adaptation of self-report measures (Beaton et al., 2000). Any discrepancies were resolved by consensus with Andrew Gumley and Hamish McLeod. The measurements were selected according to the objective examining general people attitudes towards society in terms of negative social appraisals. For instances, we used Reported and Intended Behaviour Scale to measure public stigma related to mental illness or Green et al. Paranoid Thought Scales to measure paranoid and social reference ideations.

Measurement tools

Paranoia

Green et al. Paranoid Thought Scales (GPTS) is a 32-item questionnaire measuring ideas of social reference (16-item) and persecutory fears (16-item), the latter scale is used to index paranoia. Items are scored on a 5-point Likert scale anchored by 1 (not at all) and 5 (totally). A range of scores of the social reference and persecutory ideations are between 16 and 80. The GPTS has shown good reliability (intra-class correlation of social reference 0.88 and persecutory fears 0.81) and validity during testing and development (Green et al., 2008).

Social Anxiety

Social Interaction Anxiety Scale (SIAS) is a 20-item rating on a 5-point scale from 0 (not at all) to 4 (extremely). A total score is from 0-80, with higher scores

indicating higher levels of the social anxiety constructs. The scale has been shown to have good reliability (test-retest correlations 0.92), internal consistency (Cronbach's alpha 0.94) and validity (Mattick and Clarke, 1998). The cut-off score over 36 was used to determining social phobia (Peters, 2000).

Stigma

Stigma was examined with Reported and Intended Behaviour Scale (RIBS), including 8 items assessing stigma related behaviour against mental illness in the general population. The first 4 items assess the prevalence of the behaviour against mental problems in each of 4 contexts and these are not included in the total score. Items 5-8 use multiple-choice format to assess intended behaviour towards people with mental illness in the same contexts. Overall test-retest reliability (0.75), Cronbach's alpha (0.85) and validity of items 5-8 are good (Evans-Lacko et al., 2011).

Negative Affect

Depression Anxiety Stress Scales (DASS-21) is a measure of general negative affect/distress, of each 7 items, in three subcategories of depression, anxiety and stress. The instrument comprises 21 items rated on a 4-point scale from 0 (did not apply to me at all) to 3 (applied to me very much). This scale demonstrates good internal consistency for depression, anxiety, stress and total (Cronbach's alpha 0.84-0.91) (Lovibond and Lovibond, 1995), and also validated across Asian samples including Thailand (Cronbach's alpha 0.70-0.86) (Oei et al., 2013).

Self Esteem

Rosenberg Self Esteem Scale (RSES) was used to assess self-worth by measuring feeling about the self which it contains 10-item of 4-point Likert scale ranging from strongly agree to strongly disagree. The RSES has shown high scores of reliability (test-retest correlations 0.82-0.88) and internal consistency (Cronbach's alpha 0.77-0.88) with good validity (Rosenberg, 1965). Thai RSES also demonstrated good reliability (Cronbach's alpha 0.85) (Wongpakaran and Wongpakaran, 2012).

Social Rank

Social Comparison Scale (SCS) measures the self-perceptions of social rank and relative social standing. There are 11 bipolar constructs with a ten-point scale. Higher scores indicated greater perceived social rank. The scale has been found to have good reliability (test-retest correlations 0.84) and internal consistency (Cronbach's alpha 0.87) in original version (Allan, 1995).

Shame

Two types of shame were measured. Internalized Shame Scale (ISS) was used to measure negative self-evaluation of his/her attributes, personality characteristics or behaviours. It includes 24 items on a 5-point scale: from 0 (never) to 4 (almost always). The reliability internal consistency assessment of ISS shows the satisfied value with test-retest correlations 0.81-0.93 and Cronbach's alpha 0.95 (Vikan et al., 2010; Cook, 1988).

For the external shame, we used Other as Shamer Scale (OASS) consisting of 18 items rated on a 5-point scale according to the evaluations about how others judge the self: from 0 (never) to 4 (almost always). The scale shows high internal consistency (Cronbach’s alpha 0.92) (Goss, 1994a; Allan, 1994).

Safety behaviours

Subtle Avoidance Frequency Examination (SAFE) is 32 items rated on a 5-point Likert scale (1=never to 5=Always). The questions related to strategies of safety-seeking behaviours that reflect active safety behaviours, subtle restriction of behaviour and behaviours aimed at avoiding or concealing physical symptoms when engaging in a social situation. Higher scores indicated a higher use of safety-seeking behaviours. It has good psychometric properties, including high internal consistency with Cronbach’s alpha 0.83-0.87, good discriminant and constructs validity (Cuming et al., 2009).

3.3.3 Data collection

Participants were recruited via multiple channels including: via personal contacts, website advertisements (e.g. University websites), social media (Twitter, Facebook, Gumtree, Reddit, Freeads) and via posters posted throughout the Community, University or third sector organisations. The participants were invited to the study by entering through the link or scanning QR code from advertisements. At the first page, the participant information sheet was presented, they agreed to take part in the study by clicking a consenting checkbox. Participants were then asked to complete the instruments. Brief demographics including age, gender, ethnicity, job related to health care and history of mental health problems were collected. Incentives in each country were offered to those participants who consented to be entered into a prize draw: 1,000 Thai Baht (Thailand) and £50 vouchers (the UK).

3.3.4 Data analysis

IBM SPSS Statistics for Windows, Version 27.0 was used for all data analyses. Cultural differences were examined by analysing data from Thailand and the UK separately. Descriptive statistics were used to explore study population characteristics and factors such as social anxiety, paranoia, negative affect, stigma, shame, low social rank, low self-esteem and safety behaviours. We generated terciles – bottom, middle and upper – of potential factors with cross-tabulations examining tercile distributions across Thailand and the UK. Cultural differences (e.g., on paranoia, social anxiety, stigma) were analysed by independent Student's t-test for continuous data and Chi-square test for categorical data. Cronbach's alpha was calculated to determine the internal consistency of measurements rated by participants of each country. Inter-variable associations were calculated using Pearson's correlation coefficients. Linear regression was conducted to investigate associations of social anxiety with paranoia. Stepwise multiple regression analysis was additionally conducted to confirm variables being associated with paranoia. Multicollinearity was checked in regression model, if variable presented Variance Inflation Factor (VIF) >5 and tolerance <0.2, it was removed from the model (Christopher, 2019). We used a mediation analysis to test whether of which variable(s) mediating the association between social anxiety and paranoia. The simple and parallel

multiple mediation models with co-varying for depression were established in accordance with the hypotheses 1 and 2 (see **Figure 3.1, Panel A and B**). The PROCESS macro for SPSS version 3.4 was used for the mediation analyses (Hayes, 2018). 10,000 bias-corrected bootstrap samples were performed to estimate 95% confidence intervals of the indirect effect.

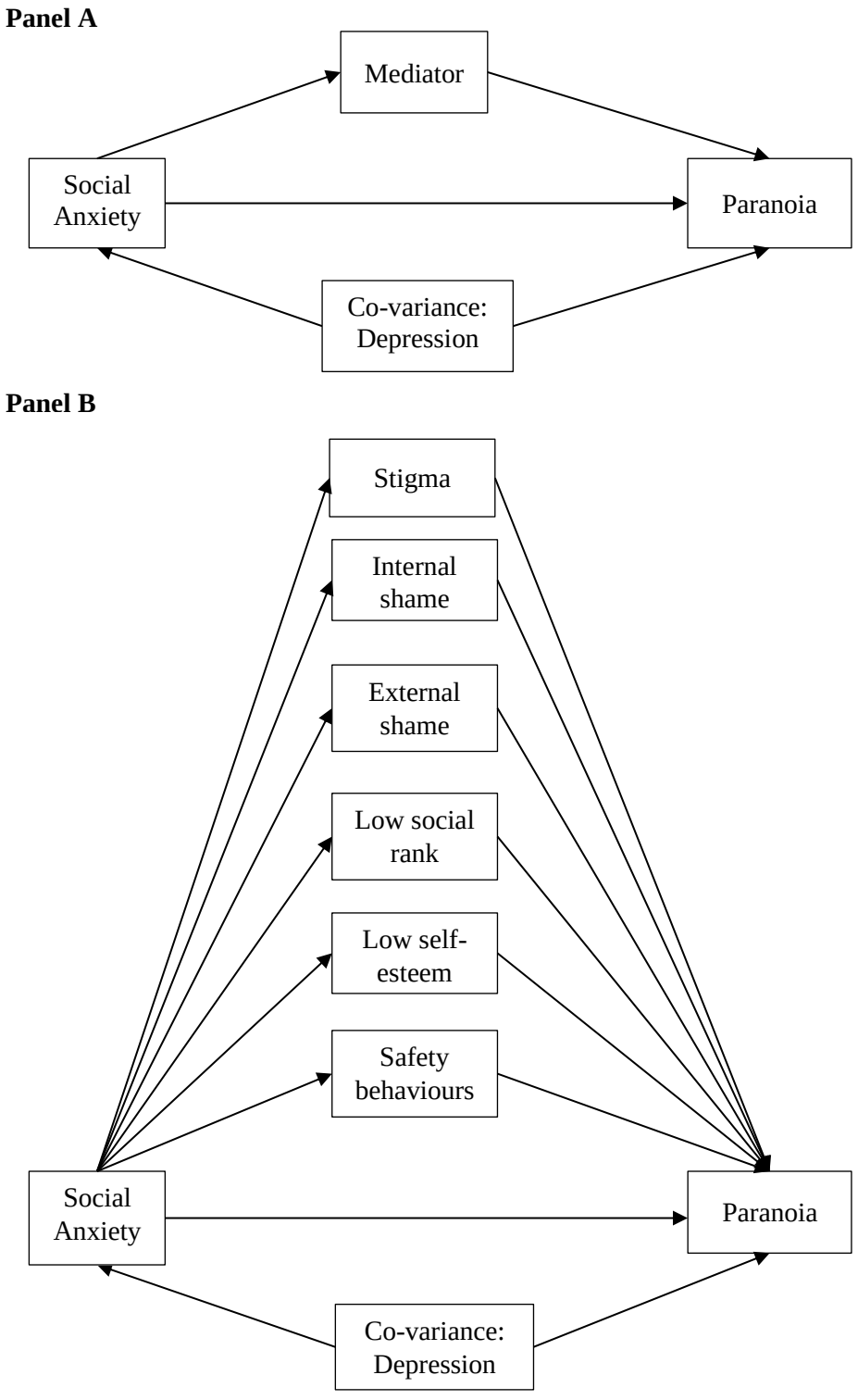

Figure 3.1 The simple (Panel A) and multiple (Panel B) mediation model of the social anxiety having direct effect towards the paranoia with covarying for depression, and mediated by stigma, internal and external shame, low social rank, low self-esteem or safety behaviours factors

Our survey contained data that included 1) history of mental health; and 2) job related to health care, which these health-related issues could affect mediator outcomes. Therefore, we performed a post-hoc analysis, which aimed to assess whether the observed indirect effect of mediators is consistent across these subgroups. Two subgroups: 1) whether individuals reported a history of mental health problems; and 2) whether their job related to health care or not, were performed sensitivity analyses. These subgroups were analysed between Thai and UK samples separately using multiple mediation analysis with adjustment for depression.

3.4 Results

3.4.1 Demographic data and psychological factors

Potential participants (949 from Thailand and 3612 from the UK) accessed the survey through the internet, and 428 (45.1%) Thai and 415 (11.5%) UK participants completed the questionnaires. One participant from Thailand was removed due to being aged <18-year-old. There were 842 respondents in total. There were more female respondents in both countries. Mean age of Thai and the UK samples was comparable at 36.2 and 34.3 years, respectively. (**Table 3.1**) Participants who self-reported a history of mental health problems were 117 (27.4%) in Thailand and 311 (74.9%) in the UK. Two-fifths of Thailand (n=170, 39.8%) and one-third of the UK participants (n=123, 29.6%) had jobs related to health care and mental health (see job details in **Supplementary Table 3.1**).

The mean of the overall value of Cronbach's alpha for all scales was 0.90 (range=0.74 (good) - 0.98 (excellent) for Thailand and 0.93 (0.86 (very good) - 0.98 (excellent)) for the UK, representing the measurements to be generally rated as adequate to excellent internal consistency. (**Supplementary Table 3.2**) Regarding social phobia determined by the cut-off score of SIAS, the UK (n=222, 53.5%) was observed to have more socially anxious people than Thailand (n=98, 23.0%). Generally, the UK sample reported significantly higher mean scores for social anxiety, paranoia, internal shame, external shame, safety behaviours and negative affect (stress, anxiety and depression) than the Thai sample. Only three variables: stigma, social rank and self-esteem of the UK sample were significantly lower compared to the Thai sample. Summary tercile distributions by country are also available in **Table 3.1**.

Considering the stigma represented by intended behaviours against people with mental illness in each social context, the UK sample significantly reported lower stigma score using RIBS (**Table 3.1**) and more agreement to statements of *'willing to live with', 'working with'* and *'living nearby to someone with'* a mental health problem (**Supplementary Table 3.3**) compared to Thai sample. Of these statements, most of the Thai sample significantly reported more on neither agree nor disagree scale. Interestingly, if mental health problems related to their friends not someone else, Thai sample revealed a more positive attitude towards statement *"in the future, I would be willing to continue a relationship with a friend who developed a mental health problem"* which was only in the same direction with the UK attitude. The combined number of strongly and slightly agree was at 292 (89.6%) in Thailand and 372 (68.6%) in the UK.

Table 3.1 Demographic and psychological factors with its terciles compared between Thailand and the UK (N total=842)

Variables by country	Mean ± SD	Independent sample t-test	Terciles			Pearson Chi-square
			Bottom third; %	Middle third; %	Upper third; %	
Gender; n (%)	**Male: Female**	***<0.001*** †				
Thailand (n=427)	133 (31.1): 294 (68.9)		-	-	-	-
UK (n=415)	83 (20.0): 332 (80.0)		-	-	-	-
Age (Years)		0.017				
Thailand (n=427)	36.2 ± 10.4 (max-min=18-69)		-	-	-	-
UK (n=415)	34.3 ± 12.4 (max-min=18-73)		-	-	-	-
Self-reported a history of mental health problems; n (%)	**Yes: No**	***<0.001*** †				
Thailand (n=427)	117 (27.4): 310 (72.6)		-	-	-	-
UK (n=415)	311 (74.9): 104 (25.1)		-	-	-	-
Jobs related to health care or mental fitness ‡; n (%)	**Yes: No**	***0.002***				
Thailand (n=427)	170 (39.8): 257 (60.2)		-	-	-	-
UK (n=415)	123 (29.6): 292 (70.4)		-	-	-	-
SIAS		***<0.001***				***p<0.001***
Thailand (n=427)	26.4 ± 14.2		48.7%	33.3%	18.0%	
UK (n=415)	39.3 ± 18.3		20.7%	30.8%	48.4%	
Social phobia group §; n (%)	**Yes: No**	***<0.001*** †				
Thailand (n=427)	98 (23.0): 329 (77.0)		-	-	-	-
UK (n=415)	222 (53.5): 193 (46.5)		-	-	-	-
GPTS Reference		0.052				***p<0.001***
Thailand (n=427)	31.7 ± 9.4		30.2%	39.8%	30.0%	
UK (n=415)	33.3 ± 14.6		39.5%	24.1%	36.4%	

GPTS		***0.002***				***p<0.001***
Persecutory						
Thailand (n=427)	23.0 ± 9.1		32.6%	37.2%	30.2%	
UK (n=415)	25.6 ± 14.2		43.6%	23.6%	32.8%	
RIBS (items 5-8)		***<0.001***				***p<0.001***
Thailand (n=427)	11.0 ± 3.9		13.1%	40.7%	46.1%	
UK (n=415)	6.5 ± 3.4		66.5%	21.4%	12.0%	
ISS		***<0.001***				***p<0.001***
Thailand (n=427)	21.2 ± 20.0		54.1%	35.4%	10.5%	
UK (n=415)	51.5 ± 26.7		13.7%	30.1%	56.1%	
OASS		***<0.001***				***p<0.001***
Thailand (n=427)	15.9 ± 12.2		48.2%	37.7%	14.1%	
UK (n=415)	30.7 ± 16.9		19.0%	28.0%	53.0%	
SCS		***<0.001***				***p<0.001***
Thailand (n=427)	61.8 ± 23.9		19.7%	26.9%	53.4%	
UK (n=415)	41.8 ± 17.2		50.4%	38.3%	11.3%	
RSES		***<0.001***				***p<0.001***
Thailand (n=427)	31.4 ± 5.5		13.3%	39.3%	47.3%	
UK (n=415)	24.1 ± 7.2		57.8%	29.4%	12.8%	
SAFE		***<0.001***				***p<0.001***
Thailand (n=427)	27.4 ± 18.4		46.6%	37.2%	16.2%	
UK (n=415)	47.1 ± 26.8		20.5%	30.8%	48.7%	
DASS Stress		***<0.001***				***p<0.001***
Thailand (n=427)	10.9 ± 9.2		55.7%	32.6%	11.7%	
UK (n=415)	20.3 ± 11.0		21.9%	29.2%	48.9%	
DASS Anxiety		***<0.001***				***p<0.001***
Thailand (n=427)	7.5 ± 7.9		50.8%	35.1%	14.1%	
UK (n=415)	14.9 ± 11.7		24.8%	32.3%	42.9%	
DASS Depression		***<0.001***				***p<0.001***
Thailand (n=427)	8.7 ± 8.8		52.7%	32.8%	14.5%	
UK (n=415)	19.9 ±13.4		20.7%	27.0%	52.3%	

DASS, Depression Anxiety Stress Scales; GPTS, Green Paranoid Thought Scales; ISS, Internalised Shame Scale; OASS, Other As Shamer Scale; RIBS, Reported and Intended Behaviour Scale; RSES, Rosenberg Self-Esteem Scale; SAFE, Subtle Avoidance Frequency Examination; SCS, Social Comparison Scale; SIAS, Social Interaction Anxiety Scale

Data are mean ± SD unless otherwise indicate

† Pearson Chi-Square
‡ More details described in Supplementary Table 3.1
§ Social group determined by SIAS cut off score > 36

3.4.2 Intercorrelations of factors influencing paranoia and social anxiety

The association between social anxiety and paranoia was r=0.36 (p<0.01) in Thailand and r=0.46 (p<0.01) in the UK. Social anxiety was also significantly associated with internal shame, external shame, social rank, self-esteem, safety behaviours, stress, anxiety and depression scores in both samples. Stigma was generally not associated with other variables, but only associated with internal shame in the UK sample (r=-0.13, p<0.01). Other findings are presented in **Table 3.2**.

Table 3.2 Intercorrelations of potential variables of Thailand (n=427) and the UK (n=415)

DASS, Depression Anxiety Stress Scales; GPTS, Green Paranoid Thought Scales; ISS, Internalised Shame Scale; OASS, Other As Shamer Scale; RIBS, Reported and Intended Behaviour Scale; RSES, Rosenberg Self-Esteem Scale; SAFE, Subtle Avoidance Frequency Examination; SCS, Social Comparison Scale; SIAS, Social Interaction Anxiety Scale

* p<0.01

† Values of Pearson's correlation coefficient of Thailand are in white shading, and of the UK are in light grey.

Variables	1	2	3	4	5	6	7	8	9	10	11	12	
1. SIAS	1	***0.51****	***0.36****	-0.00	***0.65****	***0.53****	***-0.21****	***-0.54****	***0.72****	***0.59****	***0.58****	***0.61****	
2. GPTS Reference	***0.62****	1	***0.73****	0.02	***0.57****	***0.59****	-0.11	***-0.44****	***-0.52****	***0.62****	***0.58****	***0.55****	
3. GPTS Persecutory	***0.46****	***0.78****	1	0.06	***0.51****	***0.56****	-0.08	***-0.40****	***0.44****	***0.53****	***0.52****	***0.50****	
4. RIBS (items 5-8)	-0.08	-0.02	-0.00	1	-0.02	-0.02	0.04	-0.07	0.03	-0.04	-0.04	-0.04	
5. ISS	***0.77****	***0.65****	***0.49****	***-0.13****	1	***0.83****	***-0.28****	***-0.76****	***0.60****	***0.74****	***0.72****	***0.78****	
6. OASS	***0.72****	***0.74****	***0.63****	-0.08	***0.85****	1	***-0.17****	***-0.61****	***0.56****	***0.67****	***0.65****	***0.63****	
7. SCS	***-0.48****	***-0.38****	***-0.31****	0.12	-0.53	***-0.50****	1	***0.33****	***-0.17****	***-0.16****	***-0.20****	***-0.21****	**TH †**
8. RSES	***-0.72****	***-0.57****	***-0.41****	0.09	***-0.84****	***-0.73****	***0.53****	1	***-0.50****	***-0.57****	***-0.56****	***-0.68****	
9. SAFE	***0.80****	***0.69****	***0.57****	-0.01	***0.75****	***0.76****	***-0.46****	***-0.64****	1	***0.60****	***0.62****	***0.57****	
10. DASS Stress	***0.62****	***0.61****	***0.50****	-0.05	***0.74****	***0.68****	***-0.45****	***-0.62****	***0.64****	1	***0.84****	***0.81****	
11. DASS Anxiety	***0.65****	***0.68****	***0.56****	-0.03	***0.73****	***0.71****	***-0.43****	***-0.63****	***0.74****	***0.78****	1	***0.78****	
12. DASS Depression	***0.62****	***0.55****	***0.45****	-0.06	***0.78****	***0.69****	***-0.47****	***-0.76****	***0.59****	***0.74****	***0.69****	1	
								UK †					

3.4.3 Linear regression analysis of social anxiety associated with paranoia

Considering *Hypothesis 1: in both Thailand and the UK samples, we predicted a direct effect of social anxiety on paranoia,* regression models were found the linear relationship between social anxiety and paranoia in Thailand (SIAS: B 0.23, p<0.001) and the UK samples (B 0.36, p<0.001). (Model 1, **Table 3.3**) After adjustment for depression, only social anxiety in the UK sample remained significantly associated with paranoia (SIAS: B 0.23, p<0.001), there was no significant relationship (B 0.07, p=0.06) in Thai sample (Model 4).

In the hierarchical regression analyses controlled for depression in model 5 (**Table 3.3**), multicollinearity was found in both countries which internal shame showed values of tolerance <0.2 and VIF >5. Therefore, it was removed from (following) multiple regression and mediation analyses. Excluding internal shame in model 6, external shame and safety behaviours of Thai sample were significantly associated with paranoia (OASS: B 0.30, p<0.001; and SAFE: B 0.08, p=0.01), whereas external shame, safety behaviours and self-esteem were significant factors in the UK sample (OASS; B 0.45, p<0.001; SAFE: B 0.15, p<0.001; and RSES: B 0.39, p<0.01, respectively). A stepwise regression analysis was also performed to confirm the potential variables in association with predicting paranoia. In Thai sample, external shame (B 0.29, p<0.001), depression (B 0.20, p<0.001) and safety behaviours (B 0.06, p=0.03) were included in the final model accounting for 35.4% of variance. The final model of the UK sample showing 41.9% of variance explained, included external shame (B 0.47, p<0.001), safety behaviours (B 0.13, p<0.001) and self-esteem (B 0.32, p<0.01).

3.4.4 Mediation analysis investigating the direct, indirect and total effects of social anxiety towards paranoia with co-varying as depression

The mediation analysis was conducted to address *Hypothesis* 2 (that the association between social anxiety and paranoia is fully mediated by stigma, shame, social rank, self-esteem and safety behaviours). Due to multicollinearity, internal shame was retained in the simple mediation analyses but excluded from the multiple mediation analyses. Firstly, the simple mediation analyses of

Table 3.3 Linear regression analysis of GPTS persecutory (a dependent variable) compared between Thailand (n=427) and the UK (n=415)

Coun-tries		TH								UK							
Model	**Independent variables**	**Adjus-ted R^2**	**Unstandardised Coefficients**		**Standar-dised Coeffici-ents**	**t**	**Sig.**	**Collinearity Statistics**		**Adjus-ted R^2**	**Unstandardised Coefficients**		**Standar-dised Coeffici-ents**	**t**	**Sig.**	**Collinearity Statistics**	
			B	**Std error**	**Beta**			**Tolera-nce**	**VIF**		**B**	**Std error**	**Beta**			**Tolera-nce**	**VIF**
1	(Constant)	0.13	16.88	0.87		19.38	0.000			0.21	11.58	1.48		7.85	0.000		
	SIAS		0.23	0.03	0.36	7.94	**0.000**	1.00	1.00		0.36	0.03	0.46	10.48	**0.000**	1.00	1.00
2	(Constant)	0.13	14.87	2.03		7.34	0.000			0.21	9.10	2.45		3.72	0.000		
	SIAS		0.24	0.03	0.38	7.81	**0.000**	0.87	1.15		0.36	0.03	0.47	10.56	**0.000**	0.97	1.03
	Age		0.05	0.04	0.05	1.10	0.273	0.87	1.15		0.06	0.05	0.06	1.27	0.206	0.97	1.03
3	(Constant)	0.13	15.64	2.68		5.85	0.000			0.21	8.46	3.65		2.32	0.021		
	SIAS		0.24	0.03	0.38	7.75	**0.000**	0.87	1.15		0.36	0.03	0.47	10.54	**0.000**	0.97	1.03
	Age		0.05	0.04	0.05	1.04	0.297	0.86	1.16		0.06	0.05	0.06	1.26	0.210	0.97	1.03
	Gender (Male)		-0.39	0.90	-0.02	-0.44	0.663	0.99	1.01		0.37	1.56	0.01	0.24	0.813	1.00	1.00
4	(Constant)	0.25	17.34	2.49		6.97	0.000			0.25	9.97	3.58		2.79	0.006		
	SIAS		0.07	0.04	0.10	1.87	0.062	0.57	1.75		0.23	0.04	0.30	5.41	**0.000**	0.59	1.71
	Age		0.04	0.04	0.04	0.92	0.357	0.86	1.16		-0.03	0.05	0.03	0.69	0.492	0.96	1.04
	Gender (Male)		-0.87	0.84	-0.04	-1.04	0.298	0.98	1.02		-0.15	1.52	-0.00	-0.10	0.922	0.99	1.01
	DASS Depression		0.46	0.06	0.44	8.37	**0.000**	0.63	1.59		0.28	0.06	2.61	4.73	**0.000**	0.60	1.67
5 †	(Constant)	0.36	11.23	4.44		2.53	0.012			0.43	4.35	6.42		0.68	0.499		
	SIAS		-0.05	0.04	-0.07	-1.14	0.253	0.37	2.73		-0.04	0.06	-0.05	-0.66	0.508	0.28	3.63
	Age		0.04	0.04	0.04	0.96	0.337	0.82	1.22		-0.00	0.04	0.00	-0.01	0.990	0.93	1.07
	Gender (Male)		-0.60	0.79	-0.03	-0.76	0.447	0.94	1.06		-0.90	1.33	-0.03	-0.68	0.499	0.98	1.03

	DASS Depression		0.25	0.07	0.24	3.63	**0.000**	0.35	2.85		0.18	0.07	0.17	2.68	**0.008**	0.34	2.94
	RIBS (items 5-8)		0.16	0.10	0.07	1.69	0.093	0.93	1.08		0.04	0.16	0.01	0.24	0.808	0.94	1.06
	ISS		0.00	0.04	0.00	0.02	0.983	0.16	6.15		-0.17	0.05	-0.31	-3.20	**0.001**	0.15	6.80
	OASS		0.30	0.05	0.40	5.56	**0.000**	0.30	3.34		0.54	0.06	0.64	8.59	**0.000**	0.25	4.07
	SCS		0.01	0.02	0.03	0.72	0.475	0.87	1.15		-0.01	0.04	-0.01	-0.28	0.783	0.67	1.49
	RSES		0.04	0.10	0.03	0.39	0.695	0.38	2.61		0.21	0.15	0.11	1.41	0.159	0.25	4.07
	SAFE		0.08	0.03	0.15	2.54	**0.011**	0.42	2.37		0.17	0.04	0.31	4.50	**0.000**	0.28	3.54
6 ‡	(Constant)	0.36	11.26	4.25		2.65	0.008			0.42	-3.30	6.03		-0.55	0.584		
	SIAS		-0.05	0.04	-0.07	-1.17	0.244	0.38	2.61		-0.06	0.06	-0.08	-1.13	0.260	0.28	3.56
	Age		0.04	0.04	0.04	0.96	0.336	0.83	1.21		0.01	0.04	0.01	0.22	0.829	0.94	1.07
	Gender (Male)		-0.60	0.79	-0.03	-0.76	0.446	0.95	1.05		-1.10	1.35	-0.03	-0.82	0.414	0.98	1.02
	DASS Depression		0.25	0.06	0.24	3.91	**0.000**	0.41	2.47		0.12	0.07	0.11	1.79	0.075	0.37	2.67
	RIBS (items 5-8)		0.16	0.09	0.07	1.69	0.092	0.93	1.08		0.11	0.16	0.03	0.68	0.497	0.96	1.04
	OASS		0.30	0.04	0.40	7.15	**0.000**	0.49	2.03		0.45	0.06	0.54	7.90	**0.000**	0.30	3.30
	SCS		0.01	0.02	0.03	0.72	0.474	0.88	1.14		-0.01	0.04	-0.01	-0.23	0.820	0.67	1.49
	RSES		0.04	0.10	0.02	0.41	0.681	0.44	2.29		0.39	0.14	0.20	2.81	**0.005**	0.29	3.48
	SAFE		0.08	0.03	0.15	2.55	**0.011**	0.42	2.36		0.15	0.04	0.28	4.06	**0.000**	0.29	3.47

DASS, Depression Anxiety Stress Scales; GPTS, Green Paranoid Thought Scales; ISS, Internalised Shame Scale; OASS, Other As Shamer Scale; RIBS, Reported and Intended Behaviour Scale; RSES, Rosenberg Self-Esteem Scale; SAFE, Subtle Avoidance Frequency Examination; SCS, Social Comparison Scale; SIAS, Social Interaction Anxiety Scale

† Regarding the stepwise regression analysis, the final model of GPTS Persecutory in Thailand included OASS (B 0.29, p<0.001), DASS Depression (B 0.20, p<0.001) and SAFE (B 0.06, p=0.03) with adjusted R square 35.4%, while in the UK the final model included OASS (B 0.54, p<0.001), SAFE (B 0.15, p<0.001), ISS (B -0.21, p<0.001) and DASS Depression (B 0.15, p=0.02) with adjusted R square 43.6%.

‡ After removing ISS from the model 5 due to multicollinearity, regarding the stepwise regression analysis, the final model of GPTS Persecutory in Thailand included OASS (B 0.29, p<0.001), DASS Depression (B 0.20, p<0.001) and SAFE (B 0.06, p=0.03) with adjusted R square 35.4%, while in the UK the final model included OASS (B 0.47, p<0.001), SAFE (B 0.13, p<0.001) and RSES (B 0.32, p<0.01) with adjusted R square 41.9%.

each of the variables were examined, see the pathway in **Panel A**. In Thailand, social anxiety related to paranoia through its relationship with safety behaviours, internal shame and external shame when controlling for depression. Regarding the safety behaviours data, the direct effect of social anxiety on safety behaviours was a=0.77, the direct effect of safety behaviours on paranoia was b=0.13. The indirect effect was ab=0.10 (95%CI=0.038, 0.161) based on 10,000 bootstrapped samples. (**Table 3.4**) The other significant indirect effects through other mediators: internal and external shame were ab=0.06 (95%CI=0.022, 0.103) and 0.06 (95%CI=0.033, 0.102), respectively. In UK sample, there were three significant indirect effects, which safety behaviours was ab=0.27 (95%CI=0.184, 0.365); external shame was ab=0.22 (95%CI=0.158, 0.287); and internal shame was ab=0.06 (95%CI=0.005, 0.124).

We explored further on multiple mediation analysis, see the pathway in **Panel B**, which all potential variables except internal shame remained using in multiple mediation analyses. Results from Thailand indicated that external shame showed a significant indirect effect through the relationship of social anxiety related paranoia when controlling for depression. As can be seen in **Table 3.4**, the direct effect of social anxiety on external shame was a=0.20, the direct effect of external shame on paranoia was b=0.30, and the indirect effect was ab=0.06 (95%CI=0.030, 0.100) based on 10,000 bootstrapped samples. The results in the UK indicated more significant mediators: external shame, self-esteem and safety behaviours, their indirect effects were ab=0.20 (95%CI=0.135, 0.268), -0.06 (95%CI=-0.109, -0.020) and 0.15 (95%CI=0.068, 0.242), respectively.

3.4.5 Post-hoc analyses

As part of a sensitivity analysis, multiple mediation analyses were explored by subgroup. Firstly, in Thai sample external shame showed a significant indirect effect amongst those with self-reported history of mental health problems (ab=0.11; 95%CI=0.029, 0.215). For those without mental health problems, external shame and safety behaviours showed significant indirect effects (ab=0.04; 95%CI=0.011, 0.069; and 0.10; 95%CI=0.036, 0.167). In the UK sample, external shame and self-esteem were significant in both with (OASS: ab=0.21, 95%CI=0.133, 0.293 and RSES: ab=-0.05, 95%CI=-0.103, -0.001) and without self-reported mental health problems (OASS: ab=0.08, 95%CI=0.006, 0.184

Table 3.4 Results of simple and multiple mediation analyses examining direct, indirect and total effects of independent variable (social anxiety) and dependent variables (GPTS persecutory) with co-variances (DASS Depression) through mediators compared between Thailand (n=427) and the UK (n=415)

	Countries		**TH**						**UK**					
	Independent variables	Mediators	Effect of SIAS on mediator (*a*)	Unique effect of mediator (*b*)	Indirect effect (*ab*)	Bootstrapping bias-corrected 95% CI	Direct effect (*c'*)	Total effect (*c*)	Effect of SIAS on mediator (*a*)	Unique effect of mediator (*b*)	Indirect effect (*ab*)	Bootstrapping bias-corrected 95% CI	Direct effect (*c'*)	Total effect (*c*)
Simple mediation analysis	GPTS	RIBS (items 5-8)	0.01	0.18	0.00	-0.005, 0.011	0.06	0.06	-0.01	0.16	-0.00	-0.011, 0.004	**0.23*** **	**0.23*** **
	persecutory	ISS	**0.40*** **	**0.15*** **	**0.06**	**0.022, 0.103**	-0.00	0.06	**0.67*** **	**0.09***	**0.06**	**0.005, 0.124**	**0.17** **	**0.23*** **
		OASS	**0.20*** **	**0.31*** **	**0.06**	**0.033, 0.102**	-0.00	0.06	**0.44*** **	**0.50*** **	**0.22**	**0.158, 0.287**	0.01	**0.23*** **
		SCS	**-0.21***	0.01	-0.00	-0.012, 0.003	0.06	0.06	**-0.30*** **	-0.05	0.02	-0.006, 0.041	**0.21*** **	**0.23*** **
		RSES	**-0.08*** **	-0.17	0.01	-0.003, 0.036	0.05	0.06	**0.16*** **	0.04	-0.01	-0.049, 0.034	**0.24*** **	**0.23*** **
		SAFE	**0.77*** **	**0.13*** **	**0.10**	**0.038, 0.161**	-0.04	0.06	**1.02*** **	**0.26*** **	**0.27**	**0.184, 0.365**	-0.04	**0.23*** **
Multiple mediation analysis	GPTS						-0.06	0.06					-0.06	**0.23*** **
	persecutory	RIBS (items 5-8)	0.01	0.16	0.002	-0.004, 0.010			0.01	0.12	-0.002	-0.009, 0.004		
		OASS	**0.20*** **	**0.30*** **	**0.06**	**0.030, 0.100**			**0.44*** **	**0.45*** **	**0.20**	**0.135, 0.268**		
		SCS	**-0.21***	0.01	-0.003	-0.011, 0.003			**-0.30*** **	0.01	0.002	-0.021, 0.025		
		RSES	**-0.08*** **	0.04	-0.003	-0.021, 0.016			**-0.16*** **	**0.39** **	**-0.06**	**-0.109, -0.020**		
		SAFE	**0.77*** **	0.08**	0.06	-0.003, 0.126			**1.02*** **	**0.15*** **	**0.15**	**0.068, 0.242**		

DASS, Depression Anxiety Stress Scales; GPTS, Green Paranoid Thought Scales; OASS, Other As Shamer Scale; RIBS, Reported and Intended Behaviour Scale; RSES, Rosenberg Self-Esteem Scale; SAFE, Subtle Avoidance Frequency Examination; SCS, Social Comparison Scale; SIAS, Social Interaction Anxiety Scale

*p<0.05, **p<0.01, ***p<0.001

and RSES: ab=-0.07, 95%CI=-0.162, -0.0001). Safety behaviours showed a significant indirect effect only amongst those with reported mental health problems (ab=0.20; 95%CI=0.107, 0.307). (**Supplementary Table 3.4**) In Thai sample, external shame showed a significant indirect effect amongst those with health (ab=0.05; 95%CI=0.013, 0.104) and non-health care jobs (ab=0.06; 95%CI=0.018, 0.119). Meanwhile, amongst those with health care jobs in the UK external shame and self-esteem were significant (OASS: ab=0.19; 95%CI=0.062, 0.316; and RSES: ab=-0.08; 95%CI=-0.178, -0.008), while external shame and safety behaviours were significant amongst those with non-health care jobs (OASS: ab=0.19; 95%CI=0.118, 0.273; and SAFE ab=0.15; 95%CI=0.062, 0.263). (**Supplementary Table 3.5**)

Of these two sensitivity analyses, we found that the robust mediator in both countries was external shame. Furthermore, for the UK sample, self-esteem and safety behaviours were significant additional mediators but were not replicated in the Thai sample.

3.5 Discussion

The present study was designed to explore hypothesised mediators of the association between social anxiety and paranoia across Thailand and the UK. External shame was a significant mediator of the relationship between social anxiety and paranoia in both Thai and UK samples. Other significant mediators were self-esteem and safety behaviours in the UK sample only.

The fact that the data obtained from different cultural settings did not adversely affect the reliability of measurements with internal consistency coefficients ranging from good to excellent in both countries. Notably, the percentage of people experiencing social anxiety in UK sample was significantly higher compared to Thailand, and the mean of social anxiety, paranoia including potential mediators (e.g., internal and external shame, safety behaviours) of the UK demonstrated significantly higher scores than Thailand. It could be explained that in collectivistic cultures (e.g., Thailand, Japan) shyness, inhibition and humility are valued as a sign of personal maturity whereas one's achievement and success to be received the greatest reward and social admiration are flourished in individualistic cultures (e.g. UK, US) (Hofmann et al., 2010).

Additionally, the differences between Thai and the UK sample may be due to a number of samples reporting a history of mental illness from the UK higher than Thailand (74.9% vs 27.4%). Prevalence of anxiety disorders of individuals from Euro/Anglo cultures was also found to be higher than those from Indo-Asian (Remes et al., 2016). These aspects of cultural valuations and those with mental health issues resulted in the lower mean score of social anxiety and other factors (e.g., shame, safety behaviours) amongst Thai sample compared to those UK sample. (**Table 3.1**) It is also possible that these observed differences arose from sampling bias and non-representative samples in both countries which adversely impact generalising any of these differences between samples to the larger population. Regarding the measurement effect, it may cause lowering mean score amongst Thai sample. Because some items were unable to represent symptoms in Thai context, such as SAFE tool asks, 'wear cool clothes to prevent sweating', this could also lead sample to rate lower score due to hot weather of Thai setting.

Regarding the first hypothesis, a significant relationship between social anxiety and paranoia was found across Thai and UK samples. However, after controlling for depression, the significant social anxiety-paranoia association remained significant only in the UK. When using the hierarchical model with all potential variables, there were no longer significant associations between social anxiety and paranoia in both countries. Following removal of internal shame due to multicollinearity, regression analyses revealed that external shame, safety behaviours and self-esteem significantly predicted paranoia in UK sample, whereas in Thai sample significant predictors were external shame and safety behaviours. The results of stepwise regression analyses also confirmed that external shame and safety behaviours were significant factors in association with paranoia in both samples, while self-esteem was significant in the UK.

The second hypothesis was tested with simple and multiple mediation analyses. In simple analyses, external shame and safety behaviours factors fully mediated the social anxiety-paranoia processes in both samples. There were different findings of internal shame, which was a full mediator in Thai sample but a partial mediator in UK sample. With the multiple mediation analysis, external shame was the only full mediator showing significant indirect effect in both

countries. Safety behaviours and self-esteem also showed a significant indirect effect, but only in the UK sample. Sensitivity analyses allowed us to confirm the consistency of our findings. External shame retained a significant indirect effect amongst both countries. While self-esteem and safety behaviours were confirmed to be a significant mediator only in the UK.

Considering evolutionary perspectives, the primordial social environment likely drove the emergence of the capacity to experience negative self-appraisals based on the anticipated content of other minds. Social animals have likely evolved repertoires of anxious behaviour based on the anticipated behaviour of others, particularly dominant higher ranking individuals (Gilbert, 2014). This anxiety has been called paranoia anxiety which is more primitive (phylogenetically earlier) than social anxiety that requires a sense of self and an awareness of how we might exist in the minds of others (Gilbert, 2014). Paranoia is linked more to potential physical harm, whereas social anxiety is linked more to attack reputation and social standing (Gilbert, 2014; Freeman et al., 2005b). Additionally, previous studies found strong associations of negative concerns on the mind of others or shame with social anxiety (Gilbert, 2000; Gumley et al., 2004; Michail and Birchwood, 2013) and paranoia (Gilbert et al., 2005; Freeman et al., 2005b). Notably, this study supports evidence from previous observations that shameful experiences significantly linked to the social anxiety-paranoia relationship. Owing to external shame being a potential outcome, it may be that external shame is more associated with paranoia than internal shame (Matos et al., 2013) and closely relates to interpersonal threats due to being negatively evaluated by others (Freeman et al., 2005b). Additionally, the evolution of shame capacities in humans most probably pre-dates the emergence of cultural differentiation and so this pattern of sensitivity to social shame is seen across cultures (Sznycer et al., 2016; Sznycer et al., 2018). Thus, our findings suggested that targeting shame related cognitions, particularly external shame, could provide important implications for treatments of social anxiety and paranoia in psychosis (Aunjitsakul et al., 2021) across cultures.

The other two factors – self-esteem and safety behaviours – that significantly mediated relationship between social anxiety and paranoia. This is because negative feeling about the self relates to social anxiety (Gumley et al., 2004;

Lecomte, Tania et al., 2019; Roe, 2001; Smith, 2006; Gilbert, 2000) and paranoia (Gilbert et al., 2005). Additionally, the defensive reactions to being observed such as avoidance not only maintain distress and anxiety by preventing disconfirmation of negative beliefs (Piccirillo, M.L., Taylor Dryman, M., Heimberg, R.G., 2016) which may themselves contribute to the maintenance of social anxiety (Clark, 1995) and paranoid ideation (Freeman et al., 2007b). Thus, self-esteem and safety behaviours were a potential factor, though they showed significant mediator outcomes only in the UK.

To our knowledge, this is the first study surveying factors involved in the continuum of social anxiety through to paranoia across two cultural contexts. The strengths of this study were as follows. This is a cross-cultural study investigating the potential factors amongst non-Western and Western settings. So, two distinctive different samples from different contexts were used to test robustness of the mediator outcomes. A large number of calculated participants of each country (n=400) were met, which help reduce the possibility of a Type II error. Good to excellent reliability of rated measurements in both countries were found. And the robustness of mediator outcomes was confirmed by using sensitivity analyses.

There were a few limitations. Firstly, although there was an unobserved population who are unable to access the internet from electronic devices. That is the internet-based approach undermined the generalizability in terms of representativeness for entire population (Groves et al., 2004; Grewenig et al., 2018). Nor were we able to recruit nationally representative samples in each country. Some participants did not completely respond the survey (since they started at the first page), this may be due to a number of collected questionnaires that might affect their time and effort to complete response. We primarily intended to examine the generalizability of mediator outcomes rather than proportional representation. So far, our survey reached the target sample size (calculating based on prevalence of social anxiety) which this amount exceeded the calculated sample size based on the mediation analysis. Accordingly, our collected sample size is large enough to confident that mediators (external shame) are likely to be a key causal mechanism linking social anxiety and paranoia. Secondly, there were a major proportion of people

with history of mental health problems and with jobs related to health care, reflecting lack of broader sample representativeness or leading to a population bias. It could be that the survey topic related to mental health is on respondents' interests which motivated participation (Groves et al., 2004), though we carefully advertised the survey in various channels through social media and posters. Thirdly, another limitation is strong associations of internal shame with other variables, causing multicollinearity in data analyses. One potential resolution that could be undertaken in future analyses is Principal Component Analysis (PCA) to identify underlying latent constructs and testing these in mediation analyses. Our cross-cultural data provided consistent evidence of the reliability of measurements and the mediator outcomes, this may help to explain the transformation of social anxiety into psychotic experiences. However, our findings cannot explain the temporal relationship with social anxiety and paranoia, due to cross-sectional research.

Our findings found that external shame, self-esteem and safety behaviours factor mediated the relationship of social anxiety and paranoia. Importantly, similarities of mediating effects of external shame from Thailand and the UK transferred cross-cultural contexts are relevant to understand mechanisms of social anxiety interacting with paranoia. These results have important implications for the psychological intervention of social anxiety in psychosis, suggesting that focusing on three key factors: external shame, self-esteem and safety behaviours with the standard cognitive behavioural intervention could improve clinical outcomes.

Furthermore, since cognitive behavioural therapy (CBT) is effective to alleviate social anxiety (Pilling, Stephen et al., 2013) and psychotic symptoms (Wykes et al., 2008). Hence, existing CBT models for social anxiety in psychosis (Tarrier, 2005) could target shame cognitions and also safety behaviours (Michail and Birchwood, 2013; Michail et al., 2017). Another treatment implication to suggest is Compassion Focused Therapy (CFT) as it help to foster and sooth internal experiences to be safe and warm from shame experiences (Castilho et al., 2020) and reassure themselves in a supportive way (Brown, P. et al., 2020). Additionally, CFT improves emotional distress and social-related concerns in psychosis (Braehler et al., 2013). Thus, we encourage to promote CFT to help

individual, who suffers from social anxiety and paranoia, develop acceptance and compassion relationships with oneself with regards to shame cognitions (Brown, P. et al., 2020).

3.6 Conclusion

In conclusion, our cross-cultural evidence highlighted that higher social anxiety was significantly related to higher paranoia through the shame cognitions, particularly the external shame. Self-esteem and safety behaviours were also a significant mechanism, but their significant indirect effects were found clearly amongst those of the UK sample. The potential factors in social anxiety with psychosis remain to be investigated in longitudinal research.

Chapter 4 Investigating key mechanisms mediating the relationship between social anxiety and paranoia: A 3-month follow-up cross-cultural survey conducted in Thailand and the United Kingdom.

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Contributions: I developed research question, prepared study materials, conducted the study, prepared the dataset, and performed data analyses. I drafted the manuscript with inputs from my supervisors (HM and AG). I also took the lead in submitting manuscript and responding to reviewer comments with input from my supervisors.

4.1 Abstract

The continuum of interpersonal threat ranges from social anxiety to paranoia. Examining factors that predict and mediate the relationship between social anxiety and persecutory paranoia will help with the development of interventionist-causal models that can guide developments of new treatments. We aimed to investigate mediators between social anxiety and persecutory paranoia in a prospective cross-cultural analogue sample. This is a prospective online survey included participants aged ≥18-year-old in Thailand and the UK. Participants completed questionnaires at baseline (T1) and 3-month follow-up (T2) measuring social anxiety, paranoia, depression and mediators (stigma; internal and external shame; social rank; self-esteem; and safety behaviours). We used linear regression to examine predictors of paranoia and mediation analysis with 10,000 bootstrapping bias-corrected 95% confidence intervals (CI) to test indirect effects (*ab*). At follow-up, 186 (70.4%female; mean age 34.9±9.1) Thai and 236 (81.4%female; 35.7±12.7) UK participants completed the survey. Regression analyses showed higher social anxiety or paranoia at T1 significantly predicted higher T2 paranoia. A simple mediation model (controlling for depression and T1 paranoia and T2 social anxiety) showed significant indirect effects for change scores (T2-T1) in internal shame (ab=-0.06, 95%CI=-0.0985, -0.0206), external shame (ab=-0.06, 95%CI=-0.1063, -0.0281) and safety behaviours (ab=-0.07, 95%CI=-0.1249, -0.0150). A multiple mediation model found change in external shame was a significant mediator (ab=-0.05, 95%CI=-0.0949, -0.0152). Overall, these cross-cultural data suggest that external shame may mediate the prospective relationship between social anxiety and paranoia. These data suggest the potential for treatments of persecutory fears and social anxiety in psychosis by targeting shame-related cognitions.

Keywords: Cohort Studies, Mediation Analysis, Psychotic Disorders, Safety Behaviours, Shame, Social Phobia

4.2 Introduction

People diagnosed with schizophrenia can suffer with a variety of experiences, such as paranoia, grandiosity, hallucinations and anhedonia (Patel et al., 2014). The National Institute for Health and Care Excellence (NICE) guidelines currently advise Cognitive Behaviour Therapy for people with psychosis (CBTp) should be a first-line treatment (National Institute for Health and Care Excellence, 2014). Although CBTp can help reduce psychotic symptoms, mechanistically targeted recommendations for individual psychotic symptoms are needed (Brown et al., 2019), along with well-defined psychological treatment studies (Wykes et al., 2008). Our goal is to test mechanistic processes that can be used to improve precision targeting of psychological interventions for people with psychosis.

Social threats span a continuum from social anxiety to persecutory paranoia (Freeman, 2005). Social anxiety reflects an intense fear of negative evaluation by others while paranoia refers to an exaggerated belief about others intention to inflict harm (Freeman, 2005; Clark, 1995). However, the mechanisms underlying the relationship between social anxiety and paranoia are still unknown (Michail et al., 2017). Additionally, there is no evidence-based intervention for social anxiety in people with psychosis, despite the fact that CBT is the treatment of choice for individuals with a standalone diagnosis of SAD (Mayo-Wilson et al., 2014; Acarturk et al., 2009) and for people with schizophrenia (National Institute for Health and Care Excellence, 2014). Identifying mechanisms underpinning both social anxiety and paranoia will improve targeted treatments for people with psychosis (Aunjitsakul et al., 2021).

Because persecutory ideation is found in the general population (Bebbington, 2013; Freeman, 2005) as well as clinical samples (Freeman et al., 2010), we conducted an analogue study measuring social anxiety and persecutory paranoia along with psychological factors that potentially influence social anxiety and paranoia thoughts. The potential factors were social evaluative concerns including stigma, shame and low social rank (Aunjitsakul et al., 2021); low self-esteem (Roe, 2001; Smith, 2006); and safety behaviours (Clark, 1995; Freeman et al., 2007b). We also examined the influence of cross-cultural factors in the SAD-paranoia continuum. Most studies have investigated paranoid thinking in

Western English-speaking samples in high income countries (Kaymaz and van Os, 2010; Linscott and van Os, 2010; Freeman, 2005; Johns LC, 2004). Given that paranoia and potential co-variates such as stigma and shame are directly linked to social norms and values there is a need to expand the range of contexts in which these mechanisms are examined (Skodlar et al., 2008; Moleiro, 2018; Ha, 1995). So, we recruited samples from two cultural settings, Thailand and the UK.

This study investigated mediators (stigma, internal and external shame, social rank, self-esteem or safety behaviours) between social anxiety and persecutory paranoia in a prospective design with cross-cultural analogue samples. We hypothesised that the relationship between social anxiety and paranoia would be mediated by changes in stigma, internal and external shame, social rank, self-esteem, and safety behaviours.

4.3 Methods

This is a prospective study surveying the Personal Attitudes towards Social life related to Oneself (the PASO survey) amongst the general population in Thailand and the UK via internet-based questionnaire. Data were collected at baseline and 3-month follow-up. The survey was reviewed and approved by the Ethics Committee of the Faculty of Medicine, Prince of Songkla University, Thailand (Code: REC.62-179-3-1) and College of Medical, Veterinary & Life Sciences, University of Glasgow, UK (Code: 200180144) in accordance with the Declaration of Helsinki.

4.3.1 Participants

Eligible participants were aged ≥18 years old and living in Thailand or the UK who were fluent in Thai or English. Those who were able to access the internet either from desktop computers or from mobile electronic devices (smartphones and tablets), were invited to take part in the survey.

4.3.2 Measurements

We used nine instruments to measure social anxiety, paranoia, stigma, internal and external shame, self-esteem, social rank, and safety behaviours, as well as negative affect. Of these instruments, the Rosenberg Self Esteem Scale and the

Depression Anxiety Stress Scale, have both English and Thai versions. Other instruments with only English versions were translated into Thai, then back-translated to English by two independent translators (Warut Aunjitsakul and another bilingual academic in a different field), using guidelines for cross-cultural adaptation of self-report measures (Beaton, 2000). Any discrepancies were resolved by discussion with Andrew Gumley and Hamish McLeod. Pilot versions of the PASO survey were tested in both cultural settings to test their understanding, readability and flow. In a pre-cursor cross-sectional study, the PASO survey has shown adequate to excellent reliability of rated measurements amongst Thailand and the UK with mean of overall values of Cronbach's alpha was 0.90 (0.74-0.98) and 0.93 (0.86-0.98), respectively.

Instruments

Social Anxiety

The Social Interaction Anxiety Scale (SIAS) has 20-item rated on a 5-point scale from 0 (not at all) to 4 (extremely). Scores range between 0 and 80, with higher scores indicating greater social anxiety. The scale has been shown to have good reliability (test-retest correlations 0.92) , internal consistency (Cronbach's alpha 0.94) and validity (Mattick, 1998). Cronbach's alpha in this study was at 0.94 (Thai) and 0.95 (UK). We used the cut-off >36 scores in determining social phobia (Peters, 2000).

Paranoia

The Green et al. Paranoid Thought Scales (GPTS) is a 32-item questionnaire used for measuring ideas of social reference (16-item) and persecutory fears (16-item). Responses are on a 5-point scale from 1 (not at all) to 5 (totally). A total score of the social reference and persecutory ideations is from 16 to 80, with higher scores indicating higher severity. The GPTS has shown good reliability (intra-class correlation of social reference 0.88 and persecutory fears 0.81) and validity during testing and development (Green, 2008). Cronbach's alpha was 0.92 (Thai) and 0.96 (UK) of social reference and 0.95 (Thai) and 0.97 (UK) of persecutory fears.

Stigma

The Reported and Intended Behaviour Scale (RIBS) (Evans-Lacko, 2011) was used to measure stigma. The 8-item RIBS examines stigma related behaviour against people with mental illness. The first 4-item only calculate the occurrence of the behaviour towards mental health problems in 4 contexts, they are not given a score value. Items 5-8 are scored on an ordinal scale from 1 (strongly disagree) to 5 (strongly agree). 'Don't know' is coded as neutral (i.e., 3). The total score is calculated by adding together the response values for items 5-8. Overall test-retest reliability (0.75), Cronbach's alpha (0.85) and validity of the RIBS is good (Evans-Lacko, 2011). Our calculated Cronbach's alpha was 0.88 (Thai) and 0.89 (UK).

Shame

Both internal shame and external shame were measured. The Internalized Shame Scale (ISS) measures negative self-evaluation, personality characteristics or behaviours. The ISS contains 24-item rated on a 5-point scale ranging from 0 (never) to 4 (almost always) and has demonstrated satisfactory reliability with test-retest correlations 0.81-0.93, and Cronbach's alpha 0.95 (Vikan, 2010; David, 1988) and of this study 0.98 (Thai) and 0.97 (UK).

The Other As Shamer Scale (OASS) is used to measure the external shame arising from negative evaluations about how others judge the self. The OASS consists of 18-item rated on a 5-point scale from 0 (never) to 4 (almost always). The scale showed high internal consistency (Cronbach's alpha 0.92) (Goss, 1994a; Allan, 1994) and 0.96 (Thai) and 0.96 (UK) in this study. Higher score of ISS and OASS indicates higher shame.

Self-Esteem

The Rosenberg Self-Esteem Scale (RSES) includes 10-item rated on a 4-point scale with from 0 (strongly disagree) to 3 (strongly agree). A higher score indicates higher self-esteem. Both the English (test-retest correlations 0.82-0.88), internal consistency (Cronbach's alpha 0.77-0.88 (Rosenberg, 1965) and 0.91 (this study)) and Thai language versions (Cronbach's alpha 0.85 (Wongpakaran and

Wongpakaran, 2012) and 0.89 (this study)) of the RSES have shown high reliability and validity.

Social Rank

The Social Comparison Scale (SCS) measures self-perceptions of social rank and relative social standing. Participants were asked to describe themselves in comparison to others through 11 bipolar items with a ten-point scale (i.e., 1=inferior to 10=superior). Higher scores indicate higher perceived social rank and the scale has good reliability (test-retest correlations 0.84) and internal consistency (Cronbach's alpha 0.87 (Allan, 1995) and 0.97 (Thai) and 0.92 (UK) in this study).

Safety Behaviours

The Subtle Avoidance Frequency Examination (SAFE) is a measure of safety behaviour emitted to cope with social threats. The 32-item is rated on a 5-point scale ranging from 1 (never) to 5 (always). There are three subscales relating to safety-seeking strategies: active safety behaviours; subtle restriction of behaviour; and behaviours aimed at avoiding/concealing physical symptoms when engaging in a social situation. Higher scores indicate a higher use of safety-seeking behaviours. SAFE has shown good discriminant and construct validity, high internal consistency with Cronbach's alpha 0.83-0.87 (Cuming et al., 2009) and 0.96 (Thai) and 0.96 (UK) in this study.

Negative Affect

The Depression Anxiety Stress Scales (DASS-21) is a measure of general negative affect and distress containing 21-item rated on a 4-point scale ranging from 0 (did not apply to me at all) to 3 (applied to me very much). There are three dimensions: depression (7-item), anxiety (7-item) and stress (7-item). This instrument has shown good reliability for depression, anxiety and stress in both English (Cronbach's alpha 0.84-0.91) and Thai versions (Cronbach's alpha 0.70-0.86) (Lovibond, 1995; Oei, 2013) and this study (0.85-0.91 (Thai) and 0.90-0.95 (UK)). We measured negative affect because of its links to the anticipation of danger, interpersonal sensitivity and engagement in worry, resulting in

negative/implausible ideas. Also, because depression commonly co-occurs in social anxiety and psychosis (Varghese et al., 2011) we used depression as a covariate in data analyses.

4.3.3 Data collection

The PASO survey was advertised via personal contacts, online advertisements (e.g., University websites) or social media (Twitter, Facebook, Gumtree, Reddit, Freeads) and via posters in community, University or third sector organisations. Participants accessed the survey through a URL link or by scanning QR code from advertisements. The participant information sheet was presented, they agreed to take part in the study by clicking a consenting checkbox. At baseline (T1) participants were asked to complete the nine instruments, gender, age, ethnicity, academic qualifications, jobs related to health care, and history with a mental health. At the end of the questionnaire, if participants agreed to follow-up they provided an email address and the nine instruments were readministered 3 months later (T2). It was emphasised to participants that their data remained confidential and anonymous. Incentives were offered to participants via a prize draw for 2,000 Thai Baht (Thailand) or a £200 voucher (UK) for the winner.

4.3.4 Data analysis

IBM SPSS Statistics for Windows, Version 27.0 was used for data analyses. Data from Thailand and the UK were combined from those who provided complete data at both T1 and T2. Descriptive statistics were used to explore population characteristics and factors of interest such as social anxiety, paranoia, stigma, shame, social rank, self-esteem, safety behaviours and negative affect. Differences for continuous data between completers and those who dropped-out from each country sample, and between T1 and T2 in combined samples were analysed by independent and dependent Student's T-test, respectively. Pearson Chi-square and McNemar tests were used to compare differences between unpaired and paired categorical data. To test instability of mediators linking social anxiety and persecutory paranoia prospectively, we calculated a change in variable score between baseline and 3-month follow-up. In other words, each change in variable score was the observed value at T2 minus T1. Associations

between variables were calculated using Pearson's correlation coefficients. Linear regression was conducted to investigate independent variables (e.g., paranoia T1, social anxiety T1, change in mediators) associated with predicting dependent variable (paranoia T2). Stepwise multiple regression analysis was conducted to confirm the predictor outcomes. Regarding multicollinearity, all factors were checked in the regression model, and it will be excluded if Variance Inflation Factor >5 and tolerance <0.2 (Christopher, 2019). There were no assumption violations related to linearity and multicollinearity, this allowed us to continue using mediation analyses. The mediation analysis was to test whether the change in mediator(s) was associated with social anxiety T1 and paranoia T2. This association was tested in simple and parallel multiple mediation models with co-varying for depression T1, social anxiety T2 and paranoia T1 (see **Figure 4.1, Panel A and B**). The PROCESS macro for SPSS version 3.4 (Hayes, 2018) was used for the mediation analyses. 10,000 bias-corrected bootstrap samples were performed to estimate 95% confidence intervals of the indirect effect.

4.4 Results

4.4.1 Population and variable characteristics

At baseline, 842 (427 Thai and 415 UK) participants completed the survey, and 705 (336 Thai and 369 UK) participants agreed to follow-up in three months. Of these, there were 186 Thai and 236 UK samples responded at follow-up, totalling 422 participants with complete data for this study. The follow-up rates of all participants from baseline were 43.6% (186 of 427) in Thailand and 56.9% (236 of 415) in the UK, meanwhile the follow-up rates of those agreed to follow-up were 55.4% (186 of 336) in Thailand and 64.0% (236 of 369) in the UK. Mean age of those at follow-up in Thailand was lower than those who dropped-out (34.9 vs 37.1, p=0.03) whereas mean age at follow-up in the UK was higher than for those in the drop-out group (35.7 vs 32.4, p=0.01). Those with a history of mental health problems were more likely to follow-up than drop-out in Thailand (34.4% vs 22.0%; p<0.05) and the UK (81.4% vs 66.5%; p=0.001). Other characteristics (e.g., gender, jobs related to health and social phobia) did not show significant differences (see **Table 4.1)**. For mediator variables, there were no significant differences between drop-out and follow-up groups of both countries, except internal shame of Thai sample in the drop-out group was lower than the follow-up group. (**Supplementary Table 4.1**)

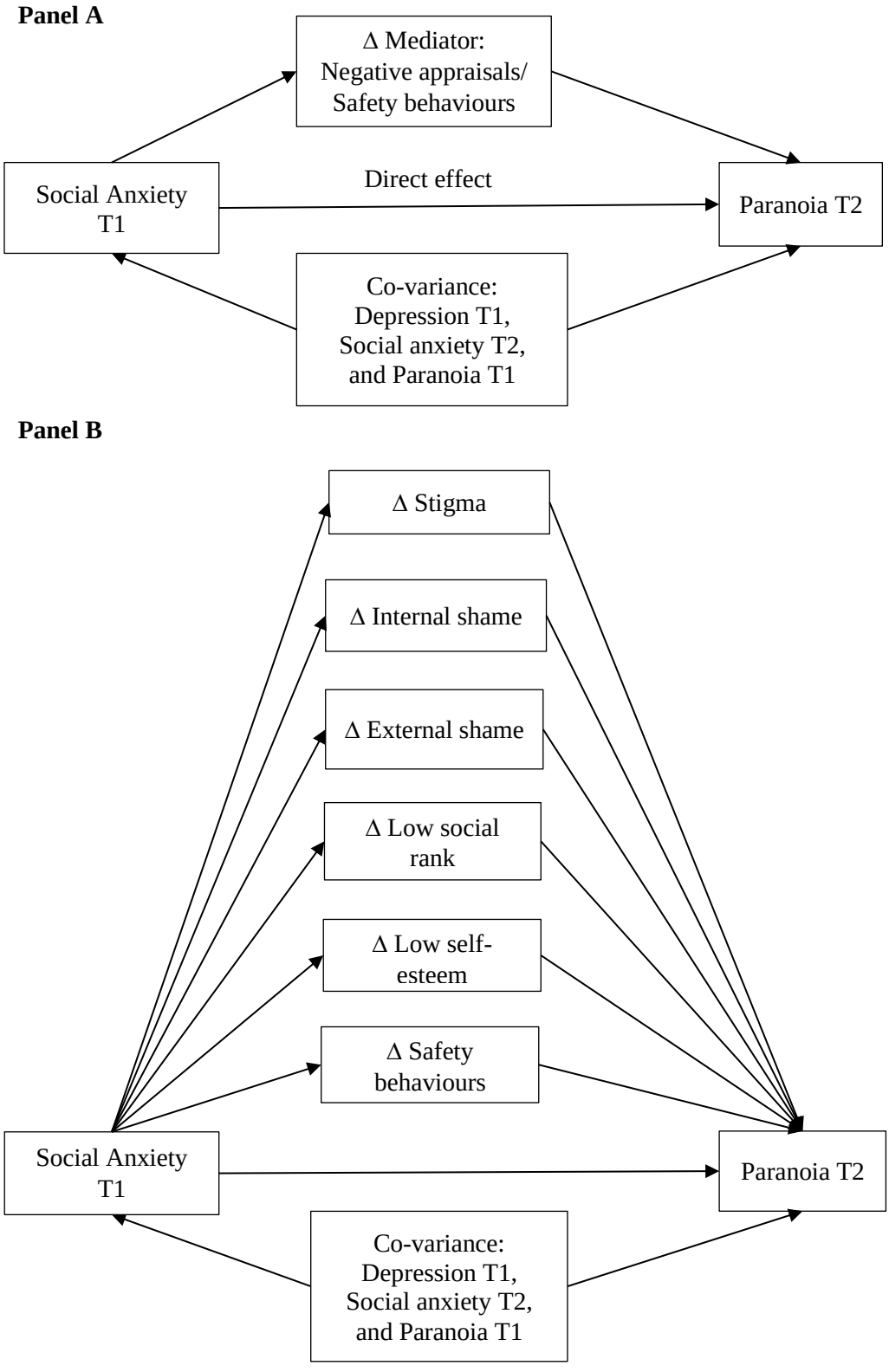

Figure 4.1 Simple and Multiple Mediation analyses of the relationship between change in mediator scores (T2-T1) and social anxiety T1 and paranoia T2.

Note: T1 and T2 refer to at baseline and 3-month follow-up; Δ refers to change in variable score 7which an observed value at T2 minus T1.

Table 4.1 Baseline population characteristics of general populations in Thailand and the UK compared between those who completed 3-month followed-up (n=422) and dropped out (n=420).

Characteristics	Thailand; n (%)				UK; n (%)			
	Total (n=427)	**Follow-up (n=186)**	**Drop-out (n=241)**	**p-value †**	**Total (n=415)**	**Follow-up (n=236)**	**Drop-out (n=179)**	**p-value †**
Gender				0.54				0.43
Male	133 (31.1)	55 (29.6)	78 (32.4)		83 (20.0)	44 (18.6)	39 (21.8)	
Female	294 (68.9)	131 (70.4)	163 (67.6)		332 (80.0)	192 (81.4)	140 (78.2)	
Age (Years); mean ± SD (min-max)	36.2 ± 10.4 (18-69)	34.9 ± 9.1 (18-69)	37.1 ± 11.2 (18-66)	***0.03*** ‡	34.3 ± 12.4 (18-73)	35.7 ± 12.7 (18-72)	32.4 ± 11.9 (18-73)	***0.01*** ‡
Jobs related to health				0.11				0.19
Yes	170 (39.8)	82 (44.1)	88 (36.5)		123 (29.6)	76 (32.2)	47 (26.3)	
No	257 (60.2)	104 (55.9)	153 (63.5)		292 (70.4)	160 (67.8)	132 (73.7)	
History with a mental health problem				***<0.05***				***0.001***
Yes	117 (27.4)	64 (34.4)	53 (22.0)		311 (74.9)	192 (81.4)	119 (66.5)	
No	310 (72.6)	122 (65.6)	188 (78.0)		104 (25.1)	44 (18.6)	60 (33.5)	
SIAS				0.14				0.52
≤36	329 (77.0)	137 (73.7)	192 (79.7)		193 (46.5)	113 (47.9)	80 (44.7)	
>36 (social phobia group)	98 (23.0)	49 (26.3)	49 (20.3)		222 (53.5)	123 (52.1)	99 (55.3)	

SIAS, Social Interaction Anxiety Scale

Data are n (%) unless otherwise indicate

† Pearson Chi-square test
‡ Independent T-test

Female respondents were most common at both baseline and follow-up with approximately 70% in Thailand and 80% in the UK. The UK sample had a higher proportion meeting the threshold for social phobia group compared to the Thai sample at baseline (53.5% vs 23.0%) and follow-up (52.1% vs 26.3%) (**Table 4.1**). **Table 4.2** shows the combined data, from Thailand and the UK, of change in potential variables at two-time points. Mean social anxiety at follow-up was significantly lower than baseline (SIAS: 33.3 vs 34.4; p<0.01). Mean score of social reference, internal shame, safety behaviours, depression, anxiety and stress significantly decreased from baseline to follow-up. Other variables showed no significant differences over time.

Table 4.2 Potential variables in combined Thai and UK samples at baseline and 3-month follow-up (N total=422).

Variables	Baseline (N=422)	3-month follow-up (N=422)	p-value †
SIAS	34.4 ± 17.6	33.3 ± 17.6	***<0.01***
SIAS (>36 or social phobia); n (%)	172 (40.8)	161 (38.2)	0.14 ‡
GPTS Reference	32.3 ± 12.6	30.7 ± 12.5	***<0.001***
GPTS Persecutory	24.1 ± 12.0	23.4 ± 11.8	0.10
RIBS (items 5-8)	8.3 ± 4.2	8.1 ± 4.1	0.12
ISS	40.5 ± 27.8	38.25 ± 27.6	***<0.001***
OASS	24.9 ± 16.4	24.3 ± 16.7	0.14
SCS	51.0 ± 22.6	52.7 ± 21.7	0.14
RSES	26.9 ± 7.4	26.9 ± 7.2	0.97
SAFE	38.5 ± 24.3	36.5 ± 25.3	***<0.01***
DASS Depression	15.8 ± 13.0	14.9 ± 12.7	***0.02***
DASS Anxiety	11.9 ± 10.6	10.7 ± 10.1	***<0.001***
DASS Stress	16.8 ± 11.2	16.1 ± 11.1	***<0.05***

DASS, Depression Anxiety Stress Scales; GPTS, Green Paranoid Thought Scales; ISS, Internalised Shame Scale; OASS, Other As Shamer Scale; RIBS, Reported and Intended Behaviour Scale; RSES, Rosenberg Self-Esteem Scale; SAFE, Subtle Avoidance Frequency Examination; SCS, Social Comparison Scale; SIAS, Social Interaction Anxiety Scale

Data are mean ± SD unless otherwise indicate

† Dependent T-test (2-tailed)
‡ McNemar test

4.4.2 Intercorrelation of change in variables

Higher change in social anxiety and higher change in paranoia was correlated (r=0.23, p<0.01). The change score between internal shame and external shame was the strongest correlation (r=0.54, p<0.01). There were no significant associations of change in social rank scores with other variables, see **Table 4.3**. Regardless of the change scores, the intercorrelations of variables at baseline and follow-up are presented in **Supplementary Table 4.2**.

Table 4.3 Intercorrelations of the changes in variable score amongst combined Thai and UK population samples (N total=422).

Change variable scores	1	2	3	4	5	6	7	8	9
1. SIAS	1	-	-	-	-	-	-	-	-
2. GPTS Persecutory	0.23*	1	-	-	-	-	-	-	-
3. RIBS	0.13*	0.11	1	-	-	-	-	-	-
4. ISS	0.37*	0.19*	0.04	1	-	-	-	-	-
5. OASS	0.31*	0.28*	0.03	0.54*	1	-	-	-	-
6. SCS	-0.09	0.01	-0.09	-0.06	-0.07	1	-	-	-
7. RSES	-0.17*	-0.09	-0.02	-0.38*	-0.16*	0.16*	1	-	-
8. SAFE	0.44*	0.22*	0.08	0.36*	0.38*	-0.08	-0.14*	1	-
9. DASS Depression	0.23*	0.24*	0.02	0.47*	0.31*	-0.17*	-0.35*	0.19*	1

DASS, Depression Anxiety Stress Scales; GPTS, Green Paranoid Thought Scales; ISS, Internalised Shame Scale; OASS, Other As Shamer Scale; RIBS, Reported and Intended Behaviour Scale; RSES, Rosenberg Self-Esteem Scale; SAFE, Subtle Avoidance Frequency Examination; SCS, Social Comparison Scale; SIAS, Social Interaction Anxiety Scale

* p<0.01
† Change in variable score was an observed value at 3-month follow-up (T2) minus at baseline (T1).

4.4.3 Linear regression analysis associated with predicting paranoia at follow-up

Paranoia score at baseline significantly predicted paranoia score at follow-up (GPTS Persecutory T1: B 0.70, p<0.001) (Model 1,**Table 4.4**) and social anxiety score at baseline significantly predicted paranoia score at follow-up (SIAS T1: B 0.30, p<0.001) (Model 2) in combined Thai and UK samples. After adjusting for depression at baseline in model 4, both paranoia and social anxiety at baseline predicted paranoia at follow-up (GPTS Persecutory T1: B 0.61, p<0.001; and SIAS T1: B 0.07, p<0.05). When all change scores of potential mediators (RIBS, ISS, OASS, SCS, RSES and SAFE) were added to the model controlling for depression, significant predictors of paranoia at follow-up were paranoia and social anxiety at baseline, and change in stigma, external shame and safety behaviours (see Model 5). We also performed an alternative stepwise regression analysis. Consistently, the final model included six significant predictors: paranoia; social anxiety; and depression score at baseline, and change scores of stigma; external shame; and safety behaviours.

4.4.4 Mediation analysis investigating the direct, indirect and total effects of social anxiety (at baseline) towards paranoia (at follow-up) with co-varying as depression and paranoia (at baseline) and social anxiety (at follow-up)

Regarding a simple mediation analysis, social anxiety at baseline was related to paranoia at follow-up through its relationship with the changes in internal shame, external shame and safety behaviours when controlling for depression and paranoia at baseline and social anxiety at follow-up. The direct effect of social anxiety at baseline on change in internal shame was a=-0.57 (p<0.001), the direct effect of change in internal shame on paranoia at follow-up was b=0.10 (p<0.01), and the indirect effect was ab=-0.06 (95%CI=-0.0985, -0.0206) based on 10,000 bootstrapped samples. The other significant indirect effects through changes in external shame and safety behaviours mediators were ab=-0.06 (95%CI=-0.1063, -0.0281) and ab=-0.07 (95%CI=-0.1249, -0.0150). (**Table 4.5**)

Table 4.4 Linear regression analysis associated with dependent variable (GPTS Persecutory T2) predicted by independent variables (N total=422).

Model	Change independent variable score†	Adjusted R^2	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
			B	Std error	Beta		
1	(Constant)	0.51	6.46	0.90		7.16	0.000
	GPTS Persecutory T1		0.70	0.03	0.72	20.96	***0.000***
2	(Constant)	0.20	12.98	1.13		11.54	*0.000*
	SIAS T1		0.30	0.03	0.45	10.40	***0.000***
3	(Constant)	0.53	4.69	1.00		4.71	0.000
	GPTS Persecutory T1		0.63	0.04	0.65	16.96	***0.000***
	SIAS T1		0.10	0.03	0.15	3.93	***0.000***
4	(Constant)	0.53	5.00	1.01		4.97	0.000
	GPTS Persecutory T1		0.61	0.04	0.63	15.92	***0.000***
	SIAS T1		0.07	0.03	0.10	2.22	***0.027***
	DASS Depression T1		0.08	0.04	0.09	1.90	0.058
5 †	(Constant)	0.58	5.37	0.96		5.58	0.000
	GPTS Persecutory T1		0.61	0.04	0.62	16.55	***0.000***
	SIAS T1		0.07	0.03	0.11	2.54	***0.011***
	DASS Depression T1		0.08	0.04	0.09	2.00	***0.046***
	Δ RIBS (items 5-8)		0.30	0.14	0.07	2.13	**0.034**
	Δ ISS		0.05	0.04	0.06	1.39	0.167
	Δ OASS		0.18	0.05	0.13	3.45	***0.001***
	Δ SCS		-0.001	0.02	-0.003	-0.08	0.937
	Δ RSES		-0.01	0.12	-0.003	-0.08	0.940
	Δ SAFE		0.09	0.03	0.10	2.74	***0.006***

DASS, Depression Anxiety Stress Scales; GPTS, Green Paranoid Thought Scales; ISS, Internalised Shame Scale; OASS, Other As Shamer Scale; RIBS, Reported and Intended Behaviour Scale; RSES, Rosenberg Self-Esteem Scale; SAFE, Subtle Avoidance Frequency Examination; SCS, Social Comparison Scale; SIAS, Social Interaction Anxiety Scale

† Regarding the stepwise regression analysis, the final model of GPTS Persecutory T2 included GPTS Persecutory T1 (B 0.62, p<0.001), SIAS T1 (B 0.07, p=0.014), DASS Depression T1 (B 0.07, p=0.061), Δ RIBS (B 0.31, p=0.029), Δ OASS (B 0.22, p<0.001), and Δ SAFE (B 0.10, p=0.002) with adjusted R square 58.3%.

Note: T1 and T2 refer to at baseline and 3-month follow-up; Δ refers to change in variable score which an observed value at T2 minus T1.

Table 4.5 Results of simple and parallel multiple mediation analyses examining direct, indirect and total effects of the independent variable (SIAS T1), dependent variable (GPTS Persecutory T2) and changes in potential mediator score controlling for DASS Depression T1, SIAS T2 and GPTS Persecutory T1.

	Independent variables	Changes in mediator	Effect of social anxiety T1 on change in mediator (a)	Unique effect of change in mediator (b)	Indirect effect (ab)	Bootstrapping bias-corrected 95% CI	Direct effect (c')	Total effect (c)
Simple mediation analysis	GPTS Persecutory T2	RIBS (items 5-8)	**-0.04***	0.24	-0.009	-0.0279, 0.0021	**-0.20*****	**-0.21*****
		ISS	**-0.57*****	**0.10****	**-0.056**	**-0.0985, -0.0206**	**-0.16****	**-0.21*****
		OASS	**-0.31*****	**0.21*****	**-0.064**	**-0.1063, -0.0281**	**-0.15****	**-0.21*****
		SCS	0.20	-0.005	-0.001	-0.0089, 0.0068	**-0.21*****	**-0.21*****
		RSES	**0.07****	-0.09	-0.006	-0.0300, 0.0134	**-0.21*****	**-0.21*****
		SAFE	**-0.70*****	**0.09****	**-0.066**	**-0.1249, -0.0150**	**-0.15****	**-0.21*****
Multiple mediation analysis	GPTS Persecutory T2						-0.10	**-0.21*****
		RIBS (items 5-8)	**-0.04***	0.25	-0.009	-0.0272, 0.0017		
		ISS	**-0.57*****	0.03	-0.018	-0.0668, 0.0267		
		OASS	**-0.31*****	**0.17****	**-0.052**	**-0.0949, -0.0152**		
		SCS	0.20	0.001	0.0003	-0.0068, 0.0089		
		RSES	**0.07****	0.01	0.0004	-0.0225, 0.0229		
		SAFE	**-0.69*****	0.05	-0.036	-0.0923, 0.0189		

GPTS, Green Paranoid Thought Scales; ISS, Internalised Shame Scale; OASS, Other As Shamer Scale; RIBS, Reported and Intended Behaviour Scale; RSES, Rosenberg Self-Esteem Scale; SAFE, Subtle Avoidance Frequency Examination; SCS, Social Comparison Scale; SIAS, Social Interaction Anxiety Scale

* p<0.05, **p<0.01, ***p<0.001

Note: T1 and T2 refer to at baseline and 3-month follow-up; ∆ refers to change in variable score which an observed value at T2 minus T1

A multiple mediation analysis controlling for depression and paranoia at baseline and social anxiety at follow-up was examined to test with all changes in potential variables, shown in **Figure 4.2**. Only external shame showed a significant indirect effect through the relationship of social anxiety at baseline and paranoia at follow-up. The direct effect of social anxiety at baseline on change in external shame was a=-0.31 (p<0.001), the direct effect of change in external shame on paranoia at follow-up was b=0.17 (p<0.01), and the indirect effect was ab=-0.05 (95%CI=-0.0949, -0.0152) based on 10,000 bootstrapped samples.

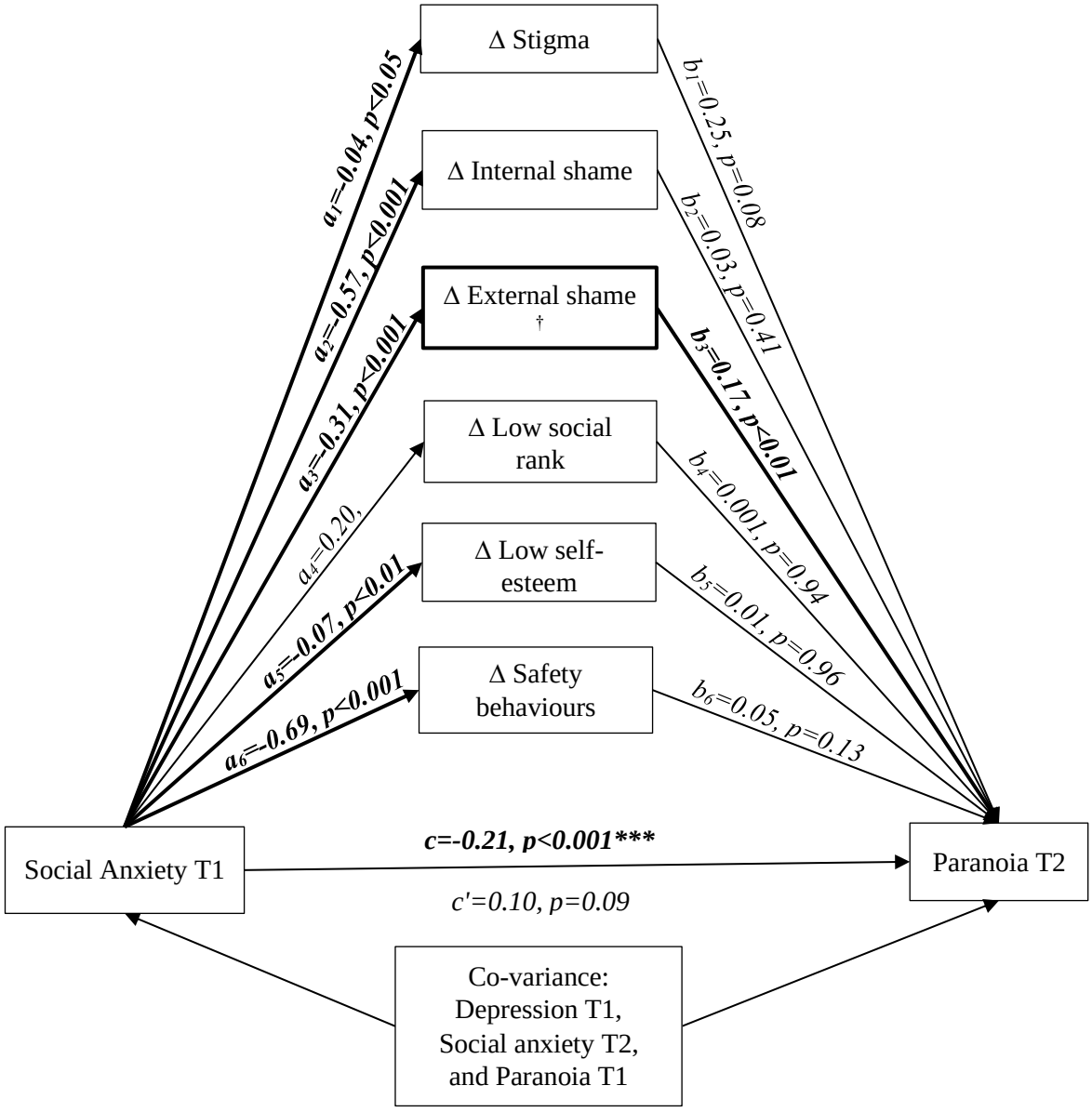

Figure 4.2 The calculated results of the Multiple Mediation analyses of the relationship between change in mediator scores (T2-T1) and social anxiety T1 and paranoia T2.

† Value of indirect effect of the external shame (a3b3) = -0.05, 95%CI -0.0949, -0.0152

Note: T1 and T2 refer to at baseline and 3-month follow-up; Δ refers to change in variable score which an observed value at T2 minus T1.

4.5 Discussion

This study set out to prospectively investigate the mediators between social anxiety and persecutory paranoia. We asked whether changes in stigma, internal and external shame, social rank, self-esteem or safety behaviours fully mediate the social anxiety and paranoia relationship. A prospective design with cross-cultural analogue samples was conducted in two national settings in Thailand and the UK. In the regression analyses, a significant association between paranoia at baseline and paranoia at follow-up as well as social anxiety at baseline and paranoia at follow-up was found amongst the combined two national samples. In a hierarchical regression model, when all changes in potential variable were added with adjusting for depression at baseline, paranoia and social anxiety at baseline and changes in stigma, external shame and safety behaviours factors significantly predicted paranoia at follow-up. Also, the social fears, stigma and shame cognitions along with safety behaviours could play a significant role in predicting paranoia in people with psychosis (Michail, 2013; Aunjitsakul et al., 2021).

Regarding the simple mediation analyses, changes of internal shame, external shame and safety behaviours were partial mediators of the social anxiety-paranoia relationship. In the multiple mediation analysis, the change of external shame was found to be a full mediator. This fits with the existing understanding that negative beliefs about the self and shame could lead to social anxiety in psychosis (Gumley, 2004; Michail, 2013), and that experiences of social anxiety are associated with greater shame in people with psychosis (Birchwood, 2006). Prior studies also show that shame is linked to paranoid ideation (Johnson et al., 2014), and that memories of shame, such as traumatic experiences and individual's self-identity and life story may contribute to paranoid ideation (Matos et al., 2013). Therefore, one possible pathway is that individuals with social anxiety develop persecutory ideas that are reinforced by shame experiences.

Considering shame subtypes, external shame is more strongly associated with paranoia than internal shame (Matos et al., 2013). This is perhaps because external shame is focused on perceived negative aspect of oneself from others' viewpoints (Gilbert, 2003). In turn, suspiciousness along with a catastrophising

style of processing leads to paranoid delusion formation (Freeman, 2007b; Aunjitsakul et al., 2021). A key suggestion from our data is that the pathway from social anxiety to paranoia is mediated by increasing shame related cognitions, particularly external shame experiences.

As for other potential factors, internal shame and safety behaviours were also a significant (partial) mediator in the simple mediation analyses. Meanwhile, stigma, social rank and self-esteem were not a significant mediator. These findings partially supported our a priori hypothesis. A possible explanation may be somewhat limited by lower levels of symptom severity and functional impact in our sample, i.e., lower use of safety behaviours. These factors may be significant amongst people with significant or higher degree of distress (e.g., first-episode psychosis, schizophrenia). Future studies on these factors (e.g., stigma, internal shame, social rank, self-esteem and safety behaviours) with social anxiety-paranoia associations are therefore not recommended in general population but should be undertaken in clinical research.

To our knowledge, this is the first study prospectively surveying social fears and paranoid thinking across cultural settings, aiming to identify potential mediators influencing the relationship between social anxiety and paranoia. The strengths of this study were as follows. This was a cohort study, highlighting that our findings could explain the temporal relationship between social anxiety and paranoia and potential mechanisms. We investigated the potential mechanisms underlying social anxiety and paranoia with utilizing cross-cultural data. Moreover, good to excellent reliability of measures in these samples was established, and our collected sample size is large enough to confident mediator outcomes. There were a few limitations of the current study. Firstly, people without access to the digital means were unable to participate in the study. Secondly, the loss to follow-up in the sample is a limitation due to the study design. Lasty, the samples were convenience samples and not representative of broader populations.

If our finding that external shame that mediates social anxiety and paranoia can be replicated, there is scope for developing innovative treatments that can test this mechanism in a clinical population and in interventionist-causal treatment trials (Kendler and Campbell, 2009). Regarding the standard cognitive

behavioural approach, we suggested to consider helping clients with identifying negative social evaluations along with targeting external shame. It could be effective to develop tailored-made CBT in treating social anxiety in people with psychosis by focusing on shame cognitions (Michail et al., 2017). Furthermore, the mindfulness interventions are feasible and effective for people with psychosis (Khoury et al., 2013). Practicing mindfulness i.e., Compassion Focused Therapy could improve compassion for the self and for others including paranoid symptoms (Brown, Poppy et al., 2020). Because those with paranoia are more likely to attack themselves in a hateful way and less likely to reassure themselves in a supportive way (Brown, Poppy et al., 2020). By doing mindfulness, individuals will be learned how to deal with shame cognitions by fostering and soothing their internal experiences in a supportive way, this could help alleviate paranoid ideation (Castilho et al., 2019) and improve emotional distress and social-related concerns (Braehler et al., 2013).

4.6 Conclusion

Multiple mediation analyses revealed the relationship between social anxiety and paranoia was fully mediated by change in external shame. We suggest that external shame could be tested in further experimental manipulation studies in clinical populations to investigate whether this factor could be targeted as a causal mechanism in treatment of social anxiety and paranoia.

Chapter 5 Characteristics of social anxiety, stigma, shame and safety (defence) behaviours associated with paranoia amongst people with a diagnosis of schizophrenia.

This chapter has been submitted to *Schizophrenia Research*.

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Contributions: I developed research question, prepared study materials, prepared the dataset, and performed data analyses. I and a research assistance (KJ) conducted the study. I drafted the manuscript with inputs from my supervisors (HM and AG) including co-authors (SL and DF). I also took the lead in submitting manuscript and responding to reviewer comments with input from my supervisors.

5.1 Abstract

Social anxiety disorder is a common comorbidity in schizophrenia, but there are no current guidelines on its treatment. Elucidating mechanisms underlying social anxiety and paranoia could further improve effective treatments. We investigated mediators of social anxiety and paranoia in schizophrenia, including negative social appraisals: stigma or shame (Hypothesis 1); and safety behaviours: anxious avoidance or *in situ* defence behaviours (Hypothesis 2). Owing to a paucity of social anxiety-paranoia evidence on non-Western population, this study was conducted in Thailand. A cross-sectional study conducted with outpatients with schizophrenia (January–April 2020). Data on social anxiety, paranoia, depression, shame, stigma, anxious avoidance and *in situ* behaviours were collected. Associations of social anxiety and paranoia were investigated using linear regression. Mediation analysis with 10,000 bias-corrected bootstrap samples with 95% confidence intervals (CI) was used to test indirect effects of mediators. Participants (n=113, 59.3%male) with mean age 44.2-year-old were recruited. The expected linear relationship between social anxiety and paranoia was found. Depression, shame, stigma and *in situ* behaviours were significantly associated with paranoia. In multiple mediation analyses (co-varying for depression), stigma and shame (Hypothesis 1) did not show significant indirect effects while *in situ* behaviours (Hypothesis 2) showed a significant indirect effect through social anxiety-paranoia relationship (ab=0.11, 95%CI=0.0379, 0.2013; a=0.21, p<0.001; b=0.50, p<0.05; c'=-0.04, p=0.55; and c=0.10, p=0.14). Social anxiety and paranoia were positively correlated. *In situ* safety behaviours fully mediated the social anxiety and paranoia relationship. Targeted intervention focusing on safety behaviours could help reduce social anxiety and paranoia in psychosis.

Keywords: Cognition, Mediation Analysis, Paranoid Disorders, Safety behaviour, Shame, Social anxiety

5.2 Introduction

Social Anxiety Disorder (SAD) is a common psychological comorbidity in schizophrenia (McEnery et al., 2019). Individuals with schizophrenia and comorbid SAD experience lower functioning, lower self-esteem (Karatzias et al., 2007), and greater problems with social activities and relationships (Agid et al., 2012). Cognitive behavioural therapy (CBT) is the treatment of choice for SAD (Mayo-Wilson et al., 2014; Acarturk et al., 2009) and can be used to reduce psychotic symptoms in psychosis (Wykes et al., 2008; Taylor and Perera, 2015). However, there is no current advice on the use of psychological interventions (e.g., CBT) in treating SAD in people with psychosis and no evidence of mechanistically focused treatments of social anxiety in psychosis (Michail et al., 2017).

The hierarchical paranoia model has been used to provide a framework to portray the relationships and overlapping constructs between persecutory paranoid and social anxiety fears (Freeman et al., 2005b). Psychological interventions could be improved through identifying manipulable mechanisms that underlie the relationship between social anxiety and persecutory delusions (Michail et al., 2017). We were firstly interested in appraisals about loss of social role, feeling different from others, and enforced low social status that may worsen social fears (Aunjitsakul et al., 2021; Iqbal et al., 2000). As a result, shame and stigma related cognitions could develop when individuals believe they have failed to live up to social standards (Welten et al., 2012). Several studies have shown that both shame and stigma are higher in socially anxious people (Michail, 2013) and that these help predict social anxiety amongst those with psychosis (Birchwood, 2006; Aherne, K., 2014; Lysaker, 2010). Negative appraisals, particularly shame and stigma cognitions, could be an important factor to help explain the transition from social anxiety through to paranoid ideation.

Considering behavioural aspect, safety behaviours (e.g., avoiding eye contact, or speaking softly) are commonly used by people with social anxiety to deal with socially feared events (Smart and Wegner, 1999a; Haghighat, 2001). People with psychosis frequently also use safety behaviours (e.g., avoidance, in-situation behaviours, or escape) to deal with persecutory threats (Freeman et al., 2007b).

Because safety behaviours often prevent the processing of disconfirmatory evidence, and are a factor in persistence of both social anxiety (Smart and Wegner, 1999a) and delusional thinking (Freeman et al., 2007b), these behaviours could provide an important target for psychological treatment.

Sociocultural context may also be an important modulator of negative appraisals such as stigma or shame reactions. Individuals with mental illness will be judged and treated differently in many societies (Haghighat, 2001), and socio-cultural factors additionally play an important role in the expression of psychopathology (Tseng, 2001). Studies related to paranoid thinking have mainly been conducted in Western settings (Kaymaz and van Os, 2010; Linscott and van Os, 2010; Freeman, 2005; Johns LC, 2004), and there is insufficient information from non-Western populations. Furthermore, culture is an important influence on mental ill-health and social evaluation concerns, such as belief contents affecting persecutory delusions (Skodlar et al., 2008); levels of social discrimination associated with mental illness (Moleiro, 2018); each contextual norm and value causing different shameful experiences (Ha, 1995); or each social interaction context leading to different manners of safety behaviours (Piccirillo, M.L., Taylor Dryman, M., Heimberg, R.G., 2016). There is likely to be the expression of social anxiety in psychosis and its underlying mechanisms being affected by the cultural context. To examine these cross-cultural influences, this study conducted amongst non-Western population, Thailand.

We set out to test if social anxiety and paranoia relationships are mediated by negative appraisals (shame or stigma) and safety behaviours factors (anxious avoidance and *in situ* defence behaviour) in people with schizophrenia. We firstly hypothesized whether cognitions: shame or stigma may contribute to be a key mediator of the social anxiety and paranoia relationship after controlling for depression. Of this relationship, secondly, we also tested whether behavioural strategies: anxious avoidance or *in situ* defence behaviours could be an important mediator.

5.3 Methods

This is a cross-sectional study conducted in individuals diagnosed with schizophrenia who were followed-up at the out-patient department (OPD). The

study was approved by the Ethics Committee of the Faculty of Medicine, Prince of Songkla University, Thailand (Code: REC.62-394-3-1) in accordance with the ethical principles of the Declaration of Helsinki.

5.3.1 Participants

Individuals diagnosed with schizophrenia with diagnostic code F20 according to ICD-10 (World Health Organization, 2016) and a chronic stage of psychosis were recruited. Inclusion criteria were that participants were aged at least 18-years-old and no hospital admission or medication changes in last three months. We also included individuals at any severity level who have a capacity to provide informed consent and to participate, as evaluated by a psychiatrist or a suitably qualified health professional who was independent of the research team. Individuals who are unable to meaningfully communicate in the Thai language were excluded.

5.3.2 Measurements

There are five instruments used in this study, one instrument which is the Thai version of the Depression Anxiety Stress Scale (DASS) (Webster et al., 2013). The other four English language instruments were forward and backward translated using guidelines for the cross-cultural adaptation of self-report measures (Beaton, 2000; Van Ommeren, 1999). The translation process for Thai versions started from two translations by Warut Aunjitsakul (WA) and a PhD student in another field. Two independent professional translators being naïve to outcome measurement create back translations, English to Thai. Experts in the field (Sinead Lambe, Hamish McLeod and Andrew Gumley) reviewed all translations.

Measurement tools

Paranoia

The Revised Green et al. Paranoid Thought Scales (R-GPTS) is an 18-item questionnaire with an ideas of social reference subscale (8 items) and paranoia subscale (10 items). Items are scored on a 5-point Likert scale anchored by 0 (not at all) and 4 (total) giving a range of social reference scores between 0-32 and paranoia scores between 0-40. Higher scores indicate greater levels of

paranoid thinking. R-GPTS has shown excellent psychometric properties with Cronbach's alpha 0.90 (Freeman et al., 2019a) and 0.94 in this study.

Social Anxiety

The Social Interaction Anxiety Scale (SIAS) is a 20-item questionnaire using a 5-point scale from 0 (not at all) to 4 (extremely). This yields a total score from 0-80, with higher scores indicating higher levels of social anxiety. The scale has been shown to have good reliability (test-retest correlations 0.92), internal consistency (Cronbach's alpha 0.94) and validity (Mattick, 1998). Our calculated Cronbach's alpha was at 0.88. Consistent with previous studies, scores over 36 were used to determine the presence of significant social phobia (Peters, 2000).

Shame and stigma

The Personal Beliefs about Illness Questionnaire–Revised (PBIQ-R) (Birchwood et al., 2012) was used for assessing shame and stigma based on patient's appraisals of their post-psychotic experiences. It is a 20-item rating using a 4-point Likert scale. The PBIQ-R contains five subscales: shame; loss; entrapment; control over illness; and social marginalization/group fit (or stigma). The subscales of shame (PBIQ-R Shame) and stigma factors (PBIQ-R Stigma) were used as a mediator of the link between social anxiety and paranoia. Test-retest reliability of shame (0.84) and stigma (0.64) are acceptable to good. Cronbach's alpha of shame and stigma are also good with 0.73 and 0.78 (Birchwood et al., 2012) as well as 0.84 and 0.83 (this study).

Safety behaviours (specifically to paranoia)

The Oxford Cognitions and Defences Questionnaire (O-CDQ) is 46-item measure rated on a 4-point Likert scale from 0 (never) to 4 (always). The questions include three main factors related to 1) threat cognitions (O-CDQ Fearful thoughts); 2) anxious avoidance (O-CDQ Avoidance); and 3) putting up defences when outside or *in situ* defence behaviours (O-CDQ *In situ* behaviours) (Rosebrock et al.). The latter two factors: O-CDQ Avoidance and O-CDQ *In situ* behaviours are the safety behaviour factors which were used as mediators between social anxiety and paranoia. O-CDQ showed excellent psychometric

properties with Cronbach's alpha: threat cognitions 0.93, avoidance 0.94 and *in situ* behaviours 0.93; and test-retest reliability: threat cognitions 0.88, avoidance 0.92 and *in situ* behaviours 0.89 (Rosebrock et al.). From our analyses, Cronbach's alpha of O-CDQ Fearful thoughts, Avoidance and *In situ* behaviours were 0.91, 0.89 and 0.85, respectively.

Depression

The DASS-42 (Webster et al., 2013) measures general negative affect and distress in the domains of depression, anxiety, and stress. We only measured the 14-item depression sub-scale, as a covariance factor. The instrument is a 4-point scaled items with 0 (did not apply to me at all) to 3 (applied to me very much). The DASS scale showed good psychometric properties for depression (Cronbach's alpha 0.91) (Lovibond, 1995; Webster et al., 2013), and was validated across Asian samples including Thailand with Cronbach's alpha 0.70-0.86 (Oei, 2013) and 0.94 (this study).

5.3.3 Data collection

A convenience sample were invited to participate by a nurse at OPD; the nurse was not a part of the research team. After giving consent, the questionnaires were given to participants by a researcher (WA) or a research assistant (Kreuwan Jongbowonwiwat). Participants were asked to complete the five instruments in Thai version. Brief demographics including age, gender, ethnicity, religious, income and academic qualification were also collected. Participants could request a researcher or a research assistant to help read and fill in the questionnaire.

5.3.4 Data analysis

IBM SPSS Statistics for Windows, Version 27.0 was used for data analyses. Pearson's correlation coefficients were used to calculate inter-variable associations. Considering the hypotheses, we checked assumptions for interpretation of mediation analyses including linearity and multicollinearity. Regarding the linear associations of social anxiety with paranoia, we used linear regression model to investigate the associations. Stepwise multiple regression

analysis was also used to confirm the final model of the social anxiety-paranoia association. Multicollinearity was also checked in the regression model (factors with Variance Inflation Factor >5 and tolerance <0.2 will be excluded) (Christopher, 2019). There were no assumption violations related to linearity and multicollinearity, this allowed us to continue using mediation analyses.

The mediation analysis was addressed to test which variable(s) mediating the association between social anxiety and paranoia. The simple and parallel multiple mediation analyses with co-varying for depression were established, using shame and stigma (Hypothesis 1) and anxious avoidance and *in situ* defence behaviour (Hypothesis 2) as a mediator. The PROCESS macro for SPSS version 3.4 was used for the mediation analyses (Hayes, 2018). 10,000 bias-corrected bootstrap samples were performed to estimate 95% confidence intervals of the indirect effect.

Due to this study being conducted between January and April 2020 amid the SARS-COVID-19 novel coronavirus outbreak, it is plausible that some anxious avoidance and *in situ* defence behaviour was attributable to fear of COVID-19 infection. Hence, some increase in negative appraisals, fearful thoughts about social interaction, decreased socialization or avoid public places may have been part of a normal reaction to a legitimate health threat. To explore this, we used the 11 March 2020 date when the World Health Organization announced COVID-19 as a pandemic disease to categorise study participants into two groups: 1) those who provided data pre-pandemic (1 January-11 March 2020); and 2) those who completed after the pandemic was declared (12 March-30 April 2020). We performed a post-hoc analysis, firstly, to compare the data profiles between pre and post pandemic declaration groups. Secondly, although the O-CDQ Threat cognitions were not in our hypotheses, we additionally applied this outcome using linear regression and mediation analyses, as these worrying thoughts could be theoretically affected by the pandemic. In addition, we created pre/post-COVID-19 pandemic variable for adjusting mediation analyses (along with depression) to test whether the mediator outcomes (in Hypothesis 1 and 2) affected by this pandemic duration or not.

5.4 Results

5.4.1 Sample characteristics

We approached 130 individuals with schizophrenia, 113 respondents (86.9%) completed the questionnaire, nine (6.9%) declined to participate and eight (6.2%) were excluded due to language barrier or illness factor (e.g., severe disorganization). Of the complete responders, 59.3% were male and mean age was 44.2 years. All but one were educated at least to primary school level. Mean SIAS score was 21.6, and 9.7% met threshold for social phobia. Other factors are described in **Table 5.1**.

5.4.2 Inter-correlation of potential variables

SIAS and R-GPTS Persecutory were significantly correlated with all variables. The highest correlation coefficients of SIAS and R-GPTS Persecutory were found with O-CDQ Fearful thoughts ($r=0.73$, $p<0.01$ and 0.74, $p<0.01$). Regarding the factors of interest, the significant correlations of SIAS were found with O-CDQ *In situ* behaviours ($r=0.58$, $p<0.01$), O-CDQ Avoidance ($r=0.50$, $p<0.01$), PBIQ-R Shame ($r=0.35$, $p<0.01$) and PBIQ-R Stigma ($r=0.33$, $p<0.01$). Additionally, R-GPTS Persecutory was significantly correlated with O-CDQ *In situ* behaviours ($r=0.57$, $p<0.01$), O-CDQ Avoidance ($r=0.47$, $p<0.01$), PBIQ-R Stigma ($r=0.36$, $p<0.01$) and PBIQ-R Shame ($r=0.25$, $p<0.01$). Other bivariate correlation coefficients are showed in **Table 5.2**.

5.4.3 Linear regression model in associated with R-GPTS Persecutory

SIAS was significantly associated with R-GPTS Persecutory (B 0.33, $p<0.001$) (Model 1, **Table 5.3**), however, after controlling for DASS Depression this relationship was no longer significant (Model 4). When controlling for DASS Depression in the social anxiety and paranoia relationship, PBIQ-R Shame (B -0.75, $p=0.031$) and PBIQ-R Stigma (B 0.88, $p=0.022$) were significantly associated with R-GPTS Persecutory (Model 5), meanwhile only O-CDQ *In situ* behaviours was significantly associated with R-GTPS Persecutory (B 0.47, $p=0.002$) (Model 6). To confirm these relationships, we used stepwise regression analyses. Of negative social appraisals, PBIQ-R Shame and PBIQ-R Stigma were not

significantly associated with R-GTPS Persecutory, only DASS Depression (B 0.65, p<0.001) was significant, the final model accounting for 37.1% of variance. The model with safety behaviours, accounting for 47.1% of variance, O-CDQ *In situ* behaviours (B 0.57, p<0.001) and Depression (B 0.47, p<0.001) were significant.

Table 5.1 Demographic and psychological factors of people with schizophrenia (N=113)

Variables	Mean ± S.D.	Min-Max
Gender; n (%)		
Male	67 (59.3)	
Female	46 (40.7)	
Age (Years)	44.2 ± 13.1	18-70
Religious; n (%)		
Buddhist	93 (82.3)	
Islam	19 (16.8)	
Other	1 (0.9)	
Highest education; n (%)		
Primary school and None	14 (12.4)	
Junior high school	11 (9.7)	
Senior high school	37 (32.7)	
Vocational degree	16 (14.2)	
Bachelor's degree and Postgraduates	35 (31.0)	
Income (GBP†); n (%)		
No income	25 (22.1)	
<250	45 (39.8)	
250-615	25 (22.1)	
>615-1230	14 (12.4)	
Prefer not to say	4 (3.5)	
SIAS	21.6 ± 11.9	4-61
SIAS; n (%)		
≤36	102 (90.3)	
>36 (social phobia group)	11 (9.7)	
R-GPTS		
Reference	7.2 ± 6.0	0-26
Persecutory	7.4 ± 8.1	0-33
PBIQ-R		
Control over illness	9.5 ± 2.8	4-16
Shame	9.2 ± 2.7	4-16
Entrapment	9.5 ± 3.0	4-16
Loss	9.4 ± 2.7	4-16
Social marginalization/group fit (Stigma)	8.7 ± 2.5	4-16
O-CDQ		
Threat cognitions	8.0 ± 6.9	0-31
Anxious avoidance	9.7 ± 8.5	0-41
In situ defence behaviours	6.8 ± 5.2	0-24
DASS Depression	6.6 ± 7.7	0-37

O-CDQ, Oxford Cognitions and Defences Questionnaire; DASS, Depression Anxiety Stress Scales; PBIQ-R, Personal Beliefs about Illness Questionnaire-Revised; R-GPTS, Revised Green Paranoid Thought Scales; SIAS, Social Interaction Anxiety Scale

Data are mean ± SD unless otherwise indicate

Table 5.2 Intercorrelations of potential variables of people with schizophrenia (N total=113)

Variables	1	2	3	4	5	6	7	8	9	10	11	12
1. SIAS	1	-	-	-	-	-	-	-	-	-	-	-
2. R-GPTS Reference	0.62*	1	-	-	-	-	-	-	-	-	-	-
3. R-GPTS Persecutory	0.48*	0.77*	1	-	-	-	-	-	-	-	-	-
4. PBIQ-R Control over illness	0.28*	0.35*	0.36*	1	-	-	-	-	-	-	-	-
5. PBIQ-R Shame	0.35*	0.41*	0.25*	0.67*	1	-	-	-	-	-	-	-
6. PBIQ-R Entrapment	0.43*	0.45*	0.38*	0.83*	0.77*	1		-	-	-	-	-
7. PBIQ-R Loss	0.36*	0.43*	0.42*	0.84*	0.75*	0.87*	1	-	-	-	-	-
8. PBIQ-R Social marginalization/group fit (Stigma)	0.33*	0.39*	0.36*	0.78*	0.75*	0.78*	0.79*	1	-	-	-	-
9. O-CDQ Threat cognitions	0.73*	0.73*	0.74*	0.38*	0.38*	0.52*	0.46*	0.35*	1	-	-	-
10. O-CDQ Anxious avoidance	0.50*	0.51*	0.47*	0.18	0.18	0.26*	0.19	0.15	0.49*	1	-	-
11. O-CDQ *In situ* defence behaviours	0.58*	0.53*	0.57*	0.27*	0.26*	0.31*	0.27*	0.23	0.66*	0.60*	1	-
12. DASS Depression	0.64*	0.64*	0.61*	0.44*	0.48*	0.56*	0.56*	0.46*	0.72*	0.40*	0.46*	1

O-CDQ, Oxford Cognitions and Defences Questionnaire; DASS, Depression Anxiety Stress Scales; PBIQ-R, Personal Beliefs about Illness Questionnaire-Revised; R-GPTS, Revised Green Paranoid Thought Scales; SIAS, Social Interaction Anxiety Scale

* $p<0.01$

Table 5.3 Linear regression analysis of R-GPTS persecutory (a dependent variable) testing hypothesis 1 and 2, in the Model 5 † and Model 6 ‡, respectively. (N=113)

Model	Independent variables	Adjusted R^2	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
			B	Std error	Beta		
1	(Constant)	0.22	0.29	1.41		0.20	0.839
	SIAS		0.33	0.06	0.48	5.74	**0.000**
2	(Constant)	0.22	0.34	3.29		0.10	0.918
	SIAS		0.33	0.06	0.48	5.30	**0.000**
	Age		-0.001	0.06	-0.002	-0.02	0.985
3	(Constant)	0.21	1.45	3.86		0.38	0.708
	SIAS		0.32	0.06	0.47	5.19	**0.000**
	Age		0.000	0.06	0.001	0.01	0.994
	Gender (Male)		-0.78	1.40	-0.05	-0.55	0.581
4	(Constant)	0.37	3.46	3.46		1.00	0.319
	SIAS		0.09	0.07	0.13	1.27	0.205
	Age		0.002	0.05	0.003	0.04	0.972
	Gender (Male)		-1.29	1.25	-0.08	-1.03	0.304
	DASS Depression		0.56	0.10	0.53	5.42	0.000
5 †	(Constant)	0.40	4.50	3.82		1.18	0.242
	SIAS		0.08	0.07	0.11	1.08	0.281
	Age		-0.03	0.05	-0.04	-0.50	0.619
	Gender (Male)		-1.51	1.23	-0.09	-1.22	0.224
	DASS Depression		0.56	0.11	0.53	5.07	**0.000**
	PBIQ-R Shame		-0.75	0.34	-0.25	-2.19	**0.031**
	PBIQ-R Social marginalization/group fit (Stigma)		0.88	0.38	0.27	2.32	**0.022**
6 ‡	(Constant)	0.47	2.86	3.22		0.89	0.377
	SIAS		-0.06	0.07	-0.08	-0.77	0.445
	Age		-0.01	0.05	-0.01	-0.13	0.900
	Gender (Male)		-1.34	1.18	-0.08	-1.14	0.256
	DASS Depression		0.49	0.10	0.46	5.10	**0.000**
	O-CDQ Anxious avoidance		0.14	0.09	0.15	1.61	0.110
	O-CDQ *In situ* defence behaviours		0.47	0.15	0.30	3.19	**0.002**

O-CDQ, Oxford Cognitions and Defences Questionnaire; DASS, Depression Anxiety Stress Scales; PBIQ-R, Personal Beliefs about Illness Questionnaire-Revised; R-GPTS, Revised Green Paranoid Thought Scales; SIAS, Social Interaction Anxiety Scale

† Regarding the stepwise regression analysis, the final model of R-GPTS Persecutory included only Depression (B 0.65, p<0.001) with adjusted R square 37.1%.

‡ Regarding the stepwise regression analysis, the final model of R-GPTS Persecutory included Depression (B 0.47, p<0.001) and O-CDQ *In situ* defence behaviours (B 0.57, p<0.001) with adjusted R square 47.1%.

5.4.4 Mediation analysis testing theoretical hypotheses with potential factors

We investigated the relationship between social anxiety and paranoia with potential mediators. Regarding a simple mediation analysis, SIAS related to R-GPTS Persecutory through its relationship with O-CDQ Avoidance and O-CDQ *In situ* behaviours, the indirect effect based on 10,000 bootstrapped samples was ab=0.07 (95%CI=0.0208, 0.1485; a=0.30, p<0.001; b=0.24, p<0.01) and 0.12 (95%CI=0.0526, 0.2179; a=0.21, p<0.001; b=0.59, p<0.001), respectively. The other effects are presented in **Table 5.4**.

To test two priori hypotheses when mediators being shame and stigma (Hypothesis 1), and anxious avoidance and *in situ* defence behaviours (Hypothesis 2), we used the multiple parallel mediation analysis controlling for depression. Considering the first hypothesis: the social anxiety-paranoia relationship is mediated by stigma or shame (see **Figure 5.1, Panel A**), PBIQ-R Shame and PBIQ-R Stigma did not show significant indirect effects. It revealed only significant direct effect of PBIQ-R Shame (b=-0.69, p<0.05) and PBIQ-R Stigma (b=0.80, p<0.05) on RGTPS Persecutory.

The second hypothesis: the social anxiety-paranoia relationship is mediated by anxious avoidance or *in situ* defence behaviours (see **Figure 5.1, Panel B**), O-CDQ *In situ* behaviours showed a significant indirect effect through the relationship of SIAS related R-GPTS Persecutory when controlling for DASS Depression. The direct effect of SIAS on O-CDQ *In situ* behaviours was a=0.21 (p<0.001), the direct effect of O-CDQ *In situ* behaviours on RGTPS Persecutory was b=0.50 (p<0.01), and the indirect effect was ab=0.11 (95% CI=0.0379, 0.2013) based on 10,000 bootstrapped samples.

Table 5.4 Results of simple and parallel multiple mediation analyses examining direct, indirect and total effects of independent variable (social anxiety) and dependent variables (R-GPTS persecutory) with co-variances (DASS Depression) through mediators. (N=113)

	Independent variables	Mediators	Effect of SIAS on mediator (a)	Unique effect of mediator (b)	Indirect effect (ab)	Bootstrapping bias-corrected 95% CI	Direct effect (c')	Total effect (c)
Simple Mediation analysis	R-GPTS	PBIQ-R Shame	0.01	-0.19	-0.003	-0.0226, 0.0167	0.10	0.10
	Persecutory	PBIQ-R Social marginalization (Stigma)	0.01	0.30	0.004	-0.0132, 0.0312	0.10	0.10
		O-CDQ Anxious avoidance	**0.30*** **	**0.24****	**0.07**	**0.0208, 0.1485**	0.03	0.10
		O-CDQ *In situ* defence behaviours	**0.21*** **	**0.59*** **	**0.12**	**0.0526, 0.2179**	-0.02	0.10
Multiple Mediation analysis	R-GPTS						0.10	0.10
	Persecutory	PBIQ-R Shame	0.01	**-0.69***	-0.01	-0.0530, 0.0327		
	(Hypothesis 1)	PBIQ-R Social marginalization (Stigma)	0.01	**0.80***	0.01	-0.0268, 0.0594		
	R-GPTS						-0.04	0.10
	Persecutory	O-CDQ Anxious avoidance	**0.30*** **	0.12	0.04	-0.0045, 0.0952		
	(Hypothesis 2)	O-CDQ *In situ* defence behaviours	**0.21*** **	**0.50****	**0.11**	**0.0379, 0.2013**		

O-CDQ, Oxford Cognitions and Defences Questionnaire; DASS, Depression Anxiety Stress Scales; PBIQ-R, Personal Beliefs about Illness Questionnaire-Revised; R-GPTS, Revised Green Paranoid Thought Scales; SIAS, Social Interaction Anxiety Scale

* p<0.05, **p<0.01, ***p<0.001

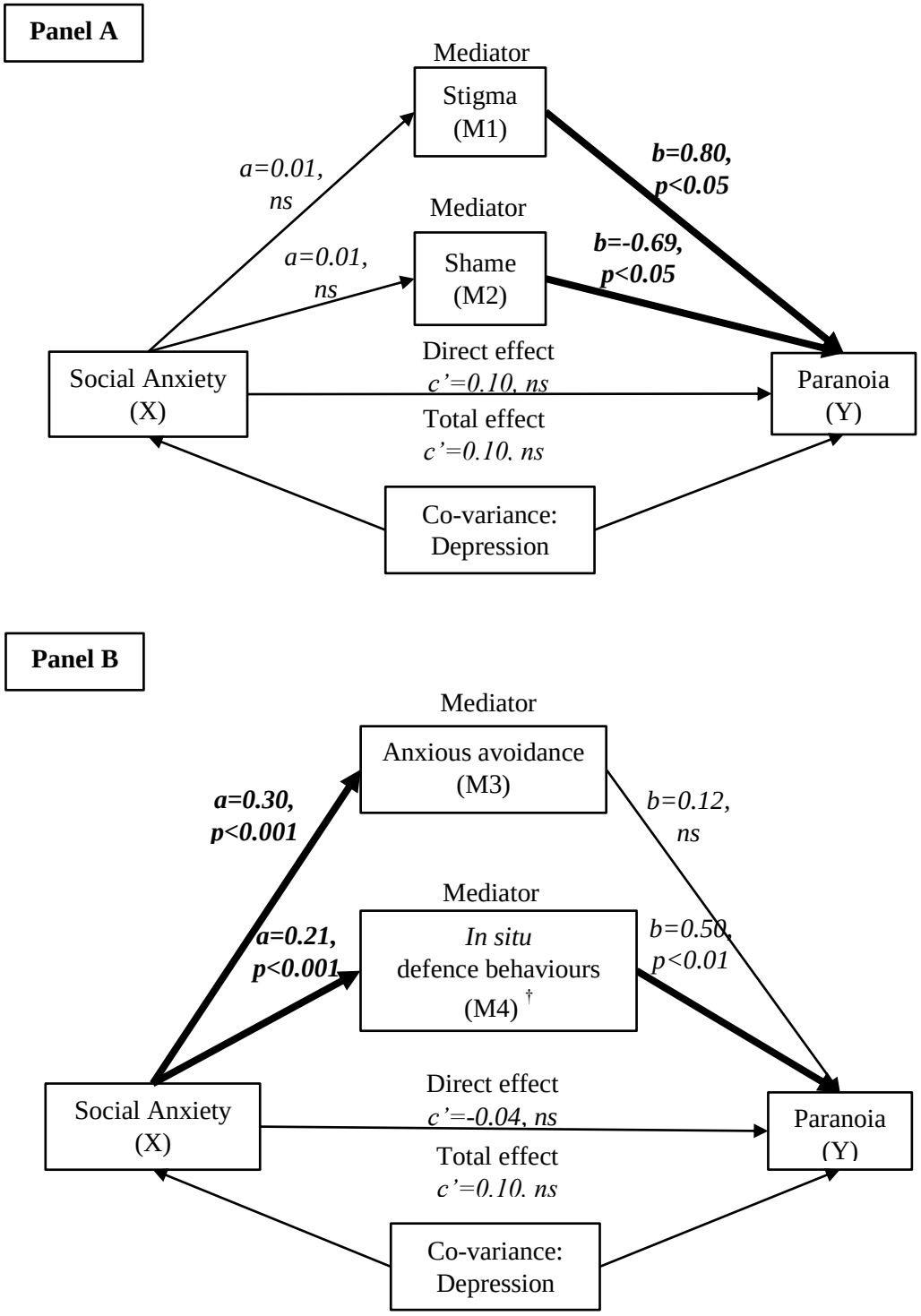


Figure 5.1 The Multiple mediation analyses of the relationship between social anxiety and paranoia with Shame and Stigma (Hypothesis 1, Panel A) and Anxious avoidance and *In situ* defence behaviours (Hypothesis 2, Panel B).

† Value of indirect effect of the *In situ* defence behaviours (M3): ab=0.105, 95%CI=0.0379, 0.2013

Note: ns: not significant

5.4.5 Post-hoc analyses

R-GPTS Persecutory showed significant linear relationships with SIAS (B -0.19, p=0.006), O-CDQ Threat cognitions (B 0.74, p<0.001) and O-CDQ Avoidance (B 0.15, p=0.060). (**Supplementary Table 5.1**). In the stepwise regression analysis, only O-CDQ Threat cognitions (B 0.88, p<0.001) was a significant factor in associated with R-GPTS Persecutory, accounting for 53.5% of variance.

In the simple mediation analysis, O-CDQ Threat cognitions showed a significant indirect effect with ab=0.22 (95%CI=0.1102, 0.3389); a=0.26 (p<0.001); b=0.84 (p<0.001); c'=-0.11 (p=0.07); and c=0.10 (p=0.14). While in the multiple mediation analysis with three safety behaviours (see **Supplementary Figure 5.1)**, O-CDQ Threat cognitions showed a significant indirect effect with ab=0.18 (95%CI=0.0857, 0.3036); a=0.26 (p<0.001); b=0.72 (p<0.001); c'=-0.16 (p=0.01); and c=0.10 (p=0.14). (**Supplementary Table 5.2**)

Due to the COVID-19 pandemic that may affect safety behaviours outcomes, we analysed differences between pre (n=94) and post (n=19) pandemic declaration groups. There were no significant differences of sociodemographic data between groups. Considering the psychological factors, individuals in the post-group reported significantly higher 5.94 score of O-CDQ Avoidance than those pre-group (mean score of pre- vs post-group: 8.7±7.6 vs 14.6±11.2; $t_{21.485}$=-2.216; p=0.038). There were no other statistical differences.

Additionally, according to negative appraisals and safety behaviours factor may be affected by COVID-19 pandemic, we performed mediation analysis controlling for depression and additionally pre/post-COVID-19 pandemic variable. It resulted in replicate findings of calculated mediator outcomes (of Hypothesis 1 and 2) between with and without controlling for the COVID-19 group.

5.5 Discussion

With the aim of examining the mechanisms of the relationship between social anxiety and paranoia in schizophrenia in a non-Western sample, we tested whether negative social appraisals (shame or stigma) and safety behaviours (anxious avoidance or *in situ* defence behaviours) would fully mediate the social

anxiety-paranoia relationship. We found that there was a linear relationship between social anxiety and paranoia, but this was no longer significant when controlling for depression. Hierarchical regression analyses controlling for age, gender and depression, found that shame, stigma and *in situ* defence behaviours were significantly associated with paranoia. In the stepwise regression analyses, only *in situ* defence behaviours was found to be a significant factor. We then conducted mediation analyses and found that stigma and shame were not significant mediators, whereas *in situ* defence behaviours was a full mediator of social anxiety and paranoia relationship after co-varying for depression.

Because our study conducted amid the COVID-19 pandemic and this may influence negative appraisals and safety behaviours, the post-hoc analyses were then performed. There were no significant differences of sociodemographic and potential variables between pre and post pandemic declaration groups. In the mediation analyses when controlling pre/post-COVID-19 pandemic variable, we found no differences in mediating effect whether controlling for the COVID-19 variable. Thus, the pre/post- pandemic groups were less likely to affect negative appraisals or safety behaviours of people with psychosis.

Contrary to our expectations, stigma and shame were not significant mediators of the social anxiety-paranoia relationship. One explanation was that depression could confound mediator outcomes of this relationship because it leads to negative appraisals in psychosis (Karatzias et al., 2007; Birchwood et al., 1993) and also links to social discrimination or unattractiveness concerns (Karatzias et al., 2007; Gumley, 2004) including interpersonal worry and threat (mis)interpretation (Freeman et al., 2008). Due to the fact that negative social appraisals including stigma and shame could theoretically explain and are suggested to be targeted in treatment of social anxiety in psychosis (Aunjitsakul et al., 2021), further clinical work with a larger study is required to develop a full picture of stigma and shame in alleviating social fears or persecutory paranoia in psychosis.

Safety behaviours was found to be a full mediator between social anxiety and paranoia in this current study. It could be explained that individuals with schizophrenia if perceive threats as a misperception influenced by social anxiety or paranoia cognitions, they may feel different or fear of being judged

(Haghighat, 2001) or being unattractive (Trower and Gilbert, 1989). Then, individuals may design actions—safety behaviours—to prevent their feared catastrophe from occurring (Salkovskis, P.M. et al., 1996). This resulted in persistence of social anxiety (Smart and Wegner, 1999a), delusional thinking (Freeman et al., 2007b) and emotional distress (Tully et al., 2017). According to this, our data supported the possibility that safety behaviours could be a crucial factor to be targeted in treating social anxiety and paranoia in people with psychosis.

Moreover, the results of this research highlighted the idea of using behavioural strategies as a key ingredient of cognitive behavioural approaches for people with psychosis (Wykes et al., 2008). Since it evidenced that paranoia can be conceptualized as a type of anxious fear (Freeman et al., 2008) and strongly links to social anxiety (Freeman et al., 2005b), it is suitable to modify treatment approach used to treat anxiety disorder in individuals with psychosis. Additionally, behavioural exposure, which is assumed to be vital to its efficacy, is a central element of CBT for treatment of anxiety disorder (Silverman and Kurtines, 1996; Craske et al., 2014; Waters and Craske, 2016). Causal Interventionist treatment trials (Kendler and Campbell, 2009) are required to test effectiveness of modifying safety behaviours in treating either social anxiety or paranoia in people with psychosis.

This is the first study investigating the mediators that affect the relationship between social anxiety and paranoia in a non-western clinical population. The strengths of this study were as follows. Firstly, our findings could cross-culturally confirm that there was a significant association of social anxiety and paranoia in non-Western setting (Thailand), alike Western settings (Aherne, Keith, 2014; Matos et al., 2013; Newman Taylor and Stopa, 2013; Piccirillo, M.L., Heimberg, R.G., 2016). Secondly, we found a potential mediator which safety behaviours not only relevant to theoretical understanding but also was found to play a role in affecting the link between social anxiety and persecutory delusions. Therefore, these findings help shed some light on development of treatments for people with psychosis. There were a few limitations of this study. Because there was an unexpected pandemic of COVID-19, it could affect mental health and social functioning of our sample. So, we carefully analysed data comparing

between pre and post pandemic declaration groups and checked outcomes by adjusting data analyses with pre/post-COVID-19 pandemic variable. This resulted in only anxious avoidance was significantly affected and no outstanding differences of data between pre- and post-pandemic groups controlling with the pre/post-COVID-19 pandemic variable. The number of participants recruited in after pandemic group was less likely to cause confounding mediation outcomes. According to the study design, the use of convenience sampling method might not be fully representative of study participants due to perhaps selection bias, and further longitudinal work is warranted to support our findings because of limited a casual explanation. Additionally, although the prevalence of comorbid social anxiety in psychosis was not the primary objective, unfortunately this study found 9.7% met threshold for social phobia. It could be due to the fact that in chronic schizophrenia might be affected by cognitive social deficit (Fett et al., 2011; Achim et al., 2013) or they may keep themselves inside the house (self-isolation or social exclusion) (Reddy et al., 2019; Michael and Park, 2016). So, the less social exposure, the less socially anxious fear presents, causing lower prevalence of social anxiety in this study. The usefulness of mechanism of safety behaviours in social anxiety and paranoia relationship remains to be elucidated in experimental study. Larger clinical study examining stigma and shame related cognitions in this relationship along with intervention design should be repeated.

5.6 Conclusion

The safety behaviours are the key mechanism underlying the relationship between social anxiety and persecutory thinking in people with established psychosis. The *in situ* defence behaviours was found to be a full mediator of the relationship. We also found that negative social appraisals (shame and stigma) as well as safety behaviours (*in situ* defence behaviours) were associated with paranoia. A greater focus on causal and mechanistic approach could produce robust findings of safety behaviours for development of targeted intervention treating social anxiety and paranoia in people with psychosis.

Chapter 6 General Discussion

6.1 Main findings

With reference to the gap of knowledge of the therapeutic mechanisms underpinning psychological intervention of social anxiety in psychosis, the overarching aims of this thesis were, firstly, to synthesize the literature to identify mechanisms for treatment of social anxiety in psychosis and, secondly, to investigate the mediating mechanisms of social anxiety and paranoia beliefs. Four main research questions (RQ) were established at the outset of this thesis in Chapter 1 and highlighted again as follows:

1. What are the candidate mechanisms maintaining social anxiety in people with psychotic experiences? (Chapter 2)

2. What are the potential mediators of the cross-sectional relationship between social anxiety and paranoia across two national settings from Thailand and the UK? (Chapter 3)

3. What are the potential mediators of the prospective relationship between social anxiety and paranoia amongst the combined two national samples from Thailand and the UK? (Chapter 4)

4. Do negative social appraisals and safety behaviours mediate the relationship between social anxiety and paranoia in a clinical sample of a non-Western background? (Chapter 5)

The following section will describe and interpret the main findings from each of the studies that relates to each of the research questions, see a summary of thesis results in **Table 6.1** in this Chapter.

Table 6.1 Summary of thesis results

	Chapter 2	Chapter 3	Chapter 4	Chapter 5
Undertaken study dates	01 November 2018 – 30 October 2020	04 September – 05 December 2019	04 September 2019 – 28 March 2020	08 January – 23 April 2020
Aims	- To systematically identify candidate factors maintaining social anxiety in psychosis - Also to examine correlates of social anxiety	- To investigate and cross-culturally compare factor(s) mediating the cross-sectional social anxiety and paranoia relationship in analogue sample recruited from Thailand and the UK.	- To investigate the change in factor(s) associated with prospective relationship between social anxiety and paranoia in combined analogue samples from Thailand and the UK, surveying at baseline (T1) and 3-month follow-up (T2).	- To test factors: negative social appraisals (stigma and shame) and safety behaviours (anxious avoidance and *in situ* defence behaviours) mediating the social anxiety and paranoia relationship in clinical sample in Thailand.
Results	- Prominent factors maintaining social anxiety in psychosis were stigma and shame. - Common correlates of social anxiety included poorer functioning and lower quality of life.	- Good to excellent reliability of measurements in both countries were found. - In multiple mediation analyses controlling for depression, external shame showed a significant indirect effect in both countries (internal shame was removed due to multi-collinearity),	- A multiple mediation analysis controlling for depression and paranoia at T1 and social anxiety at T2, the change score (T2-T1) of external shame showed a significant indirect effect.	- From multiple mediation analyses co-varying for depression, stigma and shame did not show significant indirect effects while defence behaviours showed a significant indirect effect through social anxiety-paranoia relationship.

		while safety behaviours and self-esteem were significant in the UK only. - Sensitivity analyses confirmed above findings.		
Summary	- Stigma and shame can be a candidate factor, because they were measurable, theoretically relevant and amenable to change in a causal process, regarding the interventionist-causal model. - Functioning and QoL should be included as outcomes in future intervention studies targeting SAD in psychosis - The integration model was proposed to guide treatment social anxiety in psychosis.	- External shame was a significant (full) mediator cross-culturally explaining the social anxiety and paranoia relationship. - Self-esteem and safety behaviours were significant (full) mediators only in the UK. - Interventions targeting external shame, self-esteem and safety behaviours should be developed in the next phase psychosis intervention studies.	- The instability of external shame could fully mediate the prospective relationship between social anxiety and paranoia. - These cross-cultural data suggested shameful cognitions play a potential role for treatments of persecutory fears and social anxiety in psychosis	- Considering negative social appraisal, stigma could be a significant (partial) mediator; however, this relationship could be confounded by depression. - Safety behaviours, particularly defence behaviours, were a full mediator of the social anxiety and paranoia relationship. - Targeted intervention focusing on safety behaviours could help reduce social anxiety and paranoia in psychosis.
Publication process	Published in *Schizophrenia Bulletin* (2021)	Submitted to *Psychiatry Research*	Submitted to *Clinical Psychology and Psychotherapy*	Submitted to *Schizophrenia Research*

RQ1: What are the candidate mechanisms maintaining social anxiety in people with psychotic experiences? (Chapter 2)

Chapter 2 aimed to determine, integrate, and critically analyse the evidence for psychological factors in the maintenance of social anxiety in people with psychosis. The systematic review was comprehensively conducted, using a rigorous method with a broad and inclusive approach searched from four databases (MEDLINE, Embase, CENTRAL and PsycINFO) across people with attenuated, transient, or persistent psychotic experiences. Psychological maintenance factors were identified and categorised into three clusters: Cognitive, Metacognitive, and Behavioural factors. Cognitive factors were the most commonly reported. Stigma and shame related cognitions were prominent cognitive factors that maintain social anxiety in people with psychotic experiences, followed by self-esteem, social rank, and negative self-referent appraisals. There was also inconclusive evidence of the metacognitive factors due to inconsistent findings appeared. Behavioural factors were a neglected variable in this research field.

As for the most common identified factors from the review, stigma and shame fit with the potential characteristics of the mechanisms with reference to the interventionist-causal approach (Kendler and Campbell, 2009) because they are measurable factors (Cook, 1994; Goss, 1994a; Wei et al., 2018), relevant to theoretical knowledge (Birchwood et al., 2007), and amenable to change to be targeted in the intervention (Waqas et al., 2020; Livingston et al., 2012). Although stigma and shame related cognitions do not appear unique from the established cognitive model of SAD by Clark and Wells (Clark and Wells, 1995), these identified factors are arguably more relevant in SAD in psychosis with regards to experiencing discrimination. Therefore, the stigma and shame were important mechanisms required to improve understanding of the role in the expression of the psychopathology of social anxiety in psychotic contexts.

Since higher levels of perceived stigma and shame, lower levels of self-esteem and social rank and more negative self-appraisals were identified, these factors then were critically analysed in terms of their potential as causal mechanisms to guide therapy. From these findings, the integration of a theoretical model was proposed to help people with SAD in psychotic experiences, see **Figure 2.2** in

Chapter 2. The continuum of social threat in the model, ranging from the perceived self as ridiculed/embarrassment (e.g., I look awkward/sick) to the severe threat and harm (e.g., people trying to cause significant harm to me), helped to build the case for identifying candidate factors of treatment of SAD in psychosis. Notably, the factors derived from this review (i.e., stigma, shame, self-esteem, social rank) could then pay a potential role as mediators of the relationship between social anxiety and paranoia, and they were measured and tested using mediation analyses in Chapter 3 to 5 of this thesis. This systematic review including the integration model was published in *Schizophrenia Bulletin* in 2021 (Aunjitsakul, W., McGuire, N., McLeod, H. J., Gumley, A., 2021).

RQ2: What are the potential mediators of the cross-sectional relationship between social anxiety and paranoia across two national settings from Thailand and the UK? (Chapter 3)

Chapter 3 presented the cross-sectional part of the Personal Attitudes towards Social life related to Oneself (PASO) survey to measure potential psychological factors in general population across cultures. The survey used an internet-delivered methodology, and recruited participants from Thailand and the UK. The factors of interest included stigma, internal and external shame, social rank appraisals, self-esteem, and safety behaviours. The objectives were to examine mediators of the cross-sectional relationship between social anxiety and paranoia and to cross-culturally compare mediator outcomes.

The reliability of measurements that were translated and back translated for use with the Thai sample were checked and found to have good to excellent internal consistency. Cultural differences of measurement outcome were presented: UK samples reported mean scores of social anxiety, paranoia (e.g., internal and external shame, safety behaviours) higher than those Thai samples. It is possible that cultural differences are relevant but that this would need to be tested in nationally representative sampling. Furthermore, regarding the diversity of country setting and ethnicity, further work needs to be undertaken to test ecological validity of these items in the Thai context. For example, the safety behaviours tool asks, ‘wear cool clothes to prevent sweating’ or ‘wear clothes or makeup to hide blushing’, this could influence Thai sample to rate lower score

due to the very warm weather of the Thai setting and brown-tanner skin of Thai ethnic, respectively.

Chapter 3 revealed that a significant relationship between social anxiety and paranoia was found across the two samples. However, when this relationship was adjusted for levels of depression, the significant relationship was only found in the UK sample. In simple mediation analyses, controlling for depression, external shame and safety behaviours factors were full mediators of the social anxiety-paranoia relationships in both samples, meanwhile internal shame was found to be a full mediator in Thai sample but a partial mediator in UK sample. Due to multicollinearity in data analyses, internal shame was then excluded from the multiple regression and mediation analyses. In the multiple regression analyses, external shame, safety behaviours and self-esteem were associated with paranoia in the UK sample, whereas external shame and safety behaviours were associated in the Thai sample. As for multiple mediation analyses, external shame was found to be a significant mediator of the relationship between social anxiety and paranoia across samples, while safety behaviours and self-esteem were only found to be a significant mediator in the UK. To this end, this study demonstrated the consistent evidence of external shame as a mediator of social anxiety and paranoia relationship across Western and non-Western settings. Other two factors (safety behaviours and self-esteem) were also significant but only found in the UK.

RQ3: What are the potential mediators of the prospective relationship between social anxiety and paranoia amongst the combined two national samples from Thailand and the UK? (Chapter 4)

The PASO survey also included a longitudinal design where cross-cultural data were collected at two time points which are at baseline and three-month follow-up. This was presented in Chapter 4. This study aimed to investigate the change in mediators of the relationship between social anxiety at baseline and paranoia at follow-up.

The relationship between social anxiety and paranoia was found in the combined cross-cultural sample, and this relationship remained significant after controlling for depression. Paranoia and social anxiety at baseline, and changes in stigma,

external shame and safety behaviours were significant factors associated with predicting paranoia at three-month follow-up. In simple mediation analyses, controlling for depression, changes of internal shame, external shame and safety behaviours were partial mediators of the social anxiety-paranoia processes. Multiple mediation analyses showed that change in external shame fully mediated the prospective relationship between social anxiety and paranoia. The finding was consistent with the comprehensive review in Chapter 2 and the cross-sectional PASO study in Chapter 3 that external shame may play a role in the underlying mechanism of the relationship between social anxiety and paranoia. External shame may therefore represent an important therapeutic target of future treatments for social anxiety and additionally paranoid symptoms in psychosis.

RQ4: Do negative social appraisals of stigma and shame, and safety behaviours mediate the relationship between social anxiety and paranoia in a Thai clinical sample? (Chapter 5)

Chapter 5 hypothesised that the factors including negative social appraisals of stigma and shame, and safety (defence) behaviours (anxious avoidance and *in situ* defence behaviours) have a role in mediating the social anxiety and paranoia relationship in people with a diagnosis of schizophrenia in Thailand.

One hundred and thirty patients with schizophrenia were recruited, 113 participants completed the questionnaires, nine declined to participate and eight were excluded due to language barrier or illness factor. Of the complete responders, approximately three-fifth (59.3%) were male with mean age 44.2. Amongst people with established psychosis, a significant association between social anxiety with paranoia was found. In addition, shame, stigma and defence behaviours were also significant factors predicting paranoia. Considering, simple mediation analyses, controlling for depression, anxious avoidance and *in situ* defence behaviours were full mediators of the social anxiety-paranoia relationships. In multiple mediation analyses showed that negative social appraisals (stigma and shame) were not significant mediators while safety behaviours particularly the defence behaviours were a significant (full) mediator of the relationship between social anxiety and paranoia. Safety behaviours could be a key factor to be targeted towards treating social anxiety and paranoia in

people with psychosis. In contrast, negative appraisals of stigma and shame were not a significant mediator, inferring that the mediator effect may have been confounded with negative affect in this sample.

6.2 Shame and safety behaviours in social anxiety and paranoia

6.2.1 Shame in social anxiety and paranoia

6.2.1.1 Shame and its definition and type

Shame is commonly agreed to be a painful affect associated with one's awareness about 'how we exist in others' minds' and predictions of what others think and feel about ourselves as the object of shame (Gilbert, 2003). Shame can be distinguished in terms of its attentional focus, thoughts and behaviours (Gilbert, P., 1998; Gilbert, 2003). If attention is focused on the mind of the other, behaviour might be orientated towards trying to influence our image in the minds of others by fulfilling or displaying other perceived more favourable qualities. This refers to 'external shame'. On the contrary, 'internal shame' focused on the self inwardly by paying attention to one's own mistakes and self-deficits and includes self-criticism as a response to perceived deficits (Gilbert, P., 1998; Gilbert, 2002).

Individuals with shame related cognitions perceive that their personal attributes (e.g., body shape, size or textures); personality characteristics (e.g., boring, unintelligent or dishonest) or behaviours (e.g., avoidance or withdrawal) are unattractive to others, resulting in rejection, exclusion or being passed by or even persecuted (Gilbert, 2002; Gilbert, 2007). These experiences can be linked to the exposure of negative aspects of the self (e.g., perceived deficits, failures, flaws) to others, and to the experience that others feel contempt or ridicule for the person. Hence, shame is about being seen as an unattractive and undesirable self (Gilbert, 2007; Lewis, 2003), and also plays a central role in motivating and regulating people's thoughts (e.g., self and other representations), feelings and behaviours (Tracy and Robins, 2004). Both types of shame experiences lead to

feelings of inferiority and inadequacy in comparison to others (Gilbert, P., 1998; Gilbert, 2002).

6.2.1.2 Nature of shame with social anxiety and paranoia

Because shame relates to how one exists in other people's minds in a negative fashion (Gilbert, 2003), it theoretically links to social anxiety (Gilbert, 2001; Hackmann et al., 1998; Clark and Wells, 1995). Shameful cognitions relate to the self as being unattractive, unable to impress others or being unwanted by others (Gilbert, 2001). This causes the fear of being seen as inferior in comparison to others related to self-presentations, and can be central to an early model of social anxiety (Schlenker and Leary, 1982; Leary, 1995). Social anxiety arises from the over monitoring of one's social behaviours and making assumptions about how one is viewed by others (e.g., as awkward, odd) (Clark and Wells, 1995). It is closely associated with shameful experiences because fears of creating negative impressions in the minds of others, fears of being negatively judged by them, and what will lead to rejection or exclusion can be seen in both social fear and shameful thoughts (Clark and Wells, 1995; Leary, 1995; Gilbert, 2001).

As a result of being devalued and marginalised by experiences of shame, individuals can be alert to protect themselves and activate various defensive emotions and strategies. Those with conditions that are seen within society as having less favourable characteristics are at risk of being rejected, excluded or persecuted and indeed discriminated against (Gilbert, 2002; Gilbert, 2007), and can feel threatened in potentially hostile ways (Iqbal et al., 2000; Brown et al., 1995). Therefore, shame can lead to hostile or persecutory reactions from others. Shame experiences including perceptions of inferiority, weakness, being different, or subordinate are commonly found amongst individuals with paranoid symptoms as they perceive themselves as being vulnerable (Salvatore et al., 2012) and others as being dominant, powerful, devious and threatening (Freeman, 2007b; Freeman et al., 2002; Gilbert, 2005; Salvatore et al., 2012). The negative perceptions of the self as a vulnerable person and others as a potential threat with an inability to feel safe and tone down distress contribute to an overactivation of the threatening behaviours when facing perceived danger (Liotti and Gilbert, 2011; Salvatore et al., 2012). Thus, individuals with psychosis

may display defensive reactions such as being excessively aware of others looking at them due to experiences of shame.

It is generally known that individuals with psychosis are subject to stigmatisation and discrimination (Haghighat, 2001) which it causes perceived loss of social role, shame and enforced low social status (Iqbal et al., 2000). They can come to fear that others will know their mental health experiences, or they may unintentionally send illness signal to others (Birchwood, 2003). Because of their concerns, they may continually monitor for their displays (e.g., nonverbal behaviour, speech flow) (Trower and Gilbert, 1989), with continual efforts to conceal, and present well (Smart and Wegner, 1999b). This in turn leads to potentially negative feedback to the anxiety (Smart and Wegner, 1999b) and increases anxiety in social interactions or cause social anxiety in people with psychosis including high-risk psychosis (Johnstone et al., 2005; Owens et al., 2005), experiencing psychotic symptoms (Birchwood, 2003), and recovery from psychosis (Pallanti et al., 2004).

6.2.1.3 Findings about shame and other cognitive factors in relation to social anxiety and paranoia

From the studies in this thesis, shame experiences were consistently supported to be a mediator of the social anxiety and paranoia relationship. A literature review of Chapter 2 found that cognitive factors were potential to be candidate mechanisms in treatment of social anxiety in psychosis. Social evaluative concerns particularly stigma, shame and social rank, including self-esteem disturbances, were frequently identified. Other factors such as negative self-referent appraisals were also found. In turn, these identified factors (i.e., stigma, (external and internal) shame, self-esteem and social rank) were tested in the relationship between social anxiety and paranoia in Chapter 3 to 5. In simple and multiple mediation analyses (Chapter 3 and 4), the results have supported the hypotheses that shameful cognitions particularly external shame may be a significant mediator of the relationship between social anxiety and paranoia. Internal shame might be another important mediator because it showed significant indirect effects in simple mediation analyses in Chapter 3 and 4. However, internal shame was removed from multiple mediation analyses in Chapter 3 due to multicollinearity, but it retained in multiple mediation analyses

in Chapter 4 and 5 which resulted in non-significant indirect effects. Additionally, it could be that internal shame may be somewhat limited by lower levels of symptom severity and social impact in the analogue samples (Chapter 3 and 4); or preferred defensive reactions which those with established psychosis may tend to use more safety behaviours in daily life (Chapter 5).

Considering other cognitive factors, the prior hypotheses were partially supported which low level of self-esteem was significant but found only in the UK sample in Chapter 3 whereas stigma and low social rank did not show any significant indirect effects in Chapter 3 to 5. This may imply that the mediating effect of social anxiety and paranoia relationship are due to process through perceived shame experiences rather than stigma, low self-esteem and low social rank. The recruited samples perhaps less experienced of social discrimination, vulnerabilities or inferiority, resulting in lower level of stigma and higher level of self-esteem and social rank. Furthermore, some mediator outcomes may be confounded by negative affect because it leads to negative appraisals in psychosis (Karatzias et al., 2007; Birchwood et al., 1993) and links to social discrimination or unattractiveness concerns and interpersonal worry (Karatzias et al., 2007; Gumley, 2004; Freeman et al., 2008).

Therefore, the present thesis shows, for the first time, that (external) shameful experiences may play an important role in mediating social anxiety and paranoia relationship. Other factors remain to be elucidated in larger sample with higher symptom severity (i.e., those with lived experiences of social discrimination).

6.2.2 Safety behaviours in social anxiety and paranoia

6.2.2.1 Safety behaviours and their definition

Safety behaviours are strategies intending to prevent or minimise the feared catastrophe when engaging in a phobic situation. Safety behaviours can be classified into two dimensions that are behavioural and cognitive in nature and those that serve preventative and restorative functions (Helbig-Lang and Petermann, 2010). Safety behaviours with a preventative function are intended to prevent future distress or anxiety, whereas safety behaviours with a restorative function are intended to reduce the experience of anxiety (Helbig-

Lang and Petermann, 2010). For example, attending a conference but only speaking to familiar people could be classified as a behavioural-restorative safety behaviour, whereas mentally preparing and rehearsing conversation topics before the conference might be classified as cognitive-preventative safety behaviour.

6.2.2.2 Nature of safety behaviours with social anxiety and paranoia

Based on a realistic threat, safety behaviours are necessary to prevent feared situations, but unnecessary if an unrealistic danger does not occur. However, these behaviours are often the case in anxiety disorders (Salkovskis, P. et al., 1996). In social anxiety disorder, safety behaviours are regarded as an interference of the processing of evidence that the situation is not really dangerous, resulting in impeding disconfirmation of overly-negative beliefs and extinction of fear (Clark and Wells, 1995). For example, socially anxious individuals afraid of making mistakes in public may engage in excessive memorisation and fact-checking as they believe that doing so will prevent them from humiliating themselves by stumbling over their words. These behaviours may reduce anxiety at the moment, but ultimately, prevent socially anxious individuals from gathering disconfirmatory evidence related to their social fears and contribute to the maintenance of anxiety into the future. Thus, safety behaviours can maintain anxiety in socially anxious individuals (Clark and Wells, 1995; Salkovskis, 1991).

Individuals with social anxiety disorder use a variety of safety behaviours to minimise threat while allowing them to remain within the anxiety-provoking situation (Rapee, 1997; Clark and Wells, 1995). Some actions are to hide one's self (e.g., minimising talking, avoiding eye contact, and low self-disclosure), some attempt to present a positive image through excessive self-monitoring and control (e.g., rigidly observing and censoring behaviour and speech) and over-preparing (e.g., rehearsing what the person is going to say before and during social interactions; relying on prepared scripts) (Clark and Wells, 1995). Other behaviours are innocuous sociability (e.g., feigned expressions of interest and inauthentic displays of nodding and smiling) (Schlenker and Leary, 1982). Safety behaviours are tested and instructed to eliminate anxiety during exposure to feared situations, and empirically found that they help decrease negative social

beliefs amongst those with social anxiety disorder (Wells et al., 2016; McManus et al., 2009; Morgan and Raffle, 1999; Schmidt et al., 2012).

Additionally, safety behaviours in terms of cognitive accounts have been not only used in anxiety disorder (Salkovskis, P. et al., 1996), but also applied in threat belief (Morrison, 1998). When individuals with paranoia perceive threat, similar to those with social anxiety, it can lead to safety strategies to avert these threat beliefs. For example, they may avoid going to the market and back home safely to guarantee that they do not attack by persecutors. It is found that social avoidance is the most common type of safety behaviours of people experiencing persecutory delusions (Freeman et al., 2001; Freeman et al., 2007a). Also, paranoia is associated with submissive behaviours (Freeman et al., 2005b; Gilbert, 2005). So, safety behaviours could be well understood in explaining the association of social anxiety with paranoia.

Individuals with psychotic experience such as paranoia are subject to experiences of discrimination and stigma including enforced low social rank and exclusion (Freeman, 2007b; Freeman et al., 2002; Gilbert, 2005; Salvatore et al., 2012), leading to submissive behaviours associated with persecutory delusions (Freeman et al., 2005b; Gilbert, 2005). Those being diagnosed with psychosis would negatively judge themselves and fear of being evaluated by others (Iqbal et al., 2000). This may result in problems with social interactions when they have to expose themselves (Birchwood, 2003). Using safety behaviours can be prospectively devised and used to deal with social discomfort as well as imminent danger (Salkovskis, P. et al., 1996; Clark and Wells, 1995). They can take steps to adjust their presentation (e.g., grasping glass tightly to hide their shaking symptoms), enhance their vigilance (e.g., looking around during on the street to check if anyone is looking at them), seek protection (e.g., only go to crowded places with a trusted person), or act as if they would resist attack (e.g., prepare to fight back) (Clark and Wells, 1995). These defensive responses are under the same umbrella of behavioural strategies in social anxiety disorder as these symptoms increase self-focused monitoring that further magnifies anxiety, disruptive effect on self-presentation, and contaminating social interaction. (Clark and Wells, 1995; Birchwood et al., 2007). These safety behaviours set up a vicious circle centred around

increasingly catastrophic thinking and dysfunctional safety behaviours (Birchwood et al., 2007). Although an individual with psychosis has not fully developed a social anxiety disorder, they may present a milder form of social anxiety. It is helpful to consider the presence of safety behaviours that patients use for their safety, because it may interfere with their engaging in other activities and often present in subtler ways than simple safety behaviours such as withdrawal or avoidance behaviours (Freeman et al., 2007a).

6.2.2.3 Findings about safety behaviours in relation to social anxiety and paranoia

Although the result of Chapter 2 found limited evidence of safety behaviours despite its significance to maintain social anxiety in psychosis, in this thesis this safety behaviours factor was investigated mediating effects of social anxiety and paranoia relationship. Amongst analogue samples, safety behaviours showed significant indirect effects in both simple (Chapter 3 and 4,) and multiple mediation analyses (of the UK sample, Chapter 3). In addition, amongst people with schizophrenia (Chapter 5), safety behaviours were also significant mediator which anxious avoidance subtype showed significant effect in simple mediation analysis while *in situ* defence behaviours subtype was significant in both simple and multiple mediation analyses. This could support the priori hypotheses that safety behaviours mediate social anxiety and paranoia processes. It is possible that, regardless of cognitive impairments, safety behaviours are preferred defensive strategies of people with established psychosis. Furthermore, with regards to the safety behaviours subtype, those with psychosis may also prefer to choose behavioural strategy (*in situ* defence behaviours) rather than cognitive one (anxious avoidance). In other words, people with psychosis may think that these reactions, do work well, or help them rapidly relieve their stress/anxiety when in social situations. Therefore, this thesis not only supported hypotheses of its significant effects in mediating the relationship of social anxiety and paranoia in analogue samples (Chapter 3 and 4) and clinical samples (Chapter 5), but also has expanded the knowledge base regarding the mechanisms approach, with the use of modifying safety behaviours to develop targeted treatment of SAD and paranoia in psychosis. Although evidence of mechanistic intervention of social anxiety in psychosis is limited, this intervention study currently becomes

interest, for instance, there is an ongoing gameChange study aiming to target social avoidance in people with psychosis and anxious avoidance (Freeman et al., 2019b).

6.3 Integrated thesis findings into a complexity of social anxiety and paranoia in psychosis

From the discussion above, it can be seen that negative social appraisals (i.e., internal and external shame, stigma, low social rank), low self-esteem and safety behaviours simultaneously inter-relate with social anxiety and paranoia in psychosis context. Individuals being diagnosed with severe mental illness can experience feelings of unfavourable (shame), inferiority (low social rank), social exclusion (stigma), worrying about engaging in social interaction (social fear) and negative evaluation of the self (low self-esteem) (Birchwood et al., 2007; Matos et al., 2013; Karatzias et al., 2007; Birchwood et al., 1993) and carefully monitoring oneself to be well displayed to others (safety behaviours) (Freeman et al., 2005b; Gilbert, 2005). They can ultimately develop paranoid ideation and persecutory fears (Freeman et al., 2005b; Freeman, 2007b). Because these factors are interrelated as complexity of interpersonal worry, so it will be called 'complexity of social anxiety and paranoia in psychosis', see **Figure 6.1**. This complexity is a revised version of the proposed integration model of Chapter 2 (**Figure 2.2**) according to the findings from Chapter 3 to 5.

This thesis discovers key elements of social anxiety in psychosis including shameful cognitions and safety behaviours. Apart from these significant findings, the other components that are important to be integrated with the complexity are *discriminations, self-esteem disturbances, traumatic experiences, insecure attachment, and negative affect*. Firstly, the discriminations (i.e., perceived stigma, low social rank appraisal), although this thesis did not find significant indirect effects of mediator of stigma, stigmatisation to severe mental illness remains to be considered. Individuals with severe mental disorder experience discrimination resulting in negative feelings of vulnerability, inferiority, subordination, and being powerless and undesired (Haghighat, 2001). They internalise and focus on negative appraisals associated with social discrimination, aware themselves how they could be represented in the minds of others, and regulate themselves to prevent others from discovering them as

mentally ill persons (Birchwood et al., 2007). In addition, in Chapter 3 attitudes towards mental illness were observed amongst general people using Reported and Intended Behaviour Scale (RIBS) (Evans-Lacko, 2011). The results showed that Thai sample reported higher stigma score than UK sample, nonetheless, negative attitudes in both samples presented in every social context. For example, with the statement "In the future, I would be willing to live with someone with a mental health problem", the combined number of strongly and slightly disagree was at 115 (26.9%) in Thailand and 52 (12.5%) in the UK, other attitudes see **Supplementary Table 3.3**. According to this, the discrimination (stigma, social rank) could be another key mechanism and fit well in the social anxiety and paranoia complex.

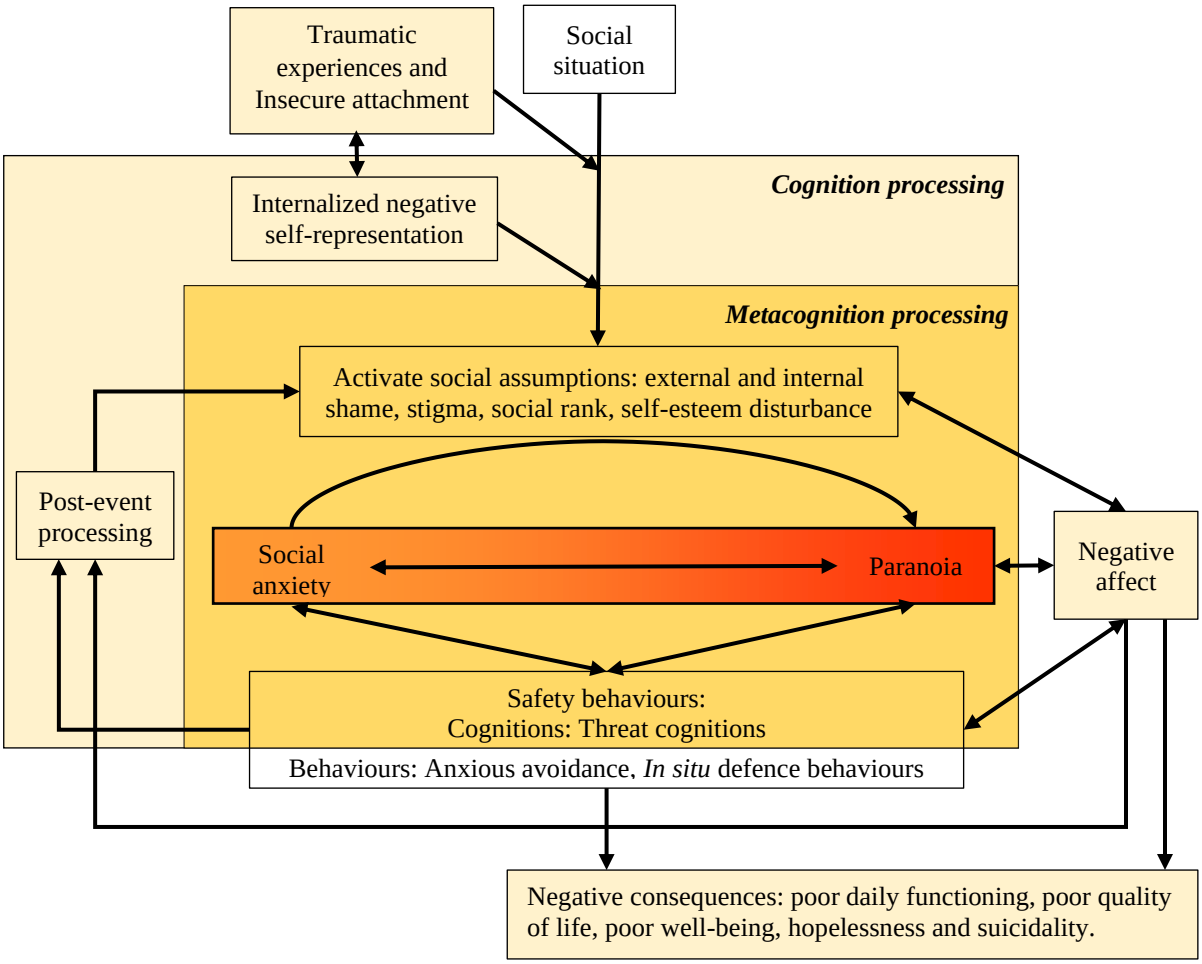


Figure 6.1 The social anxiety and paranoia complex in psychosis.

Secondly, self-esteem disturbances are an important factor that should be included in the complexity of social anxiety and paranoia, because low self-esteem relate to negative self-appraisals of social worth, such as, social incompetence, functioning and interaction (Roe, 2001; Smith, 2006). This thesis

also supports its significant, since the review in Chapter 2 found that self-esteem was the second most common identified factor of social anxiety in psychosis (Aunjitsakul et al., 2021), and low level of self-esteem revealed a potential role as a mediator of social anxiety and paranoia relationship in Chapter 3. Of note, studies suggested that unstable symptoms of psychosis (i.e., paranoia) were associated with fluctuation of self-esteem. Because of instability of self-esteem, psychological treatments should focus more on regulation of self-esteem, not only target improvement of self-esteem (Udachina et al., 2012; Thewissen et al., 2008; Lecomte et al., 2018). Focusing on regulation of self-esteem may help improve other variables in the model.

Thirdly, because prior life experiences influence individual perception of oneself, the others and the world, and can lead to a negative interpretation of societies towards the self. Then, early development of individuals with stressful life events should also be concerned. There is evidence that individuals with severe mental illness approximately 94-98% suffered from at least one traumatic event (Mueser et al., 1998; Kilcommons and Morrison, 2005) and 28-53% of those with schizophrenia reported comorbid post-traumatic stress disorder (Mueser et al., 1998; Kilcommons and Morrison, 2005; Tarrier et al., 2007). As a consequence of early trauma and abuse in the development (or traumatic memories), fourthly, this can lead to insecure attachment and in turn cause problem with interpersonal interactions (Gumley et al., 2014), non-adherence and poor service engagement (Lecomte et al., 2008b; Spidel et al., 2015). Furthermore, shame memories, particularly traumatic memories or individuals' self-identity and life story, are significantly associated with paranoid ideation (Matos et al., 2013). It seems that previous traumatic life experiences and insecure attachment closely link to social anxiety, paranoia and shameful experiences, thus poor development of early life could play a part in the social anxiety and paranoia complex in people with psychotic experiences.

Lastly, in people with psychosis, negative affect is closely linked to with negative appraisals (Karatzias et al., 2007; Birchwood et al., 1993), social discrimination or unattractiveness concerns (Karatzias et al., 2007; Gumley, 2004), and interpersonal worry and threaten fears (Freeman et al., 2008). Furthermore, depression also relates to insecure attachment (Gumley et al.,

2014) and commonly co-occurs with social anxiety in people with psychotic experiences (Varghese et al., 2011). Thus, to explain all interrelated factors of the complexity, negative affect should be added.

Accordingly, the complexity of social anxiety and paranoia in psychosis includes negative social appraisals (i.e., internal and external shame, stigma, low social rank), negative self-appraisals due to low-self-esteem, safety behaviours, traumatic experiences, insecure attachment and negative affect. This complexity was constructed in relation to social anxiety and paranoia. Individuals with vulnerabilities (e.g., history of trauma in childhood, experiences of poor parenting) could form internalized negative self-representation when encountering feared social situation. Since the negative self-representation is activated, they then assess the perception of the self relating to others (social attitudes) and also the self (self-image). The severity of the perception ranges from social fear (e.g., I look sick) to severe threat (e.g., others are trying to kill me) at different level according to the hierarchy model (Freeman et al., 2005b). Individuals with higher social anxiety could develop higher paranoia through the higher perceived of negative social appraisals (e.g., external shame), negative self-appraisals (e.g., low self-esteem) and the greater use of safety behaviours regarding the findings of this thesis. Also, negative affect increases accessibility of negative (both self and social) appraisals, and in turn increases social anxiety and paranoia. These multifactorial mechanisms interact each other in vicious cycle through post-event processing, and they also maintain and prevent disconfirmation of the negative beliefs of social anxiety and persecutory fear. This could finally cause negative consequences to those with social anxiety/ paranoia such as poor daily functioning and quality of life.

This chapter demonstrates the complexity of potential factors that reinforce each other, resulting in triggering/maintaining social anxiety and paranoid beliefs in people with psychosis. This complexity provides overall potential mechanisms for the treatment of social anxiety in people with psychosis, explained more in the next section.

6.4 Clinical and research implications

The complexity of social anxiety and paranoia, see **Figure 6.1**, aims to guide treatments of social anxiety and paranoia in people with psychosis by demonstrating overall pictures of the mechanisms that can trigger, maintain and reinforce both socially anxious and persecutory fear symptoms. Because the proposed complex consists of potential factors that all are strongly interrelated and theoretically associated, it could be said that targeting one factor (e.g., safety behaviours) could affect another factor (e.g., external shame, stigma). Considering relationships between outcomes, it is evident that outcome improvements are correlated with that irrespective of the actual target, suggesting that there is the mode of transmission of these overlapping benefits when using cognitive behavioural interventions (Wykes et al., 2008). Targeted therapies focusing on factors based on the complexity model (e.g., shame-related cognitions, stigma, safety behaviours) could provide clinical benefits such as reducing social anxiety or paranoia symptoms, or improving mood outcomes. To develop a full and practical picture of this complexity, additional mechanistic and treatment studies are needed to test potential mechanisms in people with psychosis.

Given the results in this thesis, the internal and external shame, self-esteem and safety behaviours were significant mediators. The internal and external shame and self-esteem revealed its potential for treatment development in the cross-cultural analogue samples while the safety behaviours were significantly found in both the analogue and the clinical samples. It is possible that the severity of psychosis symptoms may impact on mediator outcomes of social anxiety and paranoia relationship. In other words, behavioural factors (safety behaviours) may have a stronger role than cognitive factors (i.e., shame, stigma and self-esteem) amongst those with higher symptom severity. This provides a treatment opportunity to encourage building a modular approach with components targeting internal and external shame, self-criticism, safety (defence) behaviours, which then may allow individuals choice in their treatment and also greater precision to underlying mechanisms.

Regarding the modular approach, individuals with comorbid social anxiety and paranoia in psychosis will be assessed concerning an experience of social

exclusion or harms from others, in order to offer a choice of treatment modules which are then delivered by a therapist. This will help patients and therapists develop a brief formulation in terms of maintenance factors. Based on the social anxiety and paranoia complex, see **Figure 6.1**, the modules include shameful cognitions (either internal or external shame); social discrimination (stigma); self-criticism (low self-esteem); and safety behaviours (threat cognitions, anxious avoidance, *in situ* defence behaviours). These modules which are personalised due to individual formulation will then be targeted and completed in treatment using cognitive behavioural approach.

For example, of the modular approach, if patients are suffered from external shame, stigma and social avoidance (there are three modules), therapists may facilitate clients to establish links between thoughts, feelings or actions and their current or past symptoms, and/or functioning; and help guide clients to re-evaluate people's perceptions, belief or reasoning in relation to perceived external shame and stigma experiences. Also, alternative ways of coping, modifying their behaviours that maintain socially anxious or paranoid symptoms (e.g., social avoidance) could be promoted. This modular approach could theoretically help improve the symptoms of social anxiety or paranoia in psychosis, the proposed complexity model, nonetheless, remain to be proven in mechanistic intervention studies. Furthermore, these factors should be translated into targeted intervention techniques that are implemented within intervention complexity that explicitly addresses the multifactorial causation in improving social anxiety/paranoia in psychosis. On this, treatment development of SAD and paranoia in psychosis is possible.

In addition, when clients identify social anxiety/paranoia thoughts along with targeting shame cognitions or perceived stigma, sometimes they are more likely to attack themselves in a hateful way and less likely to reassure themselves in a supportive way (Hutton et al., 2013), causing negative internal experiences. Apart from the cognitive restructuring, a therapist should promote other approaches, for example, mindfulness interventions that become available and are effective for individual with psychosis (Khoury et al., 2013). It evidenced that Compassion Focused Therapy (CFT) helped individuals develop acceptance and compassion in relationships with oneself with regards to shame (Hutton et

al., 2013) and paranoia ideations (Brown, P. et al., 2020). Because fostering internal experiences of safe, warm and soothing to deal with external shame could help alleviate negative self-appraisals (Castilho et al., 2020), and improve emotional distress and social-related concerns in people with psychosis (Braehler et al., 2013). Further work is needed to fully understand the implications of CFT with shame related cognitions in alleviating social anxiety and paranoia in psychosis.

Furthermore, the previous meta-analysis has demonstrated that the use of behavioural strategies could produce better treatment effects on reducing symptoms of psychosis (Wykes et al., 2008). Also, it is evident that social skills training for symptom management improved psychotic symptoms (Lecomte et al., 2008a) including social anxiety (Rus-Calafell et al., 2014). Encouragingly, targeted treatment on such social skills training could be an alternative approach to cope with socially fears and threatened beliefs in people with psychosis.

The novelty of this thesis is the discovery of the shared mechanisms of social anxiety and paranoia, including negative social appraisal (particularly external shame), self-esteem disturbance and safety behaviours as well as the complexity model. These mechanisms are suggested to develop targeted therapies to improve social anxiety and paranoia symptoms for people with psychosis.

6.5 Strengths and Limitations of studies

Strengths

One of the main strengths of this thesis is that the investigated potential factors were guided by the intervention-causal model which provides an empirical framework for the evaluation of causal mechanisms of relevance to clinical practice and psychiatry (Kendler and Campbell, 2009). Theoretically driven studies in this thesis were conducted in diverse methods, including both Western versus non-Western cultures; analogue and clinical samples; and cross-sectional and longitudinal designs. In so doing, this may be particularly beneficial in exploring the mechanisms which underlie the relationship between social anxiety and persecutory paranoia.

To the author's knowledge this was the first time to demonstrate support for the association between social anxiety and paranoia in non-Western samples, in both general and clinical samples. This association is now well established from a variety of studies amongst Western populations (Kaymaz and van Os, 2010; Linscott and van Os, 2010; Freeman, 2005; Johns LC, 2004). The novel findings discovered from the studies were that (internal and external) shame related cognitions, low self-esteem and safety behaviours were a possible mechanism for the treatment of social anxiety and paranoia in people with psychosis. Although there was no consistent evidence of mediator outcomes between analogue (Chapter 3 and 4) and clinical samples (Chapter 5), it could be suggested that treatment approach to those with psychosis can be modular and manualised which will facilitate implementation of treatment relying on symptom severity. Additionally, patients should also be offered treatments based on key factors maintaining social anxiety/persecutory fear and their preferences.

Limitations

In Chapter 2, a systematic review included studies varied in study designs, populations, measurements, and outcomes. Due to the heterogeneity of the studies included, the eligible data prevented us from applying meta-analysis. Considering the quality assessment, the Mixed Methods Appraisal Tool (MMAT)–version 2018 was used for critical appraisal since it is widely used for evaluation of strong/weak quality design and different study type (Hong QN, 2018; Hong QN et al., 2018). In the content validity study of the MMAT, there was no standard of agreement threshold for determining decision consensus, then it was decided to use a high standard threshold (of 0.80). Nonetheless, the agreement was arbitrary (Hong QN et al., 2019). In addition, because both cross-sectional and prospective studies were assessed in the same criteria (in relation to the quantitative non-randomized studies design), this resulted in perhaps overrated quality amongst cross-sectional studies or underrated quality amongst prospective studies in the review. The MMAT might not be good at systematically differentiating the low/high quality studies. These quality assessment issues could lead to over-estimating the trustworthiness of a study.

According to the previous discussion in Chapter 3 and 4, from the PASO survey topic related to mental health, it is a common nature of health care providers

motivated to respond to the survey. This can lead to population bias or lack of sample representativeness (Groves et al., 2004), although the studies were carefully advertised in various channels through social media and posters. Also, potential participants would also be digitally excluded due to the online survey methods, and some dropped out due to the follow-up method. In addition, the sample was not established using methods to establish national representativeness and therefore could not allow conclusions to be made about representativeness and comparability of the two samples. Despite these limitations, the sample size (of Chapter 3 and 4) was large enough to test the mediator outcomes because the calculated sample size was met. In addition, Chapter 3 and 4 studied in the general population. Although this is a low-risk psychosis group, the studies herein provide practical implications for clinical interventions in social anxiety and paranoia.

With regards to the cross-cultural aspect, though there was good to excellent reliability of rated measurements amongst Thailand and the UK (more details see **Supplementary Table 3.2**, Chapter 3), the validity on measurement outcomes throughout the studies (Chapter 3 to 5) should be considered a limitation. For example, the participants may fail to respond correctly within the contexts of the measurement construct that the scale is designed to complete. Although all measurements with English version were translated using forward and backward translation following the guidelines for the process of cross-cultural adaptation of self-report measures (Beaton, 2000; Van Ommeren, 1999), there remain some likely cross-cultural issues with contents of measures requiring further work to develop more salient culturally specific items that better capture safety (defensive) behaviours in a non-western context. Further studies investigating culturally specific variations in safety behaviours in social anxiety or paranoia should be developed.

Additionally, Chapter 5 conducted the study amid the COVID-19 pandemic, thus the fear of viral infection may impact the safety behaviours (e.g., anxious avoidance) of participants with socially anxious or paranoid symptoms such as avoiding public transport or preferring to stay home. With these concerns, the data were carefully analysed. Only anxious avoidance score in the post-pandemic group was found to be higher than the pre-pandemic group and there

were no significant differences of regression or mediation outcomes whether controlling for the pre/post-COVID-19 pandemic variable. It can therefore be assumed that the COVID-19 pandemic was less likely to be associated with the outcomes.

6.6 Future directions

From the systematic review (Chapter 2), although it used a broad and inclusive approach with high-quality studies, many identified studies were conducted in the cross-sectional design and English language. Further research in longitudinal, experimental and clinical designs with diverse cultures could provide more definitive evidence of psychological factors of social anxiety in psychosis. Given the experiences of exclusion, discrimination and stigma by society, there is a risk that lack of inclusion in research. This could perpetuate the inequalities and impairments of the quality of research going forward. Involvement of people with social anxiety and psychosis as collaborators is required in future research. Additionally, people with lived experiences (e.g., social exclusion or discrimination) need also to be included. Considering the promising evidence of metacognitive factors due to differences in approach to the definition and measurement, this resulted in mixed findings and difficult data synthesis. The precise mechanism of metacognition (e.g., Theory of Mind, metacognitive mastery, mentalization and reasoning biases) in social anxiety with psychosis requires more research attention. Furthermore, poor functioning and quality of life have been consistently found to be correlated with social anxiety in psychosis. In terms of a holistic approach, future research should not be studied focusing only on psychopathological symptoms of psychosis, but treatment development should also be considered using these consequences (e.g., daily/social functioning, quality of life) (Aunjitsakul, W., McGuire, N., McLeod, H. J., Gumley, A., 2021).

The studies herein (Chapter 3, 4 and 5) investigated potential psychological mechanisms in the relationship between social anxiety and paranoia from analogue to clinical samples. The findings suggested that the shame related cognitions and safety behaviours were a significant mechanism. These two factors fit well with the criteria of the interventionist-causal model as following: 1) a measurable factor; 2) amenable to change in the putative causal process;

and 3) relevant to a theoretical understanding to guide therapy (Kendler and Campbell, 2009). However, there are little empirical evidence using the interventionist-causal methods with targeted factors to mechanistically test these potential mechanisms. For instance, there is the ongoing gameChange study that is targeting social avoidance in people with psychosis and anxious avoidance of social situations using virtual reality (Freeman et al., 2019b). A mechanistic study testing treatment mechanism including clinically relevant work (e.g., a case series, intervention studies, a randomized-controlled trial) is still now being needed to confirm the results of this thesis.

It is important to note that although this thesis aimed to investigate the shared mechanisms of social anxiety and paranoia, other psychotic experiences should also be investigated; for example, voices in social interactions (Freeman, 2007b). Moreover, due to lack of evidence for the social anxiety and paranoia relationship within more complex mental problems such as negative symptoms, grandeur delusion or affective disorders, future studies should investigate these relationships to fully understand the role of shame and safety behaviours in people with psychosis and how they might be applied to ameliorate social anxiety and support recovery in real practice.

Research questions arising from this thesis

Based on the results presented in this thesis, the focus shifts from which mechanism(s) mediate the social anxiety and paranoia relationship, to does the potential mechanism(s) either shame or safety behaviours a) mechanistically mediate the relationship in psychosis; and b) potentially improve social anxiety and paranoia symptoms across cultures. Which mechanisms, or both, work best to target social anxiety and paranoia in individuals with psychotic experiences using psychological interventions, in this case, cognitive behavioural approach for psychosis is a central question.

The following research questions appear worthwhile for providing further insights into targeted intervention for social anxiety and paranoia in psychosis research.

- What are the factors that mechanistically explain the social anxiety and paranoia relationship?

Because this thesis did not fully capture the psychological factors in terms of the causal evidence for the role of psychological mechanisms in psychotic experiences, exploring the shame and safety behaviours in the manipulationist approach may allow understanding of the mechanisms of change (Brown et al., 2019) within the social anxiety and paranoia complex. Clinical trials should also be conveyed to test whether the change in mechanism improves socially fear or persecutory paranoia symptoms in people with psychosis.

Previous research suggested that the effectiveness of CBT interventions in reducing symptoms of social anxiety could provide benefit by targeting mechanisms of change (Michail et al., 2017); and conventional CBT models for social anxiety in psychosis could be enhanced with an additional focus on shame related cognitions and accompanying safety behaviours (Michail and Birchwood, 2013). Regarding cognitive behavioural approaches, this thesis highlighted the important novel treatment direction of social anxiety in people with psychosis by focusing on dysfunctional appraisals characterised by shamefulness, humiliation and perceived rejection by others using cognitive restructuring techniques. Additionally, people with psychosis will attempt to conceal their mental illness by engaging in safety behaviours e.g., avoidance, withdrawal from social interactions, and saving themselves from the consequences of such a social threat. These safety behaviours can contaminate social interactions by promoting behaviours of submissiveness, avoidance and withdrawal in socially anxious psychotic people. Thus, another novel treatment was that the use of safety behaviours should be modified. Also, it is encouraging to use behavioural techniques as an active ingredient of cognitive behavioural interventions for people with psychosis (Wykes et al., 2008).

Other psychological approaches including Mindfulness-Based Cognitive Therapy (MBCT), Acceptance and Commitment Therapy (ACT) and Compassion Focused Therapy (CFT), narrative therapy and meta-cognitive training are emerging therapies and would be useful in practice (Dickerson and Lehman, 2011; Braehler et al., 2013; Khoury et al., 2013). There is a call for the development of

alternative therapies because it is possible that integrations of the therapies to deal with shame experiences and safety behaviours would help further treatment development for people with psychosis.

- Does the cross-cultural difference affect the mechanism in relation to social anxiety and paranoia in psychosis?

Another question has been raised in terms of cross-cultural impact, according to a post-PhD project planned to further test the potential mechanisms in Thailand (my country). Treatment development of social anxiety in psychosis may guide therapies with cross-cultural adaptation. Because the majority of Thai people are Buddhists, whose essence related to awareness, compassion and acceptance (Udomratn, 2008), and their practice also related to meditation and breathing exercises, integrations of CBT, MBCT, ACT or CFT with Buddhist approach might enhance some positive effects on social anxiety and paranoia. This would be a great opportunity to conduct research using a socio-cultural approach of the Eastern region (Naeem et al., 2019). These integrations might be effectively applied to ameliorate the impact of shame and safety behaviours factors, and ultimately reduce the symptom severity of social anxiety and paranoia in people with psychotic experiences, amongst, locally, Thailand or South-East Asian region; and globally, Eastern and Western settings.

Because negative social appraisals (i.e., internal and external shame, stigma, low social rank) and safety behaviours could be varied in affecting social anxiety and paranoia due to the cultural differences, thereby, the complexity of social anxiety and paranoia could also be affected. Many aspects related to the complexity should be further explored, including discriminations, self-esteem disturbances, traumatic experiences, insecure attachment and negative affect. For example, people experiencing social discrimination such as those diagnosed with Tuberculosis or Human Immunodeficiency Viruses (HIV) infection (Craig et al., 2017; Florom-Smith and De Santis, 2012) or those with Obesity or Gender Identity conditions (Puhl and Heuer, 2010; Bockting et al., 2013), these groups of people are vulnerable to be excluded in the society and merited to be investigated with social anxiety and other variables in the complexity model. Thus, these subgroup investigations could help support evidence of the

relationship of negative social appraisal and safety behaviours in relation to social anxiety and paranoia.

Furthermore, people with psychotic disorders are not only more likely to experience stigma, but also social isolation and loneliness (Lim et al., 2018; Michalska da Rocha et al., 2018). They are also more likely to be single and excluded, concern their body image (i.e., 'fat shamed'), and to have difficulties in social situations due to social cognitive deficits (Marshall et al., 2020; Waite and Freeman, 2017; Fett et al., 2011; Achim et al., 2013). Future research should contribute more on these variables including social isolation, social exclusion, loneliness to be more complete the complexity model proposed in this thesis.

6.7 Conclusions

Shame based experiences particularly external shame as well as safety behaviours appear to be an important mechanism to consider in the treatment of social anxiety and paranoia in people with psychosis. The systematic review suggested that stigma and shame related cognitions were a candidate factor of social anxiety in psychosis. The studies have repeatedly highlighted there were the existing relationships between social anxiety and paranoia across cultures (Western and non-Western culture) and in clinical samples in a non-Western setting. In analogue samples, the studies herein reported that external shame was a significant mediator of social anxiety and paranoia process, while safety behaviours factor was found to be a significant mediator in clinical samples. It can therefore be assumed that the behavioural factors (safety behaviours) may have a stronger role than cognitive factors (shame) in clinical samples. To support the theoretical concept, the mechanisms should be tested in experimental manipulation studies, and interventionist treatment studies should be further conducted to serve the clinical purpose.

Appendices

Chapter 2 Appendix

Supplementary Table 2.1 Embase and MEDLINE electronic search strategies for psychological factors maintaining social anxiety in psychotic experiences or psychosis (searched date 19 October 2020)

Databases	Literature search strategies	N abstracts
Embase	1. psychosis.mp. or Psychotic Disorders/ 2. psychotic.mp. 3. Schizophrenic Psychology/ or Schizophrenia/ or schizophreni*.mp. 4. Schizoaffective.mp. 5. DELUSIONS/ or delusion*.mp. 6. Paranoid Disorders/ or paranoi*.mp. 7. 1 or 2 or 3 or 4 or 5 or 6 8. Clinical high risk*.mp. 9. Ultra high risk*.mp. 10. (Attenuated adj2 (psycho* or schizophreni*)).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword, floating subheading word] 11. At risk mental state*.mp. 12. Recent onset.mp. 13. first episode psycho*.mp. 14. Early psycho*.mp. 15. 8 or 9 or 11 or 12 16. 7 and 15 17. 10 or 13 or 14 or 16 18. Social anxi*.mp. 19. Phobia, Social/ 20. social phob*.mp. 21. 7 or 17 22. 18 or 19 or 20 23. 21 and 22 24. limit 23 to english language 25. limit 24 to humans	2212
MEDLINE	1. psychosis.mp. or Psychotic Disorders/ 2. psychotic.mp. 3. Schizophrenic Psychology/ or Schizophrenia/ or schizophreni*.mp. 4. Schizoaffective.mp. 5. DELUSIONS/ or delusion*.mp. 6. Paranoid Disorders/ or paranoi*.mp. 7. 1 or 2 or 3 or 4 or 5 or 6 8. Clinical high risk*.mp. 9. Ultra high risk*.mp. 10. (Attenuated adj2 (psycho* or schizophreni*)).mp. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] 11. At risk mental state*.mp. 12. Recent onset.mp. 13. first episode psycho*.mp. 14. Early psycho*.mp. 15. 8 or 9 or 11 or 12 16. 7 and 15 17. 10 or 13 or 14 or 16 18. Social anxi*.mp. 19. Phobia, Social/ 20. social phob*.mp.	644

	21. 7 or 17 22. 18 or 19 or 20 23. 21 and 22 24. limit 23 to english language 25. limit 24 to humans

Supplementary Table 2.2 The process of study selection, data extraction, quality assessment and data synthesis.

Process	By whom	Remarks
Study selection		
1. Sampled 10% †	Independently screened by WA and NM.	Agreement of inclusion and exclusion between two reviewers was 93.19 percent with Cohen's kappa 0.67, p<0.001. The full-texts of all potential eligible studies were assessed against eligibility criteria by WA.
2. The rest of the records retrieved	Screened by WA	
Data extraction		
1. Sampled 10% †	Independently extracted by WA and NM.	Extracted items were included study and participant characteristics; details of the measurements; study methodology; outcomes; information for assessment of the risk of bias and variables related to study quality.
2. The rest of the records screened	Extracted by WA.	
Quality assessment		
1. Sampled 10% †	Independently assessed by WA and NM.	Quality and risk of bias tool using the Mixed Methods Appraisal Tool (MMAT)–version 2018.(Hong QN, 2018) There are 5 criteria of each study design, every criterion was rated as 'yes', 'no' or 'cannot tell' for every applicable item. The agreement results led to the rated overall quality score presenting number of criteria met. The score ranging from 1*, 2**, 3***, 4**** and 5***** quality criteria met were reported. All studies were included, and none was excluded based on quality assessment.
2. The rest of the records screened	Assessed by WA.	
Data Synthesis		
All eligible full-text articles	Synthesized by WA.	Included studies varied in study designs, populations, measurements and outcomes. Due to the heterogeneity of the studies included, a narrative synthesis was applied.

NM; Nicola McGuire, WA; Warut Aunjitsakul

† Disagreements between the two reviewers were resolved by consensus or consulting the research supervisors (Andrew Gumley and Hamish McLeod).

Supplementary Table 2.3 List of excluded reasons with authors.

No	Reasons	Authors (Year)
1	No measurement of any psychological factors linked to social anxiety and psychotic experiences	Argyle, N (1990),(Stefanini and Blanchaer, 1947) Badcock, J. C. et al. (2011),(Badcock et al., 2011) de la Asuncion, J. et al (2015),(de la Asuncion et al., 2015) Hayes, R.L. et al (1996),(Hayes and Halford, 1996) Lopes, B. C. (2013),(Lopes, 2013) Park I-J et al (2016),(Park et al., 2016) Martin, J.A. et al. (2001),(Martin and Penn, 2001) Freeman, D. et al. (2008),(Freeman et al., 2008) Tone, E.B. et al. (2011),(Tone et al., 2011) Cooper, S. et al. (2016),(Cooper, 2016) Prochwicz, K. et al. (2017),(Prochwicz et al., 2017) Matos, M. et al. (2013),(Matos et al., 2013) Sun, X. et al. (2018),(Sun et al., 2018) Gilbert, P. et al. (2005),(Gilbert, 2005) Morrison, A.P. et al. (2015),(Morrison et al., 2015) Rietdijk, J. et al. (2013),(Rietdijk et al., 2013) Taylor, H.E et al. (2014),(Taylor et al., 2014) Mueller, S.A. (2016),(Mueller, 2016) Ghada, E-K. et al. (2010),(El-Khouly and El Gaafary, 2011) Penn, D.L. et al. (1994),(Penn et al., 1994) Mazeh, D. et al. (2009),(Mazeh et al., 2009) Gorun, A. et al. (2015),(Gorun et al., 2015) Pisano, S. et al. (2016),(Pisano et al., 2016) Lee, TY. et al. (2013),(Lee et al., 2013) Halperin, S. et al. (2000),(Halperin et al., 2000) Kingsep, P. et al. (2003),(Kingsep et al., 2003) Pot-Kolder, R. et al. (2018),(Pot-Kolder et al., 2018) Zaffar (2020)(Zaffar and Arshad, 2020)
2	Studies of mixed diagnostic examples do not present data in sub-group or only provide pooled or aggregated data	Bosanac, P. et al. (2016),(Bosanac et al., 2016) Ciapparelli, A. et al. (2007),(Ciapparelli et al., 2007) Rusch, N. et al. (2009)(Rusch et al., 2009)

Supplementary Table 2.4 Participant characteristics (N total=12060).

Samples	n (%)		Total	Age (years)	
	Male	Female		Mean ± SD	Min-max
General population	4161 (47.4%)	4610 (52.6%)	8771	27.7 ± 4.9	16-50
With established psychosis	1670 (66.0%)	862 (34.0%)	2532	31.7 ± 6.9	18-57
With high psychosis risk	373 (49.3%)	384 (50.7%)	757	25.4 ± 5.1	16-58

Supplementary Table 2.5 Quality assessment of the 48 studies included in the systematic review using the Mixed Methods Appraisal Tool (MMAT)–Version 2018 (Hong QN, 2018).

No	Citation	Screening questions		1. Qualitative					2. Quantitative non-randomised					3. Quantitative descriptive					Quality criteria met †
		SQ1	SQ2	1.1	1.2	1.3	1.4	1.5	2.1	2.2	2.3	2.4	2.5	3.1	3.2	3.3	3.4	3.5	
1	Gumley et al. (2004)	Y	Y						Y	Y	Y	Y	Y						5*****
2	Pallanti et al. (2004)	Y	Y						Y	Y	Y	N	Y						4****
3	Jang et al. (2005)	Y	Y						Y	N	Y	CT	Y						3***
4	Voges and Addington (2005)	Y	Y											Y	Y	Y	Y	Y	5*****
5	Lysaker and Hammersley (2006)	Y	Y											Y	Y	Y	Y	Y	5*****
6	Birchwood et al. (2007)	Y	Y						Y	Y	Y	Y	Y						5*****
7	Lysaker et al. (2008a)	Y	Y											Y	Y	Y	Y	Y	5*****
8	Park et al. (2009)	Y	Y						Y	N	CT	N	Y						2**
9	Michail and Birchwood (2009)	Y	Y						Y	Y	Y	CT	Y						4****
10	Lysaker et al. (2010a)	Y	Y											Y	Y	Y	Y	Y	5*****
11	Lysaker et al. (2010b)	Y	Y											Y	Y	Y	Y	Y	5*****
12	Lysaker et al. (2011)	Y	Y											Y	Y	Y	Y	Y	5*****
13	Romm et al. (2012)	Y	Y											Y	Y	Y	Y	Y	5*****
14	Schutters et al. (2012)	Y	Y											Y	N	Y	Y	Y	4****
15	Kumazaki et al. (2012)	Y	Y											Y	Y	N	Y	Y	4****
16	Achim et al. (2013)	Y	Y						Y	Y	Y	Y	Y						5*****
17	Armando et al. (2013)	Y	Y						Y	Y	Y	Y	Y						5*****
18	Gajwani et al. (2013)	Y	Y											Y	Y	Y	Y	Y	5*****
19	Michail and Birchwood (2013)	Y	Y						Y	Y	Y	N	Y						4****
20	Stopa et al. (2013)	Y	Y	Y	Y	Y	Y	Y											5*****
21	Michail and Birchwood (2014)	Y	Y						Y	Y	Y	Y	Y						5*****
22	Sutliff et al. (2015)	Y	Y											Y	Y	Y	Y	Y	5*****
23	Lowengrub et al. (2015)	Y	Y											Y	Y	N	Y	Y	4****

24	Achim et al. (2016)	Y	Y	Y	N	Y	Y	Y							4****
25	Piccirillo, M.L., Heimberg, R.G. (2016)	Y	Y						Y	N	Y	N	Y		3***
26	Vrbova et al. (2017a)	Y	Y						Y	Y	Y	Y	Y		5*****
27	Khalil and Stark (1992)	Y	Y						Y	Y	Y	N	Y		4****
28	Blanchard et al. (1998)	Y	Y	Y	Y	Y	N	Y							4****
29	Huppert and Smith (2005)	Y	Y						Y	Y	N	Y	Y		4****
30	Lysaker et al. (2008b)	Y	Y						Y	Y	Y	Y	Y		5*****
31	Romm et al. (2011)	Y	Y						Y	Y	Y	Y	Y		5*****
32	Chudleigh et al. (2011)	Y	Y	Y	Y	Y	N	Y							4****
33	Achim et al. (2011)	Y	Y	Y	Y	Y	Y	Y							5*****
34	Newman Taylor and Stopa (2013)	Y	Y	Y	Y	Y	N	Y							4****
35	Pyle et al. (2015)	Y	Y						Y	Y	Y	Y	Y		5*****
36	Kwong et al. (2017)	Y	Y						Y	Y	Y	Y	Y		5*****
37	El Masry N et al. (2009)	Y	Y	Y	N	Y	N	Y							3***
38	Aherne, Keith (2014)	Y	Y						Y	Y	Y	Y	Y		5*****
39	Rajshekhar B et al. (2016)	Y	Y						Y	Y	N	Y	Y		4****
40	Aikawa et al. (2018)	Y	Y						Y	Y	Y	Y	Y		5*****
41	Rietdijk et al. (2009)	Y	Y						Y	N	Y	Y	Y		4****
42	Rus-Calafell et al. (2014)	Y	Y						Y	Y	Y	N	Y		4****
43	Pepper et al. (2018)	Y	Y	Y	Y	Y	Y	Y							5*****
44	Lecomte, T. et al. (2019b)	Y	Y	Y	Y	Y	Y	Y							5*****
45	Cacciotti-Saija et al. (2018)	Y	Y						Y	Y	N	Y	Y		4****
46	Russo et al. (2018)	Y	Y	Y	Y	N	N	Y							3***
47	Wong (2020)	Y	Y						Y	Y	Y	Y	Y		5*****
48	Nemoto et al. (2020)	Y	Y						Y	Y	N	Y	Y		4****

Y, Yes; N, No; CT, Can't tell

SQ1, Screening questions 1: Are there clear research questions?; SQ2: Do the collected data allow to address the research questions?; 1.1. Is the qualitative approach appropriate to answer the research question?; 1.2. Are the qualitative data collection methods adequate to address the research question?; 1.3. Are the findings adequately derived from the data?; 1.4. Is the interpretation of results sufficiently substantiated by data?; 1.5. Is there coherence between qualitative data sources, collection, analysis and interpretation?; 2.1. Are the participants representative of the target population?; 2.2. Are measurements appropriate regarding

both the outcome and intervention (or exposure)?; 2.3. Are there complete outcome data?; 2.4. Are the confounders accounted for in the design and analysis?; 2.5. During the study period, is the intervention administered (or exposure occurred) as intended?; 3.1. Is the sampling strategy relevant to address the research question?; 3.2. Is the sample representative of the target population?; 3.3. Are the measurements appropriate?; 3.4. Is the risk of nonresponse bias low?; 3.5. Is the statistical analysis appropriate to answer the research question?

† Scoring as number of quality criteria met; for example, 4**** means 4 criteria (of totally 5) of a study design were met.

Supplementary Table 2.6 The process details of the co-raters rated papers to check reliability of the quality assessment.

	Citation		Screen questions; WA		Screen questions; NM			1. Qualitative; WA				1. Qualitative; NM					2. Quantitative randomized; WA					2. Quantitative randomized; NM					3. Quantitative non-randomized, WA					3. Quantitative non-randomized, NM					Scoring Metrics							
No	Year Pub	Authors, title, journal	Clear research question	Collected data addressing RQ	Clear research question	Collected data addressing RQ	Discrepencies	1.1 Sources of data relevant to RQ	1.2 Analysing process relevant to RQ	1.3 Findings relate to the context	1.4 Findings relate to researchers' influence	1.1 Sources of data relevant to RQ	1.2 Analysing process relevant to RQ	1.3 Findings relate to the context	1.4 Findings relate to researchers' influence	Discrepencies	2.1 Clear description of the randomization	2.2 Clear description of the allocation concealment	2.3 Complete outcome data (80% or above)	2.4 Low withdrawal/drop out (below 20%)	Discrepencies	2.1 Clear description of the randomization	2.2 Clear description of the allocation concealment	2.3 Complete outcome data (80% or above)	2.4 Low withdrawal/drop out (below 20%)	Discrepencies	3.1 Recruited by minimizing selection bias	3.2 Measurements appropriate exposure and outcomes	3.3 Difference between compared groups	3.4 Complete outcome data (80% or above), acceptable response rate (60% or above), or	Discrepencies	3.1 Recruited by minimizing selection bias	3.2 Measurements appropriate exposure and outcomes	3.3 Difference between compared groups	3.4 Complete outcome data (80% or above), acceptable response rate (60% or above), or	Discrepencies	Using descriptors such as *, **, ***, and ****. For qualitative and quantitative studies, this score can be the number of criteria met divided by four (scores varying from 25% (*) -one criterion met- to 100% (****) -all criteria met-). For mixed methods research studies, the premise is that the overall quality of a combination cannot exceed the quality of its weakest component. Thus, the overall quality score is the lowest score of the	%	100	75	50	25	0			
1	1994	David L Penn, Social anxiety in schizophrenia, Schizophrenia research	Y	Y	Y	Y	N																				Y	N	CT	Y		Y	N	CT: unclear as to	Y	N		**	50			1				
2	2001	James A Martin, Social cognition and subclinical paranoid ideation, British Journal of Clinical Psycholgy	Y	N	Y	N	N																				-	-	-	-						N	-	0						1			
3	2004	Andrew Gumley, Negative beliefs about self and illness: a comparison of individuals with psychosis with or without comorbid social anxiety disorder, Australian and New Zealand Journal of Psychiatry	Y	Y	Y	Y	N																				Y	Y	Y	Y		Y	Y	Y:matched groups	Y	N		****	100							1
4	2004	Stefano Pallanti, Social anxiety in outpatients with schizophrenia: a relevant cause of disability, American Journal of Psychiatry	Y	Y	Y	Y	N																				Y	Y	Y	Y		Y	Y	Y:although note social anx controls	Y	N		****	100							1
5	2005	Hee Jeong Jang, Investigation of social anxiety of patients with schizophrenia using virtual avatar, Annual Review of CyberTherapy and Telemedicine	Y	Y	Y	Y	N																				CT	Y	Y	CT		CT	Y	Y	CT	N		**	50			1				
6	2005	Marcia Voges, The association between social anxiety and social functioning in first episode psychosis, Schizophrenia Research	Y	Y	Y	Y	N																				Y	Y	Y	Y		Y	Y	Y	Y	N		****	100							1
7	2005	Paul Gilbert, The relation of paranoid ideation and social anxiety in a mixed clinical population, Clinical Psychology and Psychotherapy	Y	Y	Y	Y	N																				Y	Y	Y	CT		Y	Y	Y	CT	N		***	75		1					
8	2006	Paul H. Lysaker, Association of delusions and lack of cognitive flexibility with social anxiety in schizophrenia spectrum disorders, Schizophrenia Research	Y	Y	Y	Y	N																				Y	Y	Y	Y		Y	Y	Y	Y	N		****	100							1
9	2006	Max Birchwood, Social anxiety and the shame of psychosis: a study in first episode psychosis, Behaviour Research & Therapy	Y	Y	Y	Y	N																				Y	Y	Y	Y		Y	Y	Y	Y	N		****	100							1
10	2008	Paul H. Lysaker, Associations of social anxiety and self-esteem across six months for persons living with schizophrenia spectrum disorders, Psychiatric Rehabilitation Journal	Y	Y	Y	Y	N																				Y	Y	Y	Y		Y	Y	Y: although note small sample size so	Y	N		****	100							1
11	2008	D. Freeman, What makes one person paranoid and another person anxious? The differential prediction of social anxiety and persecutory ideation in an experimental situation, Psychological Medicine	Y	Y	Y	Y	N																				Y	Y	Y	Y		Y	Y	Y: however note dichotomised	Y	N		****	100							1
12	2009	Il Ho Park, Characteristics of social anxiety from virtual interpersonal interactions in patients with schizophrenia, Psychiatry: Interpersonal and Biological Processes	Y	Y	Y	Y	N																				Y	Y	Y	Y		Y	Y	Y	Y	N		****	100							1
13	2009	Maria Michail, Social anxiety disorder in first-episode psychosis: incidence, phenomenology and relationship with paranoia, British Journal of Psychiatry	Y	Y	Y	Y	N																				Y	Y	Y	Y		Y	Y	Y	Y	N		****	100							1
14	2009	Doron Mazeh, Co-morbid social phobia in schizophrenia, International Journal of Social Psychiatry	Y	Y	Y	Y	N																				Y	Y	Y	Y		Y	Y	Y	Y	N		****	100							1
15	2010	Paul H. Lysaker, Deficits in theory of mind and social anxiety as independent paths to paranoid features in schizophrenia, Schizophrenia Research	Y	Y	Y	Y	N																				Y	Y	Y	Y		Y	Y	Y - although note analysis	Y	N		****	100							1

16	2010	Paul H. Lysaker, Association of stigma, self-esteem, and symptoms with concurrent and prospective assessment of social anxiety in schizophrenia, Clinical Schizophrenia & Related Psychoses	Y	Y	Y	Y	N																			Y	Y	Y	CT	Y	Y: although multidimensional anxiety	Y	CT: doesn't state if there was drop out at 5month	N	***	75		1				
17	2011	Paul H. Lysaker, Metacognition in schizophrenia: the relationship of mastery to coping, insight, self-esteem, social anxiety, and various facets of neurocognition, British Journal of Clinical Psychology	Y	Y	Y	Y	N																			Y	Y	Y	Y	Y	Y: although multidimensional anxiety scale	Y: although not categorised a continuou	Y	N	****	100	1					
18	2011	Erin B. Tone, Associations among perceptual anomalies, social anxiety, and paranoia in a college student sample, Psychiatry Research	Y	Y	Y	Y	N																			Y	N	Y	Y	Y: although universi	N: social anxiety measure only	Y	Y	N	***	75		1				
19	2012	Kriston Lie Romm, Severe social anxiety in early psychosis is associated with poor premorbid functioning, depression, and reduced quality of life, Comprehensive Psychiatry	Y	Y	Y	Y	N																			Y	Y	Y	Y	Y	Y	Y: although categorised a continuous variable	Y	N	****	100	1					
20	2012	Sara I. J. Schutters, The association between social phobia, social anxiety cognitions and paranoid symptoms, Acta Psychiatrica Scandinavica	Y	Y	Y	Y	N																			Y	N	Y	Y	Y	N: measures don't seem to	Y	Y	N	***	75		1				
21	2012	H. Kumazaki, Lower subjective quality of life and the development of social anxiety symptoms after the discharge of elderly patients with remitted schizophrenia a 5-year longitudinal study, Comprehensive Psychiatry	Y	Y	Y	Y	N																			Y	Y	Y	Y	Y	Y	Y: although note that to create groups dichotomi	Y	N	****	100	1					
22	2013	A. M. Achim, Impact of social anxiety on social cognition and functioning in patients with recent-onset schizophrenia spectrum disorders, Schizophrenia Research	Y	Y	Y	Y	N																			Y	Y	Y	N	Y	Y	Y	N: although attrition with what was a small	N	***	75		1				
23	2013	M. Armando, Prevalence of psychotic-like experiences in young adults with social anxiety disorder and correlation with affective dysregulation, Journal of Nervous and Mental Disease	Y	Y	Y	Y	N																			Y	Y	Y	Y	Y	Y	Y	Y	N	****	100	1					
24	2013	R. Gajwani, Attachment: developmental pathways to affective dysregulation in young people at ultra-high risk of developing psychosis, British Journal of Clinical Psychology	Y	Y	Y	Y	N																			Y	Y	Y	Y	Y	Y	Y	Y	N	****	100	1					
25	2013	M. Matos, The effect of shame and shame memories on paranoid ideation and social anxiety, Clinical Psychology & Psychotherapy	Y	Y	Y	Y	N																			Y	Y	Y	Y	Y	Y	Y	Y	N	****	100	1					
26	2013	M. Michail, Social anxiety disorder and shame cognitions in psychosis, Psychological Medicine	Y	Y	Y	Y	N																			CT	Y	Y	CT	CT doesn't describ	Y	Y: although authors	CT drop out from control	N	**	50			1			
27	2013	J. Rietdijk, Depression and social anxiety in help-seeking patients with an ultra-high risk for developing psychosis, Psychiatry Research	Y	Y	Y	Y	N																			Y	Y	Y	Y	Y: although study notes	Y	Y	Y	N	****	100	1					
28	2013	L. Stopa, The fear of others: a qualitative analysis of interpersonal threat in social phobia and paranoia, Behavioural & Cognitive Psychotherapy	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	N																		-	****	100	1					
29	2014	M. Michail, Social anxiety in first-episode psychosis; the role of childhood trauma and adult attachment, Journal of Affective Disorders	Y	Y	Y	Y	N																			CT	Y	Y	CT	CT - doesn't give recruit	Y	Y - although note dichotomi	CT - drop out from age-matched	N	**	50			1			
30	2015	A. P. Morrison, Negative cognition, affect, metacognition and dimensions of paranoia in people at ultra-high risk of psychosis: A multi-level modelling analysis, Psychological Medicine	Y	Y	Y	Y	N																			Y	Y	Y	CT	Y	Y	Y	CT - completeness of outcome data not	N	***	75		1				

31	2015	S. R. Sutliff, Social anxiety disorder in recent onset schizophrenia spectrum disorders: the relation with symptomatology, anxiety, and social rank, Psychiatry research	Y	Y	Y	Y	N																					Y	Y	Y	Y	Y	Y	Y	Y	N	****	100	1						
32	2015	A. Gorun, Frequent comorbidity and predictors of social anxiety in persons with schizophrenia; A retrospective cohort study, Primary Care Companion to the Journal of Clinical Psychiatry	Y	Y	Y	Y	N																					Y	Y	Y	Y	Y	Y	Y	Y	N	****	100	1						
33	2015	K. M. Lowengrub, Social Anxiety Disorder Comorbid with Schizophrenia; The Importance of Screening for This Under recognized and Under treated Condition, Israel Journal of Psychiatry & Related Sciences	Y	Y	Y	Y	N																					Y	Y	Y	Y	Y	Y	Y:although note dichotomised a continuous variable	Y	N	****	100	1						
34	2016	A. M. Achim, Attribution bias and social anxiety in schizophrenia, Schizophrenia Research: Cognition	Y	Y	Y	Y	N																					CT	Y	Y	Y	CT - doesn't give	Y	Y: although dichotomi	Y	N	***	75		1					
35	2016	S. Cooper, Attenuated positive psychotic symptoms and social anxiety: Along a psychotic continuum or different constructs?, Psychiatry Research	Y	Y	Y	Y	N																					Y	Y	Y	Y	Y	Y	Y	Y	N	****	100	1						
36	2016	M. L. Piccirillo, Dealing with rejection: Post-event processing in social anxiety and paranoia, Journal of Experimental Psychopathology	Y	Y	Y	Y	N																					Y	Y	Y	Y	Y: although does mentio	Y	Y	Y	N	****	100	1						
37	2016	S. Pisano, Paranoid Thoughts in Adolescents with Social Anxiety Disorder, Child Psychiatry & Human Development	Y	Y	Y	Y	N																					Y	Y	Y	Y	Y	Y	Y	Y	N	****	100	1						
38	2017	K. Vrbova, Comorbidity of schizophrenia and social phobia - impact on quality of life, hope, and personality traits: A cross sectional study, Neuropsychiatric Disease and Treatment	Y	Y	Y	Y	N																					Y	Y	Y	Y	Y	Y	Y: although dichotomises SAD data	Y	N	****	100	1						
39	2017	K. Procwicz, Threatening events theme of cognitive biases mediates the relationship between fear of social situations and delusion-like experiences among healthy adults, Psychiatry Research	Y	Y	Y	Y	N																					Y	Y	Y	Y	Y	Y	Y	Y	N	****	100	1						
40	1992	Khaliln N, Do perceived parental rearing patterns influence social behaviour dimensions and disease severity in schizophrenia?, Acta Psychiatrica Scandinavica	Y	Y	Y	Y	N																					Y	CT	Y	Y	Y	CT - U scale doesn't appear to	Y: although note dichotomised	Y	N	***	75		1					
41	1998	Blanchard JJ, Anhedonia, positive and negative affect, and social functioning in schizophrenia, Schizophrenia Bulletin	Y	Y	Y	Y	N																					Y	Y	Y	Y	Y: although may question	Y	Y	Y	N	****	100	1						
42	2005	Hupper JD, Anxiety and schizophrenia: the interaction of subtypes of anxiety and psychotic symptoms, Cns Spectrums	Y	Y	Y	Y	N																					Y	Y	Y	Y	Y	Y	Y: although was noted to have a	Y	N	****	100	1						
43	2008	Lysaker PH, Clinical and psychological correlates of two domains of hopelessness in schizophrenia, Journal of rehabilitation research and development	Y	Y	Y	Y	N																					Y	Y	Y	Y	Y	Y: although MAQ not only	Y: although note high number of	Y	N	****	100	1						
44	2011	Romm KL, Assessment of social anxiety in first episode psychosis using the Liebowitz Social Anxiety scale as a self-report measure, European Psychiatry	Y	Y	Y	Y	N																					Y	Y	Y	Y	Y	Y	Y	Y	N	****	100	1						
45	2011	Chudleigh C, How does social functioning in the early stages of psychosis relate to depression and social anxiety?, Early Intervention in Psychiatry	Y	Y	Y	Y	N																					Y	Y	Y	Y	Y	Y: although measure not	Y	Y	N	****	100	1						

46	2011	Achim AM, Assessment of empathy in first-episode psychosis and meta-analytic comparison with previous studies in schizophrenia, Psychiatry Research	Y	Y	Y	Y	N										Y	Y	Y	Y	Y: although note not	Y	Y	Y	N	****	100	1						
47	2012	Katherine N. T., The Fear of Others: A Pilot Study of Social Anxiety Processes in Paranoia, Behavioural and Cognitive Psychotherapy	Y	Y	Y	Y	N										CT	Y	Y	Y	CT: non-clinical control	Y	Y - Although likely that small	Y	N	***	75		1					
48	2015	Pyle M, Internalized stigma, emotional dysfunction and unusual experiences in young people at risk of psychosis, Early Intervention in Psychiatry	Y	Y	Y	Y	N										Y	Y	Y	Y	Y	Y	Y	Y	N	****	100	1						
49	2016	Lim MH, Loneliness over time: The crucial role of social anxiety, Journal of Abnormal Psychology	Y	Y	Y	Y	N										Y	Y	Y	Y	Y	Y	Y	Y	N	****	100	1						
50	2017	Kwong VW, Clinical and treatment-related determinants of subjective quality of life in patients with first-episode psychosis, Psychiatry Research	Y	Y	Y	Y	N										Y	Y	Y	Y	Y	Y	Y	Y	N	****	100	1						
51	2009	El Masry N, Comorbidity of Social Phobia in a Sample of Out-patients with Schizophrenia, Current Psychiatry [Egypt]	Y	Y	Y	Y	N										Y	Y	Y	Y	Y	Y	Y: although note small	Y	N	****	100	1						
52	2010	Ghada E. K., Social anxiety in schizophrenia: a clinical quantitative and qualitative analysis, Middle East Current Psychiatry	Y	Y	Y	Y	N										Y	Y	Y	Y	Y	Y	Y: although note categorise	Y	N	****	100	1						
53	2014	Keith Aherne, The role of childhood trauma and shame in social anxiety and paranoia within an early intervention in psychosis population, thesis	Y	Y	Y	Y	N										Y	Y	Y	Y	Y	Y	Y: although small sample	Y	N	****	100	1						
54	2016	Bipeta Rajshekhar, Social anxiety disorder co-morbid with schizophrenia: a cross-sectional study from India, International Journal of Medical Research and Review	Y	Y	Y	Y	N										Y	Y	Y	Y	Y	Y	Y: although dichotomises SAD	Y	N	****	100	1						
55	2016	Savanna A. Mueller, Paranoid Ideation and Social Anxiety in Undergraduates and Clinical Populations, thesis	Y	Y	Y	Y	N										Y	Y	N	Y	Y: although note	Y although not all	N: age not controlled for in	Y	N	***	75		1					
56	2018	Sayaka Aikawa, Social anxiety and risk factors in patients with schizophrenia: Relationship with duration of untreated psychosis, Psychiatry Research	Y	Y	Y	Y	N										Y	Y	Y	Y	Y	Y	Y: although note dichotomi	Y	N	****	100	1						
57	2018	Xiaoqi S, Paranoia and anxiety: A cluster analysis in a non-clinical sample and the relationship with worry processes, Schizophrenia Research	Y	Y	Y	Y	N										Y	CT	Y	Y	Y	CT: unclear whether social	Y	Y	N	***	75		1					
58	2009	J. Rietdijk , Are social phobia and paranoia related, and which comes first?, Psychosis	Y	Y	Y	Y	N										Y	Y	CT	Y	Y	Y: although issues	CT: multiple compariso	Y	N	***	75		1					
59	2014	Hannah ET, Psychopathology and affect dysregulation across the continuum of psychosis: a multiple comparison group study, Early Intervention in Psychiatry	Y	Y	Y	Y	N										Y	Y	Y	Y	Y	Y	Y	Y	N	****	100	1						
60	2013	Lee TY, The effects of assertiveness training in patients with schizophrenia: a randomized, single-blind, controlled study, Journal of Advanced Nursing	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	N										****	100	1						
61	2000	Halperin S, A cognitive-behavioural, group-based intervention for social anxiety in schizophrenia, Australian and New Zealand Journal of Psychiatry	Y	Y	Y	Y	N	N	N	Y	N	N	N	Y	N	N										*	25				1			
62	2003	Kingsep P, Cognitive behavioural group treatment for social anxiety in schizophrenia, Schizophrenia Research	Y	Y	Y	Y	N	Y	Y	CT	CT	Y: although ranom	Y	CT	CT: some participants not	N										**	50			1				
63	2014	Rus-Calafell M, A virtual reality-integrated program for improving social skills in patients with schizophrenia: a pilot study, J Behav Ther & Exp Psychiat	Y	Y	Y	Y	N										Y	Y	Y	Y	Y	Y	Y	Y	N	****	100	1						
																												44	12	5	1	1	63	N
																												69.84127	19.04762	7.936508	1.587302	1.587302	100	%

Supplementary Table 2.7 Lists of identified maintenance and correlates of social anxiety in psychotic experiences including frequencies of identified significant factors of each study.

Maintenance factors	Frequencies of identified significant factors	Correlates	Frequencies of identified significant factors
Cognitive factors		**Functioning**	9/10
- Stigma and shame	6/7 †	**Quality of life**	9/9
- Self-esteem	5/5	**Well-being**	3/3
- Social rank	3/3	**Family factors**	2/2
- Negative self-referent appraisals	3/4 ‡	**Personality factors**	2/2
Metacognitive factors		**Anomalous experiences**	2/2
- Theory of Mind	1/3	**Other factors**	
- Metacognitive mastery	1/1	- Suicidality and hopelessness	3/3
- Mentalization	1/1	- Traumatic experiences	1/1
- Reasoning biases	1/1	- Executive functioning	1/1
Behavioral factors		- Subclinical paranoia	1/1
- Avoidance	1/1	- Persecutory threat	1/1
- Post-event processing	1/1	- Social anhedonia	1/1
Other maintenance factors			
- Attachment	2/3		
- Empathy	1/1		
- Intolerance of uncertainty	1/1		

† means that six out of seven studies showed that stigma and shame was significantly associated with social anxiety in psychotic experiences.

‡ One out of four study is a qualitative study.

Chapter 3 Appendix

Supplementary Table 3.1 Jobs related to health care or mental fitness compared between Thailand and the UK.

Jobs	**Thailand** (n=170)	**UK** (n=123)
Researcher	-	18 (4.3)
Psychologist	12 (2.8)	15 (3.6)
Personal health care	-	15 (3.6)
Doctor	97 (22.7)	12 (2.9)
Nurse	27 (6.3)	9 (2.2)
Healthcare assistant	-	6 (1.4)
Occupational therapist	-	5 (1.2)
Pharmacist	15 (3.5)	5 (1.2)
Counsellor	-	4 (1.0)
Nurse student	-	4 (1.0)
Clinical psychologist	-	3 (0.7)
Medical student	7 (1.6)	2 (0.5)
Psychotherapist	-	2 (0.5)
Dentist	6 (1.4)	1 (0.2)
Others	6 (1.4)	22 (5.3)

Data are n (%) unless otherwise indicate

Supplementary Table 3.2 Reliability coefficient (Cronbach's alpha) of measurements compared between Thailand (n=427) and the UK (n=415).

Measurements	Subscales	No. items	Cronbach's alpha	
			Thailand (n=427)	UK (n=415)
GPTS	Social reference	16	0.90	0.95
	Persecutory	16	0.94	0.97
SIAS	-	20	0.93	0.94
DASS	Stress	7	0.90	0.89
	Anxiety	7	0.85	0.90
	Depression	7	0.89	0.95
RIBS (items 5-8)		4	0.88	0.86
ISS	-	24	0.98	0.98
OASS	-	18	0.95	0.96
SCS	-	11	0.97	0.93
RSES	-	10	0.89	0.92
SAFE	Inhibiting/restricting behaviours	11	0.91	0.93
	Active behaviours	15	0.88	0.90
	Manage physical symptoms	6	0.74	0.89

DASS, Depression Anxiety Stress Scales; GPTS, Green Paranoid Thought Scales; ISS, Internalised Shame Scale; OASS, Other As Shamer Scale; RIBS, Reported and Intended Behaviour Scale; RSES, Rosenberg Self-Esteem Scale; SAFE, Subtle Avoidance Frequency Examination; SCS, Social Comparison Scale; SIAS, Social Interaction Anxiety Scale

Supplementary Table 3.3 Response frequencies for stigma using Reported and Intended Behaviour Scale compared between Thailand and the UK (N total=842).

Contents	Yes	No	Don't know	Pearson Chi-square			
1. Are you currently living with, or have you ever lived with, someone with a mental health problem?				***p<0.001***			
Thailand (n=427)	127 (29.7)	249 (58.3)	51 (11.9)				
UK (n=415)	247 (59.5)	126 (30.4)	42 (10.1)				
2. Are you currently working with, or have you ever worked with, someone with a mental health problem?				***p<0.001***			
Thailand (n=427)	200 (46.8)	152 (35.6)	75 (17.6)				
UK (n=415)	239 (57.6)	92 (22.2)	84 (20.2)				
3. Do you currently have, or have you ever had, a neighbour with a mental health problem?				***p<0.001***			
Thailand (n=427)	119 (27.9)	215 (50.4)	93 (21.8)				
UK (n=415)	102 (24.6)	111 (26.7)	202 (48.7)				
4. Do you currently have, or have you ever had, a close friend with a mental health problem?				***p<0.001***			
Thailand (n=427)	194 (45.4)	179 (41.9)	54 (12.6)				
UK (n=415)	337 (81.2)	50 (12.0)	28 (6.7)				
	Strongly agree	**Slightly agree**	**Neither agree nor disagree**	**Slightly disagree**	**Strongly disagree**	**Don't know**	**Pearson Chi-square**
5. In the future, I would be willing to live with someone with a mental health problem							***p<0.001***
Thailand (n=427)	52 (12.2)	81 (19.0)	151 (35.4)	68 (15.9)	47 (11.0)	28 (6.6)	
UK (n=415)	198 (47.7)	88 (21.2)	59 (14.2)	26 (6.3)	26 (6.3)	18 (4.3)	
6. In the future, I would be willing to work with someone with a mental health problem							***p<0.001***

Thailand (n=427)	65 (15.2)	96 (22.5)	129 (30.2)	76 (17.8)	42 (9.8)	19 (4.4)	
UK (n=415)	289 (69.6)	64 (15.4)	36 (8.7)	7 (1.7)	11 (2.7)	8 (1.9)	
7. In the future, I would be willing to live nearby to someone with a mental health problem							***p<0.001***
Thailand (n=427)	51 (11.9)	81 (19.0)	140 (32.8)	83 (19.4)	54 (12.6)	18 (4.2)	
UK (n=415)	286 (68.9)	53 (12.8)	50 (12.0)	12 (2.9)	10 (2.4)	4 (1.0)	
8. In the future, I would be willing to continue a relationship with a friend who developed a mental health problem							***p<0.001***
Thailand (n=427)	131 (30.8)	161 (37.8)	86 (20.2)	19 (4.5)	20 (4.7)	9 (2.1)	
UK (n=415)	322 (77.6)	50 (12.0)	24 (5.8)	8 (1.9)	5 (1.2)	6 (1.4)	

Data are n (%) unless otherwise indicate

Supplementary Table 3.4 Results of parallel multiple mediation analyses examining direct, indirect and total effects of independent variable (social anxiety) and dependent variables (GPTS persecutory) with co-variances (DASS Depression) through mediators of individuals responding for whether individual related to or diagnosed with mental disorder ('Yes') or not ('No') compared between Thailand (n=427) and the UK (n=415).

Countries	**TH**								**UK**							
Related to or diagnosed with mental disorder	n	Mediators	Effect of SIAS on mediator (a)	Unique effect of mediator (b)	Indirect effect (ab)	Bootstrapping bias-corrected 95% CI	Direct effect (c')	Total effect (c)	n	Effect of SIAS on mediator (a)	Unique effect of mediator (b)	Indirect effect (ab)	Bootstrapping bias-corrected 95% CI	Direct effect (c')	Total effect (c)
Yes	117						0.02	0.11	311					-0.07	0.29***
		RIBS (items 5-8)	0.00	0.06	0.00	-0.015, 0.018				-0.01	-0.00	0.00	-0.008, 0.009		
		OASS	***0.32******	***0.34******	***0.11***	***0.029, 0.215***				***0.47******	***0.44******	***0.21***	***0.133, 0.293***		
		SCS	***-0.32****	0.06	-0.02	-0.060, 0.005				***-0.30******	0.01	-0.00	-0.032, 0.025		
		RSES	***-0.07****	-0.21	0.02	-0.017, 0.079				***-0.14******	0.35	***-0.05***	***-0.103, -0.001***		
		SAFE	***0.65******	-0.02	-0.02	-0.129, 0.103				***1.022******	***0.20******	***0.20***	***0.107, 0.307***		
No	310						***-0.09****	0.03	104					-0.07	-0.04
		RIBS (items 5-8)	0.01	***0.22****	0.00	-0.006, 0.015				0.04	0.23	0.01	-0.008, 0.053		
		OASS	***0.14******	***0.25******	***0.04***	***0.011, 0.069***				***0.18****	***0.47******	***0.08***	***0.006, 0.184***		
		SCS	-0.22	0.01	-0.00	-0.009, 0.005				-0.20	-0.03	0.01	-0.015, 0.040		
		RSES	***-0.12******	0.08	-0.01	-0.038, 0.015				***-0.21******	0.35	***-0.07***	***-0.162, -0.0001***		
		SAFE	***0.80******	***0.12******	***0.10***	***0.036, 0.167***				***0.86******	0.01	0.01	-0.108, 0.167		

Depression Anxiety Stress Scales; GPTS, Green Paranoid Thought Scales; OASS, Other As Shamer Scale; RIBS, Reported and Intended Behaviour Scale; RSES, Rosenberg Self-Esteem Scale; SAFE, Subtle Avoidance Frequency Examination; SCS, Social Comparison Scale; SIAS, Social Interaction Anxiety Scale

*p<0.05, **p<0.01, ***p<0.001

Supplementary Table 3.5 Results of parallel multiple mediation analyses examining direct, indirect and total effects of independent variable (social anxiety) and dependent variables (GPTS persecutory) with co-variances (DASS depress) through mediators of individuals responding whether individual job related to health care, or mental fitness ('Yes') or not ('No') compared between Thailand (n=427) and the UK (n=415)

Countries	**TH**								**UK**						
Job related to health care	n	Mediators	Effect of SIAS on mediator (a)	Unique effect of mediator (b)	Indirect effect (ab)	Bootstrapping bias-corrected 95% CI	Direct effect (c')	Total effect (c)	n	Effect of SIAS on mediator (a)	Unique effect of mediator (b)	Indirect effect (ab)	Bootstrapping bias-corrected 95% CI	Direct effect (c')	Total effect (c)
Yes	170						-0.01	0.07	123					-0.01	***0.23***
		RIBS (items 5-8)	0.03	0.16	0.00	-0.005, 0.018				-0.04	0.03	-0.00	-0.022, 0.019		
		OASS	***0.26****	***0.21****	***0.05***	***0.013, 0.104***				***0.48****	***0.40***	***0.19***	***0.062, 0.316***		
		SCS	***-0.39****	0.02	-0.01	-0.023, 0.004				***-0.28****	-0.02	0.01	-0.032, 0.047		
		RSES	***-0.14****	0.06	-0.01	-0.050, 0.040				***-0.17****	***0.49****	***-0.08***	***-0.178, -0.008***		
		SAFE	***0.87****	0.04	0.04	-0.040, 0.114				***1.12****	0.11	0.13	-0.044, 0.319		
No	257						-0.04	0.07	292					-0.06	***0.23****
		RIBS (items 5-8)	0.00	0.12	0.00	-0.007, 0.012				-0.00	0.17	-0.00	-0.009, 0.008		
		OASS	***0.16***	***0.38****	***0.06***	***0.018, 0.119***				***0.42****	***0.45****	***0.19***	***0.118, 0.273***		
		SCS	-0.08	0.01	-0.00	-0.009, 0.004				***-0.31****	0.00	-0.00	-0.030, 0.028		
		RSES	-0.03	0.01	-0.00	-0.014, 0.015				***-0.15****	0.30	-0.04	-0.102, 0.007		
		SAFE	***0.72****	0.07	0.05	-0.025, 0.144				***0.97****	***0.16****	***0.15***	***0.062, 0.263***		

Depression Anxiety Stress Scales; GPTS, Green Paranoid Thought Scales; OASS, Other As Shamer Scale; RIBS, Reported and Intended Behaviour Scale; RSES, Rosenberg Self-Esteem Scale; SAFE, Subtle Avoidance Frequency Examination; SCS, Social Comparison Scale; SIAS, Social Interaction Anxiety Scale

*p<0.05, **p<0.01, ***p<0.001

Chapter 4 Appendix

Supplementary Table 4.1 Baseline potential variables of general populations in Thailand and the UK compared between those who completed 3-month followed-up (n=422) and dropped out (n=420).

	Thailand				UK			
Potential variables	**Total (n=427)**	**Follow-up (n=186)**	**Drop-out (n=241)**	**p-value**	**Total (n=415)**	**Follow-up (n=236)**	**Drop-out (n=179)**	**p-value**
SIAS	26.4 ± 14.2 (3-69)	27.7 ± 14.7 (4-69)	25.3 ± 13.8 (3-64)	0.09	39.3 ± 18.3 (3-77)	39.6 ± 17.9 (5-76)	39.0 ± 18.9 (3-77)	0.71
GPTS Persecutory	23.0 ± 9.1 (16-77)	22.6 ± 8.8 (16-63)	23.3 ± 9.4 (16-77)	0.43	25.6 ± 14.2 (16-80)	25.4 ± 13.9 (16-80)	25.9 ± 14.7 (16-74)	0.69
GPTS Reference	31.7 ± 9.4 (16-65)	31.4 ± 9.4 (19-65)	31.8 ± 9.5 (16-62)	0.67	33.3 ± 14.6 (16-79)	32.9 ± 14.6 (16-79)	33.9 ± 14.6 (16-75)	0.52
RIBS (items 5-8)	11.0 ± 3.9 (4-20)	10.7 ± 3.8 (4-20)	11.2 ± 4.0 (4-20)	0.22	6.5 ± 3.4 (4-20)	6.4 ± 3.3 (4-16)	6.6 ± 3.5 (4-20)	0.53
ISS	21.2 ± 20.0 (0-96)	23.9 ± 21.7 (1-90)	19.2 ± 18.4 (0-96)	***0.02***	51.5 ± 26.7 (0-96)	53.6 ± 25.0 (7-96)	48.8 ± 28.6 (0-96)	0.07
OASS	15.9 ± 12.2 (0-69)	16.5 ± 12.4 (1-56)	15.5 ± 12.1 (0-69)	0.44	30.7 ± 16.9 (0-72)	31.5 ± 16.2 (6-72)	29.6 ± 17.8 (0-70)	0.25
SCS	61.8 ± 23.9 (11-110)	63.6 ± 22.4 (11-110)	60.3 ± 24.9 (11-101)	0.16	41.8 ± 17.2 (10-100)	41.1 ± 17.0 (10-88)	42.8 ± 17.5 (10-100)	0.30
RSES	31.4 ± 5.5 (13-40)	31.1 ± 5.7 (13-40)	31.6 ± 5.4 (13-40)	0.31	24.1 ± 7.2 (10-40)	23.6 ± 6.9 (10-38)	24.8 ± 7.5 (10-40)	0.10
SAFE	27.4 ± 18.4 (0-103)	28.0 ± 18.3 (1-103)	26.9 ± 18.5 (0-90)	0.52	47.1 ± 26.8 (0-128)	46.8 ± 25.2 (3-128)	47.4 ± 28.8 (0-125)	0.82

DASS Depression	8.7 ± 8.8 (0-42)	9.5 ± 9.1 (0-42)	8.1 ± 8.5 (0-40)	0.12	19.9 ± 13.4 (0-42)	20.8 ± 13.3 (0-42)	18.7 ± 13.4 (0-42)	0.11
DASS Anxiety	7.5 ± 7.9 (0-42)	8.1 ± 8.4 (0-42)	7.0 ± 7.4 (0-38)	0.14	14.9 ± 11.7 (0-42)	14.9 ± 11.2 (0-42)	14.8 ± 12.3 (0-42)	0.93
DASS Stress	10.9 ± 9.2 (0-42)	11.7 ± 9.9 (0-42)	10.2 ± 8.6 (0-42)	0.10	20.3 ± 11.0 (0-42)	20.9 ± 10.6 (0-42)	19.6 ± 11.4 (0-42)	0.24

DASS, Depression Anxiety Stress Scales; GPTS, Green Paranoid Thought Scales; ISS, Internalised Shame Scale; OASS, Other As Shamer Scale; RIBS, Reported and Intended Behaviour Scale; RSES, Rosenberg Self-Esteem Scale; SAFE, Subtle Avoidance Frequency Examination; SCS, Social Comparison Scale; SIAS, Social Interaction Anxiety Scale

Data are mean ± SD (min-max)

† Independent T-Test of variables compared between follow-up and drop-out
‡ Individuals having history with mental health problems at follow-up and drop-out amongst Thai (n=64 and 53) and UK samples (n=192 and 119), respectively.

Supplementary Table 4.2 Intercorrelations of potential variables in combined Thai and UK population samples (N total=422).

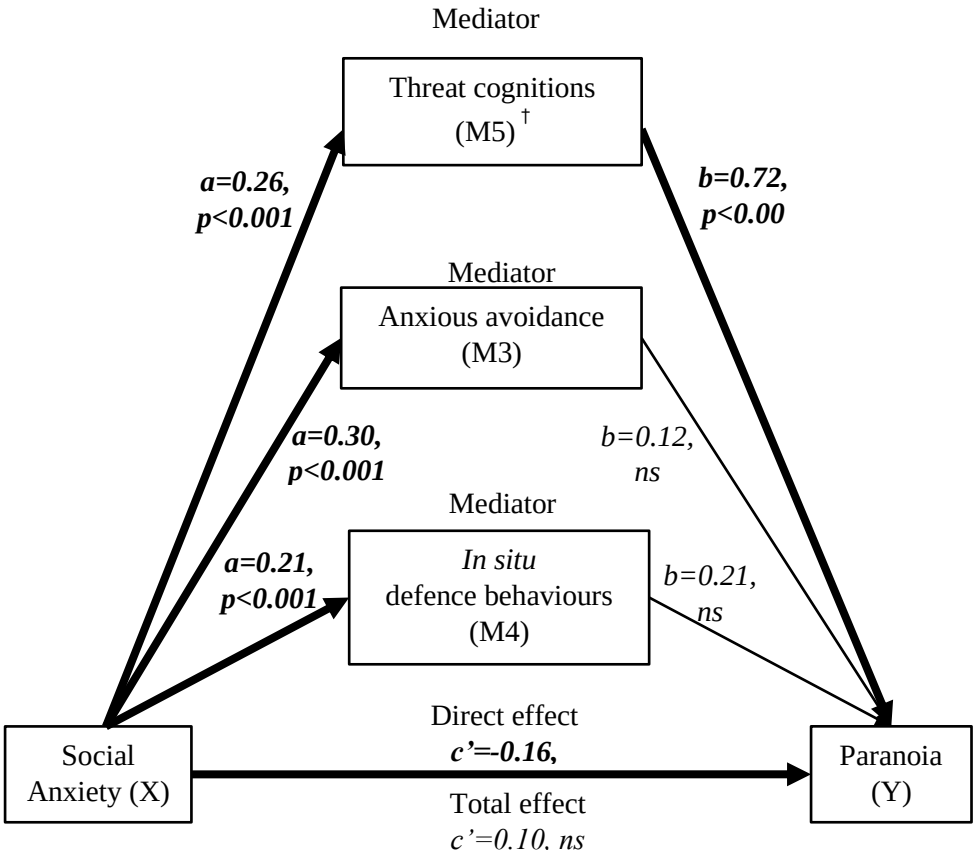
DASS, Depression Anxiety Stress Scales; GPTS, Green Paranoid Thought Scales; ISS, Internalised Shame Scale; OASS, Other As Shamer Scale; RIBS, Reported and Intended Behaviour Scale; RSES, Rosenberg Self-Esteem Scale; SAFE, Subtle Avoidance Frequency Examination; SCS, Social Comparison Scale; SIAS, Social Interaction Anxiety Scale

* p<0.01

Variables	1	2	3	4	5	6	7	8	9	10	11	12	
1. SIAS	0.91*	0.59*	0.47*	-0.22*	0.77*	0.71*	-0.48*	-0.70*	0.78*	0.66*	0.68*	0.66*	
2. GPTS Reference	0.61*	0.82*	0.76*	-0.08	0.57*	0.66*	-0.25*	-0.50*	0.61*	0.59*	0.63*	0.53*	
3. GPTS Persecutory	0.53*	0.81*	0.72*	-0.49	0.47*	0.60*	-0.21*	-0.40*	0.53*	0.52*	0.57*	0.48*	
4. RIBS (items 5-8)	-0.11	0.03	-0.001	0.79*	-0.32*	-0.26*	0.31*	0.29*	-0.19*	-0.25*	-0.21*	-0.28*	
5. ISS	0.78*	0.57*	0.53*	-0.30*	0.90*	0.86*	-0.60*	-0.86*	0.73*	0.77*	0.73*	0.82*	
6. OASS	0.74*	0.65*	0.63*	-0.23*	0.88*	0.86*	-0.53*	-0.75*	0.73*	0.72*	0.72*	0.74*	
7. SCS	-0.53*	-0.31*	-0.32*	0.18*	-0.60*	-0.57*	0.52*	0.62*	-0.47*	-0.46*	-0.44*	-0.52*	**T1** †
8. RSES	-0.70*	-0.47*	-0.42*	0.27*	-0.86*	-0.76*	0.62*	0.89*	-0.64*	-0.66*	-0.66*	-0.79*	
9. SAFE	0.84*	0.65*	0.62*	-0.14*	0.77*	0.77*	-0.47*	-0.65*	0.87*	0.67*	0.72*	0.62*	
10. DASS Stress	0.70*	0.59*	0.56*	-0.16*	0.78*	0.74*	-0.48*	-0.68*	0.71*	0.75*	0.81*	0.78*	
11. DASS Anxiety	0.71*	0.67*	0.61*	-0.11	0.71*	0.73*	-0.47*	-0.63*	0.75*	0.78*	0.82*	0.73*	
12. DASS Depression	0.67*	0.50*	0.50*	-0.20*	0.81*	0.71*	-0.54*	-0.80*	0.64*	0.78*	0.68*	0.79*	
								T2 †					**T1 vs 2** †

† Values of Pearson's correlation coefficient: the white and light grey shading presented at baseline (T1) and 3-month follow-up (T2) of intervariable; the dark grey shading presented same variable of T1 vs T2.

Chapter 5 Appendix



Supplementary Figure 5.1 The Multiple mediation analyses of the relationship between social anxiety and paranoia with three safety behaviours: Threat cognitions, Anxious avoidance and *In situ* defence behaviours.

† Value of indirect effect of the *In situ* defence behaviours (M5): ab=0.183, 95%CI=0.0857, 0.3036

Note: ns: not significant

Supplementary Table 5.1 Linear regression analysis of R-GPTS Persecutory (a dependent variable) with three safety behavioural factors (N=113)

Independent variables	Adjusted R^2	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std error	Beta		
(Constant)	0.58	5.16	2.89		1.79	0.077
SIAS		-0.19	0.07	-0.28	-2.83	**0.006**
Age		-0.03	0.04	-0.04	-0.65	0.518
Gender (Male)		-1.75	1.04	-0.11	-1.68	0.097
DASS Depression		0.24	0.10	0.23	2.45	**0.016**
O-CDQ Threat cognitions †		0.74	0.14	0.62	5.46	**0.000**
O-CDQ Anxious avoidance		0.15	0.08	0.15	1.90	**0.060**
O-CDQ *In situ* defence behaviours		0.17	0.14	0.11	1.18	0.241

O-CDQ, Oxford Cognitions and Defences Questionnaire; DASS, Depression Anxiety Stress Scales; R-GPTS, Revised Green Paranoid Thought Scales; SIAS, Social Interaction Anxiety Scale

† Regarding the stepwise regression analysis, the final model of RGPTS Persecutory included only O-CDQ Threat cognitions (B 0.88, $p<0.001$) with adjusted R square 53.5%.

Supplementary Table 5.2 Results of simple and parallel multiple mediation analyses examining direct, indirect and total effects of independent variable (social anxiety) and dependent variables (RGPTS persecutory) with co-variances (DASS Depression) through mediators with three safety behavioural factors. (N=113)

	Independent variables	Mediators	Effect of SIAS on mediator (*a*)	Unique effect of mediator (*b*)	Indirect effect (*ab*)	Bootstrapping bias-corrected 95% CI	Direct effect (*c'*)	Total effect (*c*)
Simple Mediation analysis	RGPTS Persecutory	O-CDQ Threat cognitions	***0.26******	***0.84******	***0.22***	***0.1102, 0.3389***	-0.11	0.10
Multiple Mediation analysis	RGPTS Persecutory						***-0.16****	0.10
		O-CDQ Threat cognitions	***0.26******	***0.72******	***0.18***	***0.0857, 0.3036***		
		O-CDQ Anxious avoidance	***0.30******	0.12	0.04	-0.0007, 0.0912		
		O-CDQ *In situ* defence behaviours	***0.21******	0.21	0.04	-0.0118, 0.1168		

O-CDQ, Oxford Cognitions and Defences Questionnaire; DASS, Depression Anxiety Stress Scales; R-GPTS, Revised Green Paranoid Thought Scales; SIAS, Social Interaction Anxiety Scale

* p<0.05, ***p<0.001

Other Materials

Studies in Chapter 3 and 4

Ethics approvals in the UK and Thailand

Recruitment

Poster and Flyer

English version

Thai version

Text adverts on social media

For example, Twitter, Facebook, Gumtree or third organizations

English version

Do you ever have anxious or threat cognitions in social interaction?
Are you aged ≥18, and living in the UK?
We want to hear from you! CLICK : bit.ly/UK-PASO
Participants can be entered into a prize draw to win one of three £50 vouchers (for survey 1) or either an iPad mini or £200 voucher (for survey 2 after 3 months delay). Prizes draw will take place at the end of each recruitment. The survey takes ~ 25-30 minutes. Please share!

Thai version

คุณเคยรู้สึกกังวล หรือหวาดกลัว เวลาเข้าสังคมหรือไม่หากคุณอายุตั้งแต่ 18 ปีขึ้นไป และอาศัยอยู่ในประเทศไทย
ขอเชิญเข้าร่วมตอบแบบสำรวจทัศนคติต่อการใช้ชีวิตในสังคม
เราอยากรับทราบความคิดเห็นและความรู้สึกของคุณ CLICK: bit.ly/TH-PASO
ผู้เข้าร่วมตอบแบบสำรวจ ครั้งที่1 มีโอกาสร่วมชิงบัตรกำนัล มูลค่า 1000 บาท 4 รางวัล และครั้งที่2 (อีก 3 เดือนถัดมา) มูลค่า 2000 บาท 3 รางวัล
แบบสำรวจใช้เวลาประมาณ 25-30 นาที

Invitation and reminders email

English version

Sender name: Research team of PASO survey

Invitation message subject: Invitation to take part in the 3-month follow-up study of the PASO survey
Invitation message body:

Dear Participant [EMAIL],

According to you have participated in first part of the survey and agreed to take part in follow-up study, we would like to thank you for your interest.
Before completing the survey, we would like to remind that:

1. The aim of this survey is to explore anxious or threat cognitions in social interaction among general population.
2. The survey is anonymous and will take approximately 25-30 minutes to complete.
3. Please feel free to decide whether to complete in this online survey or not.

An online survey has been created the link for you to complete. If you agree to take part, please click
[CUSTOM_URL]
Survey respondents will have the chance to win either an iPad mini or £200 voucher.
Prizes draw will take place at the end of recruitment.
More information can be found in the participant information sheet (the first page of the online survey).
If you have any questions or concerns about participating in this study, contact me at.

Thank you for your participation with this research.
Yours Sincerely,
Research team

Reminder message subject: Survey completion reminder to take part in the 3-month follow-up study of the PASO survey
Reminder message body:

Dear Participants [EMAIL],

According to you have participated in first part of the survey and agreed to take part in follow-up study, we would like to thank you for your interest.
We have invited you in the previous email, unfortunately, we have not yet detected your response to our survey.
The survey is anonymous and will take approximately 25-30 minutes to complete.
The link below has been created for you to complete.
[CUSTOM_URL]
Survey respondents will have the chance to win either an iPad mini or £200 voucher.
Prizes draw will take place at the end of recruitment.
More information can be found in the participant information sheet (the first page of the online survey).
If you have any questions or concerns about participating in this study, contact me at

Thank you for your participation with this research.
Yours Sincerely,
Research team

Thai version

Sender name: ทีมวิจัย(ทัศนคติต่อการใช้ชีวิตในสังคมของประชาชนไทย)
Invitation message subject: เนื่องจากท่านยินดีรับอีเมล์แจ้งเตือนเพื่อเข้าร่วมตอบแบบสำรวจครั้งที่2
Invitation message body:

เรียน คุณ **[EMAIL],**
เนื่องจากท่านเข้าร่วมตอบแบบสำรวจทัศนคติต่อการใช้ชีวิตในสังคมของประชาชนไทย ครั้งที่1 และยินดีให้ทีมวิจัยส่งอีเมล์ฉบับนี้ เพื่อเรียนเชิญท่านเข้าร่วมตอบแบบสำรวจในครั้งที่ 2
ในเบื้องต้นทีมวิจัยขอขอบพระคุณท่านที่สนใจในการตอบแบบสำรวจครั้งนี้
ก่อนตอบแบบสำรวจ ทีมวิจัยขออนุญาตแจ้งข้อมูลซ้ำอีกครั้งว่า

1. การสำรวจนี้เพื่อทำความเข้าใจทัศนคติของประชาชนคนไทยต่อการใช้ชีวิตในสังคม
2. ข้อมูลที่ได้จะไม่สามารถระบุตัวตนถึงท่าน
3. หากท่านไม่ต้องการตอบแบบสำรวจครั้งนี้ ท่านสามารถเพิกเฉยต่อการแจ้งเตือนนี้ได้ โดยจะไม่มีผลต่อการได้รับบริการตามมาตรฐานที่ท่านจะได้รับ
4. แบบสำรวจนี้เป็นการตอบแบบสำรวจด้วยตัวเอง และจะใช้เวลาประมาณ 25-30 นาที

ระบบสำรวจออนไลน์ได้สร้างลิงค์(ด้านล่าง)สำหรับท่าน หากท่านยินดีตอบแบบสำรวจกรุณาคลิก
[CUSTOM_URL]
ผู้เข้าร่วมตอบแบบสำรวจ ในครั้งที่ 2 นี้ มีโอกาสร่วมชิงบัตรกำนัลมูลค่า 2000 บาท จำนวน 3 รางวัล
ทีมวิจัยจะทำการจับรางวัลหลังจากเสร็จสิ้นการเก็บข้อมูล
ท่านสามารถศึกษาข้อมูลเพิ่มเติมได้ที่เอกสารชี้แจงผู้เข้าร่วมการวิจัย (หน้าแรกของแบบสำรวจออนไลน์)
หากท่านมีข้อข้องใจเกี่ยวกับขั้นตอนของการวิจัยหรือได้รับผลข้างเคียงที่ไม่พึงประสงค์จากการวิจัย ท่านสามารถติดต่อกับ ผู้ ช่วยศาสตราจารย์ นายแพทย์ วรุตม์ อุ่นจิตสกุล ได้ ที่ **email address:** โดยตั้งชื่อหัวข้ อว่า “**PASO**” ได้ ตลอด 24 ชั่วโมง

ขอบพระคุณอย่างสูงที่ให้ ความร่วมมือ
ทีมวิจัย

Reminder message subject: อีเมล์แจ้งเตือนเพื่อเข้าร่วมตอบแบบสำรวจครั้งที่2
Reminder message body:

เรียน คุณ [EMAIL],
เนื่องจากระบบสำรวจออนไลน์ยังไม่ได้รับข้อมูลในการตอบจากท่าน
ทีมวิจัยส่งอีเมล์ฉบับนี้เพื่อแจ้งเตือนท่านเข้าร่วมตอบแบบสำรวจ ทัศนคติต่อการใช้ชีวิตในสังคมของประชาชนไทย ครั้งที่2
ระบบสำรวจออนไลน์ได้สร้างลิงค์(ด้านล่าง)สำหรับท่าน หากท่านยินดีตอบแบบสำรวจกรุณาคลิก
[CUSTOM_URL]
ท่านสามารถศึกษาข้อมูลเพิ่มเติมได้ที่เอกสารชี้แจงผู้เข้าร่วมการวิจัย (หน้าแรกของแบบสำรวจออนไลน์)
หากท่านมีข้อข้องใจเกี่ยวกับขั้นตอนของการวิจัยหรือได้รับผลข้างเคียงที่ไม่พึงประสงค์จากการวิจัย ท่านสามารถติดต่อกับ ผู้ ช่วยศาสตราจารย์ นายแพทย์ วรุตม์ อุ่นจิตสกุล ได้ ที่ email address: โดยตั้งชื่อหัวข้ อว่า “PASO” ได้ ตลอด 24 ชั่วโมง

ขอบพระคุณอย่างสูงที่ให้ ความร่วมมือ
ทีมวิจัย

Informed Consent material

Information sheet

English version

Personal Attitudes towards Social life related to Oneself (The PASO survey): A general population survey in the UK.

PARTICIPANT INFORMATION SHEET

PARTICIPANT INFORMATION SHEET

1. Study title:

Personal **A**ttitudes towards **S**ocial life related to **O**neself (The PASO survey): A general population survey in Thailand and the UK.

2. Invitation paragraph

You are being invited to take part in a research study. Before you decide, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. If you have any questions or concerns about participating in this study, contact us at the e-mail given below.

3. What is the purpose of the study?

This survey explores anxious or fearful thoughts that occur in relation to social interactions among the general population. This questionnaire also evaluates feelings of depression, anxiety, and self-esteem. The results of the survey will inform future work on the improvement of psychological interventions for social anxiety and paranoia.

4. Why have I been invited to participate?

We are trying to encourage participation by people from the general population in the UK and Thailand who are aged over 18 years and able to give their informed consent to provide answers to the survey questions.

5. Do I have to take part?

No, participation is entirely voluntary.

If you are a student of the University of Glasgow or other institution, your decision about whether or not to participate will not affect your grades in any way.

6. What will happen to me if I take part?

The research involves completing online questionnaires that take about 25-30 minutes in total.

Everyone who completes the survey can be entered into a prize draw to win one of three £50 vouchers. If you give permission, we will invite you by email to complete a follow-up questionnaire in three months time. If you complete the 3-month questionnaire, you would have the option to enter a free prize draw to win either iPad Mini or £200 worth of shopping vouchers.

7. What do I have to do?

You read the questions and provide your answers via the study questionnaire website.

8. What are the possible disadvantages and risks of taking part?

There are no known disadvantages or harms of taking part in the study. If you would like to access support in relation to your own mental health and wellbeing the following website provides a number of helpful resources:

https://www.nhs.uk/conditions/stress-anxiety-depression/mental-health-helplines/

In addition, support is also available via The Samaritans at 116-123 or Breathing Space at 0800-83-85-87.

9. What are the possible benefits of taking part?

You will receive no direct benefit from taking part in this study. The information that is collected during this study will give us a better understanding of experiences such as social anxiety and paranoia and will contribute to developing approaches to helping people with these difficulties.

10. Will my taking part in this study be kept confidential?

All information which is collected about you and responses that you provide, during the course of the research will be kept strictly confidential. You will be identified by an ID number, and any information about you will have your email address removed so that you cannot be recognised from it. If you agree to be included in the prize draw and/or if you agree to be invited to complete the 3 months follow-up questionnaire, we will keep your email address so that we can contact you.

Any data in paper form will be stored in locked cabinets in rooms with restricted access at the University of Glasgow. All data in electronic formats will be stored on secure password–protected computers. No one outside of the research team or appropriate governance staff will be able to find out your name, or any other information which could identify you.

11. What will happen to my data?

Your rights to access, change or move the information we store may be limited, as we need to manage your information in specific ways in order for the research to be reliable and accurate. If you withdraw from the study, we will keep the information about you that we have already obtained. To safeguard your rights, we will use the minimum personally-identifiable information possible. You can find out more about how we use your information from Primary Investigator, Mr Warut Aunjitsakul, via email: w.aunjitsakul.1@research.gla.ac.uk.

The data will be stored in archiving facilities in line with the University of Glasgow retention policy of up to 10 years. After this period, further retention may be agreed or your data will be securely destroyed in accordance with the relevant standard procedures.

Researchers from the University of Glasgow collect, store and process all personal information in accordance with the General Data Protection Regulation (2018).

12. What will happen to the results of the research study?

Results will be presented at meetings of learned societies and published in scientific journals. Results will also be included in student project reports including a thesis lodged at the University of Glasgow.

13. Who is organising and funding the research?

It has no funding.

14. Who has reviewed the study?

The project has been reviewed by the College of Medical, Veterinary & Life Sciences Ethics Committee.

15. Contact for Further Information

If you require further information, please contact the researcher team via email indicating “Personal Attitudes towards Social life related to Oneself (The PASO survey): A general population survey in Thailand and the UK.” in the subject. Contact Prof. Andrew Gumley via email at andrew.gumley@glasgow.ac.uk, or Mr Warut Aunjitsakul via email at w.aunjitsakul.1@research.gla.ac.uk. You can also contact Mr. Simon Bradstreet via email at simon.bradstreet@glasgow.ac.uk who is an independent contact.

Medical, Veterinary and Life Sciences College
Institute of Health and Well-being
University of Glasgow

Fleming Pavilion
West of Scotland Science Park (Todd Campus)
Glasgow, G20 0XA
0141 330 4896

(Download the Participant Informaion Sheet)

Many thanks for your time and interest.

Thai version

คณะแพทยศาสตร์
มหาวิทยาลัยสงขลานครินทร์

การศึกษาทัศนคติต่อการใช้ชีวิตในสังคมของประชาชนไทย

เอกสารชี้แจงผู้เข้าร่วมการวิจัย

เอกสารชี้แจงผู้เข้าร่วมการวิจัย
(เพื่อประกอบการตัดสินใจ)

ชื่อโครงการ การศึกษาทัศนคติต่อการใช้ชีวิตในสังคมของประชาชนไทย และสหราชอาณาจักร
Personal Attitudes towards Social life related to Oneself (The PASO survey): A general population survey in Thailand and the UK

ชื่อผู้วิจัย ผู้ช่วยศาสตราจารย์นายแพทย์ วรุตม์ อุ่นจิตสกุล

สถานที่วิจัย ออนไลน์

ผู้ให้ทุน คณะแพทยศาสตร์ มหาวิทยาลัยสงขลานครินทร์

ก่อนที่ท่านจะยินยอมร่วมวิจัย ท่านควรได้รับทราบว่า

- โครงการนี้เป็นโครงการวิจัย ไม่ใช่ การรักษาตามปกติ
- ท่าน ไม่จำเป็นจะต้องเข้าร่วมในโครงการวิจัยนี้ และสามารถถอนตัวออกจากโครงการได้ทุกเมื่อ โดยจะไม่มีผลกระทบต่อคุณภาพการบริการหรือการรักษาพยาบาลที่ท่านพึงได้รับตามสิทธิ
- ในเอกสารนี้อาจมีข้อความที่ท่านอ่านแล้วยังไม่เข้าใจ โปรดสอบถามหัวหน้าโครงการวิจัย หรือผู้แทนให้ช่วยอธิบายจนกว่าจะเข้าใจดี
- ก่อนที่ท่านจะเข้าร่วมโครงการวิจัย ท่านอาจจะใช้เอกสารอิเล็กทรอนิกส์นี้ เพื่อปรึกษาหารือกับญาติพี่น้อง เพื่อนสนิท แพทย์ประจำตัวของท่าน หรือแพทย์ท่านอื่น เพื่อช่วยในการตัดสินใจเข้าร่วมการวิจัย

- **ทัศนคติต่อการใช้ชีวิตในสังคม คืออะไร**

ความคิดเห็น หรือความรู้สึกของคุณ ในการเข้าสังคมในแง่มุมต่าง ๆ เช่น ความไม่มั่นใจในการนำเสนองาน หรือพูดคุยกับคนอื่น ความกังวลใจเวลาต้องพูดคุยกับคนแปลกหน้า หรือความคิดแง่ลบที่คนอื่นอาจมีต่อตัวคุณ ความคิดหรือความรู้สึกเหล่านี้เป็นสิ่งที่เกิดขึ้นในชีวิตประจำวันของคนทั่วไป บางคนสามารถจัดการและก้าวข้ามสิ่งเหล่านี้ไปได้ บางคนอาจนำมาทบทวนซ้ำ ๆ จนเกิดความเครียด หรือกังวล

- **เหตุใดท่านจึงได้รับเชิญให้เข้าร่วมโครงการวิจัยนี้**

ท่านได้รับเชิญให้เข้าร่วมโครงการวิจัยนี้ เพราะงานวิจัยนี้สำรวจข้อมูลในกลุ่มประชากรทั่วไปที่อายุตั้งแต่ 18 ปีขึ้นไป

ระยะเวลาที่จะทำการวิจัยทั้งสิ้นของโครงการนี้ (1ปี 3เดือน) จะมีผู้เข้าร่วมการวิจัยนี้อย่างน้อย 400 คน

- **ข้อมูลที่ได้จากการทำวิจัยจะนำไปทำอะไร**

การสำรวจนี้ เพื่อทำความเข้าใจทัศนคติของประชาชนคนไทยต่อการใช้ชีวิตในสังคม ข้อมูลที่ได้จะนำไปใช้ในการทำความเข้าใจ และพัฒนาการรักษาความวิตกกังวลในการเข้าสังคมของผู้ป่วยที่มีปัญหาสุขภาพจิต

- **แบบสอบถามที่ใช้ในโครงการนี้**

แบบสอบถามที่ใช้ในการสำรวจนี้ ผู้วิจัยได้รวบรวมเครื่องมือที่ออกแบบมาเพื่อสำรวจความคิดเห็น และความรู้สึก ต่อการใช้ชีวิตในสังคมในแง่ต่าง ๆ เช่น ความกังวลต่อปฏิสัมพันธ์ในสังคม, ความไม่ไว้วางใจสังคม เป็นต้น

- **การศึกษานี้เกี่ยวข้องกับตัวท่านอย่างไรบ้าง**

ถ้าท่านสมัครใจเข้าร่วมตอบแบบสำรวจ การให้ความร่วมมือนี้คือการให้ความยินยอมในการให้ผู้วิจัยนำข้อมูลของท่านไปเก็บ วิเคราะห์ และเผยแพร่เป็นองค์ความรู้ ข้อมูลที่ได้จะไม่สามารถระบุตัวตนถึงท่าน อย่างไรก็ตาม แบบสำรวจนี้เป็นการตอบแบบสำรวจด้วยตัวเอง จะใช้เวลาประมาณ 25-30 นาที

ในกรณีที่ท่านยินดีและอนุญาตให้ผู้วิจัยใช้ข้อมูลติดต่อ ผู้วิจัยจะทำการเก็บข้อมูลติดต่อทางอีเมล์แอดเดรส (email address) เพียงอย่างเดียว เพื่อร่วมชิงรางวัล หรือเพื่อเชิญชวนตอบแบบสำรวจในครั้งที่2

- **ประโยชน์ที่ท่านอาจจะได้รับจากการเข้าร่วม**

ท่านจะไม่ได้รับประโยชน์โดยตรงจากการเข้าร่วมวิจัยนี้ แต่องค์ความรู้ที่ได้จะถูกนำไปพัฒนาการรักษาความวิตกกังวลในการเข้าสังคมของผู้ป่วยที่มีปัญหาสุขภาพจิต

- ความเสี่ยงและความไม่สะดวกสบายที่อาจจะเกิดจากการเข้าร่วมโครงการ และวิธีการป้องกัน/แก้ไขที่ผู้วิจัยเตรียมไว้หากมีเหตุการณ์ดังกล่าวเกิดขึ้น

ในแบบสำรวจอาจมีข้อคำถามที่ทำให้ไม่สบายใจ หากท่านมีความรู้สึกไม่สบายใจ และไม่พร้อมที่จะตอบคำถามต่อ ท่านสามารถหยุดได้ทันที

หากท่านต้องการใช้บริการด้านสุขภาพจิต ผู้วิจัยแนะนำให้ใช้บริการที่สถานบริการใกล้บ้านท่าน ตามเว็บไซต์ https://www.dmh.go.th/service/ นอกจากนี้ ท่านสามารถดาวน์โหลดแอปพลิเคชันคำแนะนำความรู้ทางสุขภาพจิตได้ที่ https://www.dmh.go.th/apps/ หรือเข้าไปสอบถามปัญหาสุขภาพจิตได้ที่ https://www.forums.dmh.go.th/ ทั้งนี้หากท่านต้องการรับคำปรึกษา ท่านสามารถติดต่อสายด่วนสุขภาพจิตได้ฟรี 24 ชั่วโมง ที่เบอร์โทร 1323

- **หน้าที่ของท่านในฐานะของผู้เข้าร่วมในโครงการวิจัย**

ผู้วิจัยขอให้ท่านอ่านคำแนะนำโดยละเอียด และตอบคำถามแต่ละข้อด้วยความตั้งใจ หากมีข้อคำถามที่ท่านไม่สบายใจ ท่านสามารถหยุดการตอบแบบสอบถามได้ทันที

- **ข้อมูลส่วนตัวของท่านจะถูกเก็บไว้อย่างไร และจะมีใครนำไปใช้หรือไม่**

การบันทึกข้อมูลของท่านจะถูกเก็บเป็นไฟล์อิเล็กทรอนิกส์ในคอมพิวเตอร์ของโครงการวิจัยซึ่งต้องใช้รหัสผ่านในการเข้าถึงข้อมูลเพื่อความปลอดภัย

เพื่อรักษาความลับของข้อมูล ในแบบบันทึกข้อมูลจะใช้รหัสแทนการใช้ชื่อ นามสกุล ของท่าน เพื่อไม่ให้ระบุตัวตนได้โดยง่าย นอกจากนี้ จะไม่มีการเผยแพร่ผลการวิจัยที่มีข้อมูลที่ระบุถึงตัวตนของท่าน แต่จะนำเสนอเป็นข้อมูลวิชาการในภาพรวมเท่านั้น จะไม่มีการส่งต่อข้อมูลของท่านไปให้กับบุคคลอื่นโดยไม่ได้รับอนุญาต

อย่างไรก็ตาม ผู้ตรวจสอบมาตรฐานโครงการวิจัย และคณะกรรมการจริยธรรมการวิจัยในมนุษย์ อาจขอตรวจสอบบันทึกข้อมูลอาสาสมัครเพื่อให้มั่นใจว่าโครงการวิจัยมีการดำเนินการที่ถูกต้องเหมาะสม

- **ท่านมีสิทธิถอนตัวจากโครงการหรือไม่ และต้องทำอย่างไร**

ขณะที่ท่านตอบแบบสอบถาม หากท่านรู้สึกไม่สบายใจที่จะตอบคำถามบางข้อ ท่านสามารถข้ามข้อคำถามนั้นไปได้ หรืออาจจะหยุดการทำแบบสอบถามได้ทุกเมื่อ โดยปิดหน้าต่างในหน้าที่ท่านกำลังตอบแบบสอบถามได้ทันที

- **ท่านต้องเสียค่าใช้จ่ายในการเข้าร่วมโครงการวิจัยหรือไม่ และอย่างไร**

ท่านไม่ต้องเสียค่าใช้จ่ายใด ๆ สำหรับในการเข้าร่วมงานวิจัย

- **หากท่านไม่เข้าร่วมโครงการวิจัยนี้ ท่านมีทางเลือกอื่นอย่างไรบ้าง**

ท่านไม่จำเป็นต้องเข้าร่วมโครงการนี้หากท่านไม่ต้องการ โดยจะไม่มีผลต่อการได้รับบริการตามมาตรฐานที่ท่านจะได้รับ

หากท่านมีข้อข้องใจเกี่ยวกับขั้นตอนของการวิจัยหรือได้รับผลข้างเคียงที่ไม่พึงประสงค์จากการวิจัย ท่านสามารถติดต่อกับ **ผู้ช่วยศาสตราจารย์นายแพทย์วรุตม์ อุ่นจิตสกุล ได้ที่ email address: w.aunjitsakul.1@research.gla.ac.uk โดยตั้งชื่อหัวข้อว่า “PASO” ได้ตลอด 24 ชั่วโมง**

หากท่านได้รับการปฏิบัติไม่ตรงตามที่ระบุไว้ในเอกสารชี้แจงผู้เข้าร่วมการวิจัย สามารถขอรับคำปรึกษา/แจ้งเรื่อง/ร้องเรียน ได้ที่สำนักงานคณะกรรมการจริยธรรมการวิจัย คณะแพทยศาสตร์มหาวิทยาลัยสงขลานครินทร์ โทรศัพท์ 0-7445-1157 หรือจดหมายอิเล็กทรอนิกส์ medpsu.ec@gmail.com

อาสาสมัครโปรดให้ความสำคัญ

- ท่านสามารถ ดาวน์โหลดเอกสารชี้แจง นี้เก็บไว้ เพื่อเป็นหลักฐานและอ่านเมื่อมีข้อสงสัย
- การตอบแบบสอบถามโดยความสมัครใจของท่าน แสดงถึงความสมัครใจในการลงนาม ในหนังสือยินยอม

Privacy notices and Participant Consent form

English version

PRIVACY NOTICES AND CONSENT FORM

Privacy Notice for Personal Attitudes towards Social life related to Oneself (The PASO survey): A general population survey in Thailand and the UK.

Your Personal Data

The University of Glasgow will be what's known as the 'Data Controller' of your personal data processed in relation to the scientific purpose of testing models of social anxiety and paranoid thinking. This privacy notice will explain how the University of Glasgow will process your personal data.

Why we need it

We are collecting your basic personal data such as age, sex and where relevant, limited special categories data (such as ethnicity, other health data) for the purpose of determining eligibility of the study plus the contact details, email address, needed for the follow-up survey and prize draw.

Legal basis for processing your data

We must have a legal basis for processing all personal data. In this instance, the legal basis is Consent – a consent clause needs to be included at the end of the privacy notice.

What we do with it and who we share it with?

All the personal data you submit is processed by staff at the University of Glasgow in the United Kingdom.

How long do we keep it for?

Your data will be anonymised in accordance with the General Data Protection Regulation (2018). Additionally, the data will be retained by the University for 10 years as the recommendations of University's Code of Good Practice in Research, University of Glasgow. After this time, data will be securely deleted.

What are your rights?

You can request access to the information we process about you at any time. If at any point you believe that the information where we process relating to you is incorrect, you can request to see this information and may in some instances request to have it restricted, corrected, or erased. You may also have the right to object to the processing of data and the right to data portability. Where we have relied upon your consent to process your data, you also have the right to withdraw your consent at any time.

If you wish to exercise any of these rights, please contact dp@gla.ac.uk.

Please note that the ability to exercise these rights will vary and depend on the legal basis on which the processing is being carried out.

Complaints

If you wish to raise a complaint on how we have handled your personal data, you can contact the researcher directly via email: w.aunjisakul.1@research.gla.ac.uk, or via: Glasgow Mental Health Research Facility, Institute of Health and Wellbeing, University of Glasgow, Fleming Pavilion, West of Scotland Science Park (Todd Campus), Glasgow, G20 0XA.

Alternatively, you can contact the University Data Protection Officer who will investigate the matter. Our Data Protection Officer can be contacted at dataprotectionofficer@glasgow.ac.uk

If you are not satisfied with our response or believe we are not processing your personal data in accordance with the law, you can complain to the Information Commissioner's Office (ICO).

(Download the Privacy Notices)

1. With the Privacy Notice which separately asks for specific consent for all the different aspects to the processing

*Required

	Yes	No
I consent to the University processing my personal data for the purposes detailed above.	○	○
I have read and understand how my personal data will be used.	○	○

2. **Consent Form** for Personal Attitudes towards Social life related to Oneself (The PASO survey): A general population survey in Thailand and the UK.

	* Required	
	Yes	No
I confirm that I have read and understood the Participant Information Sheet version 2.0 dated 10/09/2019.	○	○
I confirm that I have read and understood the Privacy Notice version 2.0 dated 03/09/2019.	○	○
I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, without my legal rights being affected.	○	○
I confirm that I agree to the way my data will be collected and processed and that de-identified data will be stored for up to 10 years in University archiving facilities in accordance with relevant Data Protection policies and regulations.	○	○
I understand that all data and information I provide will be kept confidential and will be seen only by study researchers and regulators whose job it is to check the work of researchers.	○	○
I agree that my data described in the information sheet will be kept for the purposes of this research project and that my contact details will be used for entering the prize draw.	○	○

3. **I agree to take part in the study.** * *Required*

○ Yes ○ No

The survey

English version

Section 1 - Green Paranoid Thought Scales (GPTS)

Instructions: Please read each of the statements carefully. They refer to thoughts and feelings you may have had about others over the last month.

Think about the last month and indicate the extent of these feelings from 1 (Not at all) to 5 (Totally).

Please complete both Part A and Part B. (N.B. Please do not rate items according to any experiences you may have had under the influence of drugs.)

No.	Characteristic	Not at all		Some what		Totally
Part A						
1	I spent time thinking about friends gossiping about me	1	2	3	4	5
2	I often heard people referring to me	1	2	3	4	5
3	I have been upset by friends and colleagues judging me critically	1	2	3	4	5
4	People definitely laughed at me behind my back	1	2	3	4	5
5	I have been thinking a lot about people avoiding me	1	2	3	4	5
6	People have been dropping hints for me	1	2	3	4	5
7	I believed that certain people were not what they seemed	1	2	3	4	5
8	People talking about me behind my back upset me	1	2	3	4	5
9	I was convinced that people were singling me out	1	2	3	4	5
10	I was certain that people have followed me	1	2	3	4	5
11	Certain people were hostile towards me personally	1	2	3	4	5
12	People have been checking up on me	1	2	3	4	5
13	I was stressed out by people watching me	1	2	3	4	5
14	I was frustrated by people laughing at me	1	2	3	4	5
15	I was worried by people's undue interest in me	1	2	3	4	5
16	It was hard to stop thinking about people talking about me behind my back	1	2	3	4	5

Part B						
1	Certain individuals have had it in for me	1	2	3	4	5
2	I have definitely been persecuted	1	2	3	4	5
3	People have intended me harm	1	2	3	4	5
4	People wanted me to feel threatened, so they stared at me	1	2	3	4	5
5	I was sure certain people did things in order to annoy me	1	2	3	4	5
6	I was convinced there was a conspiracy against me	1	2	3	4	5
7	I was sure someone wanted to hurt me	1	2	3	4	5
8	I was distressed by people wanting to harm me in some way	1	2	3	4	5
9	I was preoccupied with thoughts of people trying to upset me deliberately	1	2	3	4	5
10	I couldn't stop thinking about people wanting to confuse me	1	2	3	4	5
11	I was distressed by being persecuted	1	2	3	4	5
12	I was annoyed because others wanted to deliberately upset me	1	2	3	4	5
13	The thought that people were persecuting me played on my mind	1	2	3	4	5
14	It was difficult to stop thinking about people wanting to make me feel bad	1	2	3	4	5
15	People have been hostile towards me on purpose	1	2	3	4	5
16	I was angry that someone wanted to hurt me	1	2	3	4	5

Section 2 - Social Interaction Anxiety Scale (SIAS)

Instructions: For each item, please select the number to indicate the degree to which you feel the statement is characteristic or true for you. The rating scale is as follows:

0 = Not at all characteristic or true of me.

1 = Slightly characteristic or true of me.

2 = Moderately characteristic or true of me.

3 = Very characteristic or true of me.

4 = Extremely characteristic or true of me.

No.	Characteristic	Not at all	Slightly	Moderately	Very	Extremely
1	I get nervous if I have to speak with someone in authority (teacher, boss, etc.).	0	1	2	3	4
2	I have difficulty making eye contact with others.	0	1	2	3	4
3	I become tense if I have to talk about myself or my feelings.	0	1	2	3	4
4	I find it difficult to mix comfortably with the people I work with.	0	1	2	3	4
5	I find it easy to make friends my own age.	0	1	2	3	4
6	I tense up if I meet an acquaintance in the street.	0	1	2	3	4
7	When mixing socially, I am uncomfortable.	0	1	2	3	4
8	I feel tense if I am alone with just one other person.	0	1	2	3	4
9	I am at ease meeting people at parties, etc.	0	1	2	3	4
10	I have difficulty talking with other people.	0	1	2	3	4
11	I find it easy to think of things to talk about.	0	1	2	3	4
12	I worry about expressing myself in case I appear awkward.	0	1	2	3	4
13	I find it difficult to disagree with another's point of view.	0	1	2	3	4
14	I have difficulty talking to attractive persons of the opposite sex.	0	1	2	3	4
15	I find myself worrying that I won't know what to say in social situations.	0	1	2	3	4
16	I am nervous mixing with people I don't know well.	0	1	2	3	4
17	I feel I'll say something embarrassing when talking.	0	1	2	3	4
18	When mixing in a group, I find myself worrying I will be ignored.	0	1	2	3	4
19	I am tense mixing in a group.	0	1	2	3	4
20	I am unsure whether to greet someone I know only slightly.	0	1	2	3	4

Section 3 - Subtle Avoidance Frequency Examination (SAFE)

Instructions: Some people do the following things when they feel anxious in social situations. Using the scale below (1-5), rate how often you would do these things when you are in a social situation.

0 = Never, 1 = Occasionally, 2 = Sometimes, 3 = Often, 4 = Always

In a social situation when you felt anxious how often would you:

No.	Characteristic	Never	Occasionally	Sometimes	Often	Always
1	Before you arrive, excessively rehearse what you might say or how you might behave	1	2	3	4	5
2	Remain silent	1	2	3	4	5
3	Try to keep tight control of your behaviour	1	2	3	4	5
4	Speak softly	1	2	3	4	5
5	Say 'I'm not usually like this'	1	2	3	4	5
6	Blank out or switch off mentally	1	2	3	4	5
7	Hold your arms still	1	2	3	4	5
8	Spend time thinking of good excuses for escaping	1	2	3	4	5
9	Wear cool clothes to prevent sweating	1	2	3	4	5
10	Avoid eye contact	1	2	3	4	5
11	Wear clothes or makeup to hide blushing	1	2	3	4	5
12	Say 'it's hot' to explain sweating or blushing	1	2	3	4	5
13	Account for poor performance by saying that you didn't have time to prepare	1	2	3	4	5
14	Rehearse sentences in your mind	1	2	3	4	5
15	Spend hours on grooming prior to the situation	1	2	3	4	5
16	Wear clothes that will conceal sweating if it occurs	1	2	3	4	5
17	Say that you are sick/unwell	1	2	3	4	5
18	Look closely at other people and try to gauge their reactions to you	1	2	3	4	5
19	Avoid asking questions	1	2	3	4	5
20	Speak in short sentences	1	2	3	4	5
21	Keep still to avoid drawing attention to yourself	1	2	3	4	5
22	Hide your face	1	2	3	4	5
23	Make excuses about your appearance	1	2	3	4	5
24	Check the redness of your face in a mirror	1	2	3	4	5
25	Try to think about other things	1	2	3	4	5
26	Try to think of reasons why the other person is inferior to you	1	2	3	4	5
27	Avoid pauses in speech	1	2	3	4	5
28	Position yourself so as not to be noticed	1	2	3	4	5
29	Hold your cup or glass tightly	1	2	3	4	5
30	Ask others about your performance	1	2	3	4	5
31	Imagine you are somewhere else	1	2	3	4	5
32	Be reserved about what you say	1	2	3	4	5

Section 4 - Depression Anxiety Stress Scales (DASS)

Instructions: Please read each statement and select a number 0, 1, 2 or 3 which indicates how much the statement applied to you over the past week.

There are no right or wrong answers. Do not spend too much time on any statement. The rating scale is as follows:

0 = Did not apply to me at all

1 = Applied to me to some degree, or some of the time

2 = Applied to me to a considerable degree or a good part of time

3 = Applied to me very much or most of the time

No.	Characteristic	Not at all	Some degree	Considerable degree	Most of the time
1	I found it hard to wind down	0	1	2	3
2	I was aware of dryness of my mouth	0	1	2	3
3	I couldn't seem to experience any positive feeling at all	0	1	2	3
4	I experienced breathing difficulty (e.g. excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3
5	I found it difficult to work up the initiative to do things	0	1	2	3
6	I tended to over-react to situations	0	1	2	3
7	I experienced trembling (e.g. in the hands)	0	1	2	3
8	I felt that I was using a lot of nervous energy	0	1	2	3
9	I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
10	I felt that I had nothing to look forward to	0	1	2	3
11	I found myself getting agitated	0	1	2	3
12	I found it difficult to relax	0	1	2	3
13	I felt down-hearted and blue	0	1	2	3
14	I was intolerant of anything that kept me from getting on with what I was doing	0	1	2	3
15	I felt I was close to panic	0	1	2	3
16	I was unable to become enthusiastic about anything	0	1	2	3
17	I felt I wasn't worth much as a person	0	1	2	3
18	I felt that I was rather touchy	0	1	2	3
19	I was aware of the action of my heart in the absence of physical exertion (e.g. sense of heart rate increase, heart missing a beat)	0	1	2	3
20	I felt scared without any good reason	0	1	2	3
21	I felt that life was meaningless	0	1	2	3

Section 5 - Reported and Intended Behaviour Scale (RIBS)

Instruction: The following questions ask about your experiences and views in relation to people who have mental health problems (for example, people sees by health care staff).

For each questions, please respond by selecting one box only.

No.	Characteristic	Yes	No	Don't Know			
1	Are you currently living with, or have you ever lived with, someone with a mental health problem?						
2	Are you currently working with, or have you ever worked with, someone with a mental health problem?						
3	Do you currently have, or have you ever had, a neighbour with a mental health problem?						
4	Do you currently have, or have you ever had, a close friend with a mental health problem?						
No.	**Characteristic**	**Strongly Agree**	**Slightly Agree**	**Neither Agree nor Disagree**	**Slightly Disagree**	**Strongly Disagree**	**Don't Know**
5	In the future, I would be willing to live with someone with a mental health problem.						
6	In the future, I would be willing to work with someone with a mental health problem.						
7	In the future, I would be willing to live nearby to someone with a mental health problem.						
8	In the future, I would be willing to continue a relationship with a friend who developed a mental health problem.						

Section 6 - Attitudes About Mental Health among general population

Instruction: Please choose the best answer to the following questions.

No	Number at a point of characteristic (from less to more)	Not at all								Very much
1	I have been stressed out during the past two months.	1	2	3	4	5	6	7	8	9
2	I am currently challenged by mental health concerns	1	2	3	4	5	6	7	8	9

Serious mental health problems are common in the general population, research suggests that one-fourth of university students will experience problems such as:

A. **major depression:** unusual sadness and loss in pleasurable activities sometimes accompanied by problems in sleep, appetite, thinking clearly, and suicidal thoughts.

B. **bipolar disorder:** depression accompanied by manic episode experienced as extreme happiness or grandiosity (inflated sense of self-esteem) sometimes accompanied by racing thoughts, unusually high energy, and little need for sleep.

C. **anxiety disorders:** marked fear and distress of people or specific things (phobias such as flying or elevators often accompanied by sweating, heart palpitations, or heat sensations.

D. **schizophrenia disorders:** psychotic symptoms that might include hallucinations (hearing voices), delusions (unusual beliefs), or not thinking clearly.

E. eating disorders:

- **anorexia:** extreme diet or purging behaviours (vomiting) leading to significantly low weight.
- **bulimia:** significant overeating in a short time (binge eating) followed by purging or fasting.

Despite the challenges of these problems, research suggests most students **recover** going on to have a successful college career.

No.	Characteristic	Yes	No	Unsure
3	Have you ever been diagnosed by a doctor with one of these five mental problems?			
4	If yes, please specify			
5	If yes, do you believe this diagnosis was correct?			
6	If you have not been diagnosed with one of these problems, do you believe you have ever had one of these five disorders?			
7	Have you ever been diagnosed by a doctor with any other mental illness?			
8	If yes, please specify			
9	If yes, do you believe this diagnosis was correct?			

PLEASE CONTINUE ON TO THE NEXT QUESTION IF YOU ANSWERED 'YES' TO ANY OF THE PRECEDING QUESTIONS (1 THROUGH 9). SELECT THE BEST ANSWER TO THE NEXT QUESTIONS.

IF THERE IS NO ANY ANSWER YES, PLEASE GO TO SECTION 7.

No.	Number at a point of characteristic (from less to more)	Not at all								Very much
10	I think of myself as a person with mental health problems.	1	2	3	4	5	6	7	8	9
11	I am ashamed of my mental health problems.	1	2	3	4	5	6	7	8	9
12	I feel I have to keep my mental health problems a secret from other friends.	1	2	3	4	5	6	7	8	9
13	I feel I have to keep my mental health problems a secret from my parents or other family.	1	2	3	4	5	6	7	8	9
14	I feel I have to keep my mental health problems a secret from my instructors /bosses/employers.	1	2	3	4	5	6	7	8	9
15	I want to talk to other friends about my mental health problems.	1	2	3	4	5	6	7	8	9
16	I want to talk to my parents or other family members about my mental health problems.	1	2	3	4	5	6	7	8	9
17	I want to talk to my instructors/bosses/employers. about my mental health problems.	1	2	3	4	5	6	7	8	9
18	I would want to join a brief program that would help me to consider telling other friends about my mental health problems.	1	2	3	4	5	6	7	8	9
19	I would want to join a brief program that would help me to consider telling my parents or other family members about my mental health problems.	1	2	3	4	5	6	7	8	9
20	I would want to join a brief program that would help me to consider telling my instructors /bosses/employers. about my mental health problems.	1	2	3	4	5	6	7	8	9
21	I would want to lead a brief program that would help friends consider telling others about their mental health problems.	1	2	3	4	5	6	7	8	9

Section 7 - Rosenberg Self-Esteem Scale (RSES)

Instructions: Below is a list of statements dealing with your general feelings about yourself. Please indicate how strongly you agree or disagree with each statement.

No.	Characteristic	Strongly Agree	Agree	Disagree	Strongly Disagree
1	On the whole, I am satisfied with myself.	4	3	2	1
2	At times I think I am no good at all.	4	3	2	1
3	I feel that I have a number of good qualities.	4	3	2	1
4	I am able to do things as well as most other people.	4	3	2	1
5	I feel I do not have much to be proud of.	4	3	2	1
6	I certainly feel useless at times	4	3	2	1
7	I feel that I'm a person of worth, at least on an equal plane with others.	4	3	2	1
8	I wish I could have more respect for myself.	4	3	2	1
9	All in all, I am inclined to feel that I am a failure.	4	3	2	1
10	I take a positive attitude toward myself.	4	3	2	1

Section 8 - Social Comparison Scale (SCS)

Instructions: Please choose a number at a point which best describes the way in which you see yourself in comparison to others.

For example: Short 1 2 3 4 5 6 7 8 9 10 Tall

If you put a mark at 3 this means you see yourself as shorter than others; if you out a mark at 5 (middle) about average; and a mark at 7 somewhat taller.

If you understand the above instructions, please proceed. Choose one number on each line according to how you see yourself in relationship to others.

In relationship to others I feel:

No.	Number at a point of characteristic (from less to more)											
1	Inferior	1	2	3	4	5	6	7	8	9	10	Superior
2	Incompetent	1	2	3	4	5	6	7	8	9	10	More competent
3	Unlikeable	1	2	3	4	5	6	7	8	9	10	More likeable
4	Left out	1	2	3	4	5	6	7	8	9	10	Accepted
5	Different	1	2	3	4	5	6	7	8	9	10	Same
6	Untalented	1	2	3	4	5	6	7	8	9	10	More talented
7	Weaker	1	2	3	4	5	6	7	8	9	10	Stronger
8	Unconfident	1	2	3	4	5	6	7	8	9	10	More confident
9	Undesirable	1	2	3	4	5	6	7	8	9	10	More desirable
10	Unattractive	1	2	3	4	5	6	7	8	9	10	More attractive
11	An outsider	1	2	3	4	5	6	7	8	9	10	An insider

Section 9 - Other As Shamer Scale (OASS)

Instructions: We are interested in how people think others see them.

Below is a list of statements describing feelings or experiences about how you may feel other people see you.

Read each statement carefully and select the number to the right of the item that indicates the frequency with which you find yourself feeling or experiencing what is described in the statement. Use the scale below.

No.	Characteristic	Never	Seldom	Sometime	Frequently	Almost always
1	I feel other people see me as not good enough	0	1	2	3	4
2	I think that other people look down on me	0	1	2	3	4
3	Other people put me down a lot	0	1	2	3	4
4	I feel insecure about others opinions of me	0	1	2	3	4
5	Other people see me as not measuring up to them	0	1	2	3	4
6	Other people see me as small and insignificant	0	1	2	3	4
7	Other people see me as somehow defective as a person	0	1	2	3	4
8	People see me as unimportant compared to others	0	1	2	3	4
9	Other people look for my faults	0	1	2	3	4
10	People see me as striving for perfection but being unable to reach my own standards	0	1	2	3	4
11	I think others are able to see my defects	0	1	2	3	4
12	Others are critical or punishing when I make a mistake	0	1	2	3	4
13	People distance themselves from me when I make mistakes	0	1	2	3	4
14	Other people always remember my mistakes	0	1	2	3	4
15	Others see me as fragile	0	1	2	3	4
16	Others see me as empty and unfulfilled	0	1	2	3	4
17	Others think there is something missing in me	0	1	2	3	4
18	Other people think I have lost control over my body and feelings	0	1	2	3	4

Section 10 - Internalised Shame Scale (ISS)

Instructions: Below is a list of statements describing feelings or experiences that you may have from time to time of that are familiar to you because you have these feelings and experiences for a long time.

These are all statements of feelings and experiences that are generally painful or negative in some way. Some people will seldom or never have had many of these feeling and experiences.

Everyone has had some of these feelings at some time, but if you find that these statements describe the way you feel a good deal of the time, it can be painful just reading them. Try to be as honest as you responding.

Read each statement carefully and choose the number that indicate the frequency with which you find yourself feeling or experiencing what is described in the statement. Use the scale below do not omit any item.

No.	Characteristic	Never	Seldom	Sometime	Frequently	Almost always
1	I feel like I am never quite good enough	0	1	2	3	4
2	I feel somehow left out	0	1	2	3	4
3	I think that people look down on me	0	1	2	3	4
4	I scold myself and put myself down	0	1	2	3	4
5	I feel insecure about others' opinion of me	0	1	2	3	4
6	Compared to other people, I feel that I somehow never measure up	0	1	2	3	4
7	I see myself as being very small and insignificant	0	1	2	3	4
8	I feel intensely inadequate and full of self-doubt	0	1	2	3	4
9	I feel as if I am somehow defective as a person, like there is something basically wrong with me	0	1	2	3	4
10	When I compare myself with others I am just not as important	0	1	2	3	4
11	I have an overpowering dread that my faults will be revealed in front of others	0	1	2	3	4
12	I see myself as striving for perfection only to continually fall short	0	1	2	3	4
13	I think that others are able to see my defects	0	1	2	3	4

14	I could beat myself over the head with a club when I make a mistake	0	1	2	3	4
15	I would like to shrink away when I make a mistake	0	1	2	3	4
16	I replay painful events over and over in my mind until I am overwhelmed	0	1	2	3	4
17	At times I feel I will break into a thousand pieces	0	1	2	3	4
18	I feel as if I have lost control over my body functions and my feelings	0	1	2	3	4
19	Sometimes I feel no bigger than a pea	0	1	2	3	4
20	At times I feel so exposed that I wish the earth would open up and swallow me	0	1	2	3	4
21	I have this painful gap within me that I have not been able to fill	0	1	2	3	4
22	I feel empty and unfulfilled	0	1	2	3	4
23	My loneliness is more like emptiness	0	1	2	3	4
24	I feel like there is something missing	0	1	2	3	4

Section 11 – About You

1. **Gender:** ◯ male ◯ female

2. **Age**:_____ years **Date of Birth**_____ (dd/mm/yyyy)

3. **Ethnic group:**
   ◯ White British (Scottish, English, Welsh, Northern Irish)
   ◯ Indian British ◯ Other Asian British ◯ African British
   ◯ Other Europeans ◯ Asian ◯ African
   ◯ Latin American ◯ American ◯ Hispanic
   ◯ Other (please specify)_____

4. **Annual income (your <u>total household income</u> if living in a family setting or your personal income if living alone or non-family setting)**
   ◯ No income ◯ < £15,000 ◯ £15,001 - £30,000
   ◯ £30,001 - 50,000 ◯ £50,000 – 80,000 ◯ > £80,000
   ◯ Prefer not to say

5. **Education**:
   ◯ school leaver/standard grade/GCSE ◯ Highers/A levels
   ◯ Higher education HND/HNC/NVQs ◯ Bachelor's degree
   ◯ Master degree/PhD/Postgraduates ◯ Prefer not to say

6. **Is your job (or part of your job) related to health care, or mental fitness (i.e. doctors, nurses, pharmacists, psychologists, peer workers, working relating to health/mental illness)?**
   ◯ Yes, (please specify) _____
   ◯ No

BEFORE YOU CLOSE THE WEBPAGE

We would like to invite you to take part in an online follow up of this questionnaire in the next 3 months. Please provide us your email address. This will be detached from your filled questionnaire to anonymise your data.

This is the END of the questionnaire

Please check that you answered EVERY question

Thank you for participating

Thai version

ส่วนที่ 1 – แบบประเมินความคิดหวาดระแวง Green Paranoid Thought Scales (GPTS)

คำแนะนำ กรุณาอ่านแต่ละข้อความอย่างตั้งใจ ข้อความเหล่านี้กล่าวถึงความคิด และความรู้สึกที่คุณอาจจะมีต่อบุคคลอื่นในช่วงหนึ่งเดือนที่ผ่านมา ให้ระลึกถึงความรู้สึกในช่วงหนึ่งเดือนที่ผ่านมา และให้คะแนนความรู้สึก จาก 1 (ไม่มีเลย) ถึง 5 (มากที่สุด)

กรุณาตอบให้ครบทั้งส่วนA และ B (กรุณาไม่ต้องให้คะแนนหากข้อดังกล่าวเป็นประสบการณ์ที่อาจจะได้รับอิทธิพลจากการใช้ยา)

ข้อ	คุณลักษณะ	ไม่มีเลย		มีบ้าง		มากที่สุด
ส่วน A						
1	ฉันเคยใช้เวลาคิดว่าเพื่อนกำลังนินทาฉันอยู่	1	2	3	4	5
2	ฉันมักได้ยินคนพูดถึงฉันบ่อยๆ	1	2	3	4	5
3	ฉันเสียใจเมื่อเพื่อนและเพื่อนร่วมงานวิพากษ์วิจารณ์ฉันอย่างจริงจัง	1	2	3	4	5
4	เคยมีคนหัวเราะเยาะฉันลับหลังอย่างแน่นอน	1	2	3	4	5
5	ฉันคิดมากเวลามีคนหลบเลี่ยงฉัน	1	2	3	4	5
6	คนมักจะให้เบาะแสต่างๆกับฉัน	1	2	3	4	5
7	ฉันเคยเชื่อว่า คนบางประเภทไม่ได้เป็นอย่างที่เขาแสดงให้เห็น	1	2	3	4	5
8	มีคนนินทาลับหลังฉัน ทำให้ฉันเสียใจ	1	2	3	4	5
9	ฉันเคยถูกทำให้เชื่อว่าคนอื่นกำลังกีดกันฉันออกไป	1	2	3	4	5
10	ฉันเคยมั่นใจว่ามีคนสะกดรอยตามฉัน	1	2	3	4	5
11	เคยมีคนมุ่งร้ายต่อฉันเป็นการส่วนตัว	1	2	3	4	5
12	มีคนคอยตรวจสอบฉันตลอดเลย	1	2	3	4	5
13	ฉันเคยรู้สึกเครียดเวลาคนจ้องมองฉัน	1	2	3	4	5
14	ฉันเคยรู้สึกอึดอัดไม่สบายใจเวลาคนหัวเราะเยาะฉัน	1	2	3	4	5
15	ฉันรู้สึกกังวลเมื่อคนอื่นมาวุ่นวายสนใจฉันเกินควร	1	2	3	4	5
16	มันยากที่จะเลิกคิดว่ามีคนพูดถึงฉันลับหลัง	1	2	3	4	5

ส่วน B						
1	คนบางกลุ่มคอยวิพากษ์วิจารณ์ฉันอยู่	1	2	3	4	5
2	ฉันถูกรังแกมาโดยตลอด	1	2	3	4	5
3	คนอื่นจงใจทำร้ายฉัน	1	2	3	4	5
4	เคยมีคนอยากทำให้ฉันรู้สึกถูกข่มขู่ พวกเขาจะจ้องตาฉัน	1	2	3	4	5
5	ฉันมั่นใจว่ามีคนทำอะไรบางอย่างเพื่อที่จะแกล้งฉัน	1	2	3	4	5
6	ฉันเคยเชื่อว่า มีคนวางแผนต่อต้านฉันอยู่	1	2	3	4	5
7	ฉันมั่นใจว่าเคยมีบางคนต้องการทำร้ายฉัน	1	2	3	4	5
8	ฉันเคยรู้สึกเป็นทุกข์เมื่อคนต้องการทำร้ายฉันด้วยวิธีใดวิธีหนึ่ง	1	2	3	4	5
9	ฉันเคยหมกมุ่นอยู่กับความคิดที่ว่ามีคนพยายามทำให้ฉันเสียใจโดยเจตนา	1	2	3	4	5
10	ฉันเคยไม่สามารถหยุดคิดได้เลย เกี่ยวกับการที่มีคนต้องการจะปั่นหัวฉัน	1	2	3	4	5
11	ฉันเคยทุกข์ใจที่โดนกลั่นแกล้ง	1	2	3	4	5
12	ฉันเคยรู้สึกรำคาญเพราะมีคนต้องการทำให้ฉันเสียใจ	1	2	3	4	5
13	เคยมีความคิดว่า เคยมีคนกลั่นแกล้งฉันวนเวียนอยู่ในหัวของฉัน	1	2	3	4	5
14	มันยากที่จะหยุดคิดเกี่ยวกับคนที่ต้องการทำให้ฉันรู้สึกแย่	1	2	3	4	5
15	มีคนตั้งใจจะทำร้ายฉัน	1	2	3	4	5
16	ฉันเคยรู้สึกโกรธ ที่มีบางคนต้องการทำร้ายฉัน	1	2	3	4	5

ส่วนที่ 2 – แบบประเมินความกังวลต่อการปฏิสัมพันธ์ในสังคม Social Interaction Anxiety Scale (SIAS)

คำแนะนำ ในแต่ละหัวข้อ กรุณาให้คะแนนเพื่อแสดงระดับของความรู้สึกของคุณต่อประโยคที่ตรงกับคุณลักษณะหรือเป็นจริงสำหรับคุณ ด้วยคะแนนดังนี้:

0 = ไม่ตรงกับคุณลักษณะ หรือไม่เป็นจริงสำหรับฉัน
1 = ตรงกับคุณลักษณะ หรือเป็นจริงสำหรับฉันเล็กน้อย
2 = ค่อนข้างตรงกับคุณลักษณะ หรือเป็นจริงสำหรับฉันพอสมควร
3 = ตรงกับคุณลักษณะ หรือเป็นจริงสำหรับฉันมาก
4 = ตรงกับคุณลักษณะ หรือเป็นจริงสำหรับฉันมากที่สุด

ข้อ	คุณลักษณะ	ไม่เลย	เล็กน้อย	ค่อนข้าง	มาก	มากที่สุด
1	ฉันรู้สึกประหม่า ถ้าฉันต้องพูดคุยกับคนที่มีอำนาจเหนือกว่า เช่น ครู, เจ้านาย เป็นต้น	0	1	2	3	4
2	ฉันรู้สึกอึดอัดในการสบตากับผู้อื่น	0	1	2	3	4
3	ฉันรู้สึกกดดัน ถ้าฉันต้องพูดเรื่องราวหรือความรู้สึกของฉัน	0	1	2	3	4
4	ฉันรู้สึกว่ามันยากที่จะผ่อนคลายและกลมกลืนไปกับกลุ่มคนที่ฉันทำงานด้วย	0	1	2	3	4
5	ฉันรู้สึกว่ามันง่ายที่จะผูกมิตรกับคนในวัยเดียวกัน	0	1	2	3	4
6	ฉันรู้สึกเกร็งเวลาเจอคนรู้จักโดยบังเอิญ	0	1	2	3	4
7	เมื่อต้องเข้าสังคม ฉันไม่ค่อยผ่อนคลาย	0	1	2	3	4
8	ฉันรู้สึกเครียด ถ้าฉันต้องอยู่ตามลำพังกับใครอีกคน	0	1	2	3	4
9	ฉันรู้สึกสบายใจ เมื่อเจอผู้คนในงานปาร์ตี้ต่างๆ	0	1	2	3	4
10	ฉันรู้สึกลำบากในการพูดคุยกับคนอื่นๆ	0	1	2	3	4
11	ฉันรู้สึกว่า มันง่ายที่จะคิดเกี่ยวกับประเด็นชวนคุย	0	1	2	3	4
12	ฉันกังวลเกี่ยวกับการแสดงออกในสถานการณ์ที่ฉันทำตัวไม่ถูก	0	1	2	3	4
13	ฉันรู้สึกว่ามันยากที่จะไม่เห็นด้วยกับมุมมองความเห็นของคนอื่น	0	1	2	3	4
14	ฉันมีปัญหาในการคุยกับเพศตรงข้ามที่ดูมีเสน่ห์น่าสนใจ	0	1	2	3	4
15	ฉันรู้สึกว่าฉันกังวล ไม่รู้จะพูดอะไรเมื่อเข้าสังคม	0	1	2	3	4
16	ฉันรู้สึกกังวล เมื่อต้องอยู่ร่วมกับคนอื่นที่ฉันไม่รู้จักดี	0	1	2	3	4
17	ฉันรู้สึกว่า ฉันจะพูดในสิ่งที่น่าอายออกไปเวลาสนทนา	0	1	2	3	4
18	เวลาฉันอยู่ในกลุ่ม ฉันรู้สึกว่าฉันกังวลว่าฉันจะถูกละเลย	0	1	2	3	4
19	ฉันรู้สึกเครียดเวลาต้องอยู่ในกลุ่ม	0	1	2	3	4
20	ฉันรู้สึกไม่มั่นใจว่าจะทักคนที่ฉันรู้จักกันผิวเผินดีหรือไม่	0	1	2	3	4

ส่วนที่ 3 - แบบประเมินความถี่ของพฤติกรรมหลบเลี่ยง Subtle Avoidance Frequency Examination (SAFE)

คำแนะนำ บางคนมีพฤติกรรมดังข้อความด้านล่างเวลารู้สึกกังวลเมื่อเข้าสังคม กรุณาให้คะแนน (จาก 0 - 4) เพื่อแสดงว่าคุณมีพฤติกรรมเหล่านี้เวลาเข้าสังคมบ่อยแค่ไหน

0 = ไม่เลย
1 = มีบ้างเล็กน้อย
2 = บางครั้ง
3 = บ่อยครั้ง
4 = ตลอดเวลา
เมื่อเข้าสังคมเวลาคุณกังวลคุณมักจะ

ข้อ	คุณลักษณะ	ไม่เลย	มีบ้างเล็กน้อย	บางครั้ง	บ่อยครั้ง	ตลอดเวลา
1	ซักซ้อมคำพูดหรือท่าทางที่จะแสดงออก อย่างมากเกินความจำเป็น ก่อนจะเข้าสังคม	0	1	2	3	4
2	รักษาความเงียบ	0	1	2	3	4
3	พยายามที่จะควบคุมพฤติกรรมของตัวเองอย่างเต็มที่	0	1	2	3	4
4	พูดเบาๆ	0	1	2	3	4
5	พูดว่า “ปกติฉันไม่เป็นอย่างนี้นะ”	0	1	2	3	4
6	คิดอะไรไม่ออก หรือไม่รับรู้อะไรไปเลย	0	1	2	3	4
7	กอดอกนิ่งๆ	0	1	2	3	4
8	คิดหาข้ออ้างในการหนีออกไปจากตรงนั้น	0	1	2	3	4
9	ใส่ชุดที่เย็นสบายเพื่อป้องกันอาการเหงื่อแตก	0	1	2	3	4
10	เลี่ยงการสบตาผู้อื่น	0	1	2	3	4
11	แต่งตัว หรือแต่งหน้า เพื่อพรางอาการหน้าแดง	0	1	2	3	4
12	พูดว่า “อากาศร้อนเนอะ” เพื่ออธิบายอาการเหงื่อออกหรือหน้าแดง	0	1	2	3	4
13	กรณีที่มีการแสดงออกที่ดูแย่ ฉันจะอ้างว่า ไม่ได้มีเวลาเตรียมตัว	0	1	2	3	4
14	ซักซ้อมคำพูดในใจ	0	1	2	3	4
15	อยู่กับความเครียดเป็นชั่วโมงๆก่อนเผชิญสถานการณ์จริง	0	1	2	3	4
16	ใส่ชุดที่ปกปิดไม่ให้เห็นอาการเหงื่อแตกได้	0	1	2	3	4
17	อ้างว่าฉันป่วย หรือไม่ค่อยสบาย	0	1	2	3	4
18	สังเกตอาการคนอื่นอย่างใกล้ชิด และพยายามที่จะคาดการณ์ปฏิกิริยาของพวกเขาที่จะมีต่อคุณ	0	1	2	3	4
19	หลีกเลี่ยงการตั้งคำถาม	0	1	2	3	4
20	พูดเป็นประโยคสั้นๆ	0	1	2	3	4

21	อยู่นิ่งๆ เพื่อหลีกเลี่ยงหรือเบี่ยงเบนความสนใจออกจากตัวคุณ	0	1	2	3	4
22	หลบหน้า	0	1	2	3	4
23	หาข้ออ้างเกี่ยวกับการแต่งตัวรูปลักษณ์ตัวเอง	0	1	2	3	4
24	ส่องกระจกตรวจดูว่าหน้าแดงหรือไม่	0	1	2	3	4
25	พยายามคิดถึงเรื่องอื่น	0	1	2	3	4
26	พยายามที่จะคิดหาเหตุผลว่าทำไมคนอื่นด้อยกว่าตัวคุณ	0	1	2	3	4
27	เลี่ยงการเว้นจังหวะในการพูด	0	1	2	3	4
28	อยู่ในที่ที่มีคนสังเกตเห็นฉันได้ยาก	0	1	2	3	4
29	จับแก้วหรือกำของไว้แน่น	0	1	2	3	4
30	ถามคนอื่นว่าคุณแสดงออกเป็นอย่างไรบ้าง	0	1	2	3	4
31	จินตนาการว่าคุณอยู่ที่อื่น	0	1	2	3	4
32	เตรียมว่าจะพูดอะไรบ้าง	0	1	2	3	4

ส่วนที่ 4 – แบบสอบถามวัดภาวะสุขภาพจิต Depression Anxiety Stress Scales (DASS)

โปรดอ่านข้อความแต่ละข้อ และให้คะแนน (จาก 0 ถึง 3) ที่ตรงกับคุณมากสุดในช่วงสัปดาห์ที่ผ่านมา ทั้งนี้ไม่มีคำตอบที่ถูกหรือคำตอบที่ผิด คุณไม่ควรใช้เวลามากนักในแต่ละข้อความ

เกณฑ์การประเมินมีดังนี้:
0 ไม่ตรงกับฉันเลย
1 ตรงกับฉันบ้าง หรือเกิดขึ้นเป็นบางครั้ง
2 ตรงกับฉัน หรือเกิดขึ้นบ่อย
3 ตรงกับฉันมาก หรือเกิดขึ้นบ่อยมากที่สุด

ข้อ	คุณลักษณะ	ไม่เลย	บางครั้ง	บ่อยครั้ง	บ่อยที่สุด
1	ฉันรู้สึกว่ายากที่จะผ่อนคลายอารมณ์	0	1	2	3
2	ฉันทราบว่าฉันมีอาการปากแห้ง	0	1	2	3
3	ฉันรู้สึกไม่ดีขึ้นเลย	0	1	2	3
4	ฉันมีอาการหายใจลำบาก (เช่น มีอาการหายใจเร็วขึ้นผิดปกติ มีอาการหายใจไม่ออกแม้ว่าจะไม่ได้ออกแรง)	0	1	2	3
5	ฉันรู้สึกทำกิจกรรมด้วยตนเองได้ค่อนข้างลำบาก	0	1	2	3
6	ฉันเริ่มมีปฏิกิริยาตอบสนองต่อสิ่งต่าง ๆ มากเกินไป	0	1	2	3
7	ฉันมีอาการสั่น (เช่น ที่มือทั้งสองข้าง)	0	1	2	3
8	ฉันรู้สึกว่าฉันวิตกกังวลมาก	0	1	2	3
9	ฉันรู้สึกกังวลกับเหตุการณ์ที่อาจทำให้ฉันรู้สึกตื่นกลัวและกระทำสิ่งใดโดยมิได้คิด	0	1	2	3
10	ฉันรู้สึกว่าฉันไม่มีเป้าหมาย	0	1	2	3
11	ฉันเริ่มรู้สึกว่าฉันมีอาการกระวนกระวายใจ	0	1	2	3
12	ฉันรู้สึกไม่ผ่อนคลาย	0	1	2	3
13	ฉันรู้สึกจิตใจเหงาหงอยและเศร้าซึม	0	1	2	3
14	ฉันทนไม่ได้กับภาวะใดก็ตามที่ทำให้ฉันไม่สามารถทำอะไรต่อจากที่ฉันกำลังกระทำอยู่	0	1	2	3
15	ฉันรู้สึกว่าฉันมีอาการคล้ายกับอาการหวั่นวิตก	0	1	2	3
16	ฉันไม่รู้สึกกระตือรือร้นต่อสิ่งใด	0	1	2	3
17	ฉันรู้สึกเป็นคนไม่มีคุณค่า	0	1	2	3
18	ฉันรู้สึกว่าฉันค่อนข้างมีอารมณ์ฉุนเฉียวง่าย	0	1	2	3
19	ฉันรับรู้ถึงการทำงานของหัวใจของฉันในตอนที่ฉันไม่ได้ออกแรง (เช่น รู้สึกถึงการเต้นของหัวใจเพิ่มขึ้น การหยุดเต้นของหัวใจ)	0	1	2	3
20	ฉันรู้สึกกลัวโดยไม่มีเหตุผลใด ๆ	0	1	2	3
21	ฉันรู้สึกว่าชีวิตไม่มีความหมาย	0	1	2	3

ส่วนที่ 5 – แบบประเมินพฤติกรรมและเจตนารมณ์ต่อผู้มีปัญหาสุขภาพจิต Reported and Intended Behaviour Scale (RIBS)

คำแนะนำ: คำถามต่อไปนี้จะถามเกี่ยวกับประสบการณ์และมุมมองต่อบุคคลที่มีปัญหาด้านสุขภาพจิต (เช่น ผู้ที่ได้รับการดูแลโดยเจ้าหน้าที่สาธารณะสุข)

โปรดเลือกหนึ่งคำตอบต่อหนึ่งข้อคุณลักษณะเท่านั้น

ข้อ	คุณลักษณะ	ใช่	ไม่	ไม่ทราบ			
1	คุณกำลังอาศัยอยู่ หรือเคยอาศัยอยู่กับคนที่มีปัญหาด้านสุขภาพจิตหรือไม่						
2	คุณกำลังทำงาน หรือเคยทำงานกับคนที่มีปัญหาด้านสุขภาพจิตหรือไม่						
3	คุณกำลังมี หรือเคยมีเพื่อนบ้านที่มีปัญหาด้านสุขภาพจิตหรือไม่						
4	คุณกำลังมี หรือเคยมีเพื่อนสนิทที่มีปัญหาด้านสุขภาพจิตหรือไม่						
ข้อ	คุณลักษณะ	เห็นด้วยอย่างยิ่ง	ค่อนข้างเห็นด้วย	เฉยๆ หรือไม่มีความเห็น	ค่อนข้างไม่เห็นด้วย	ไม่เห็นด้วยอย่างยิ่ง	ไม่ทราบ
5	ในอนาคต ฉันเต็มใจที่จะอยู่กับคนที่มีปัญหาด้านสุขภาพจิต						
6	ในอนาคต ฉันเต็มใจที่จะทำงานกับคนที่มีปัญหาด้านสุขภาพจิต						
7	ในอนาคต ฉันเต็มใจที่จะอยู่อาศัยใกล้กับคนที่มีปัญหาด้านสุขภาพจิต						
8	ในอนาคต ฉันเต็มใจที่จะรักษาความสัมพันธ์กับเพื่อนที่มีปัญหาด้านสุขภาพจิต						

ส่วนที่ 6 – แบบประเมินทัศนคติเกี่ยวกับสุขภาพจิตในประชาชนทั่วไป Attitudes About Mental Health among general population

คำแนะนำ: โปรดเลือกคำตอบที่ดีที่สุดต่อคำถามต่อไปนี้

ข้อ	คะแนนของคุณลักษณะ (จากน้อยไปมาก)	ไม่เลย								มากที่สุด
1	ฉันรู้สึกตึงเครียดในช่วงสองเดือนที่ผ่านมา	1	2	3	4	5	6	7	8	9
2	ฉันกำลังรับมือกับความกังวลทางจิตใจอยู่	1	2	3	4	5	6	7	8	9

ประชาชนทั่วไปประสบปัญหาสุขภาพจิตได้อย่างจริงจัง ยกตัวอย่างเช่น งานวิจัยพบว่า ประมาณหนึ่งในสี่ของนักศึกษาจะประสบปัญหาสุขภาพจิตอย่างจริงจังในช่วงเรียนปริญญาตรี ดังนี้

A. ภาวะซึมเศร้า (major depression): ความเศร้าที่ผิดปกติ และขาดความพึงพอใจต่อกิจกรรมต่างๆ บางครั้งอาจพบปัญหาร่วมด้วยเกี่ยวกับการนอน การรับประทาน การคิดอย่างกระจ่างแจ้ง และความคิดเกี่ยวกับการฆ่าตัวตาย

B. ภาวะอารมณ์แปรปรวน (bipolar disorder): ความซึมเศร้าที่มาร่วมกับช่วงอารมณ์ดีผิดปกติ เช่น มีความสุขหรือชอบโอ้อวดมากเกินไป (ความเชื่อมั่นในตัวเองสูงขึ้น) บางครั้งเกิดพร้อมกับภาวะความคิดแล่นเร็ว, มีพลังงานเยอะเกินปกติ, และความต้องการนอนน้อยลง

C. ภาวะวิตกกังวลผิดปกติ (anxiety disorders): ความหวาดกลัวและความเครียดอย่างรุนแรง ต่อคนหรือต่อสิ่งของจำเพาะ (ความหวาดกลัวจำเพาะ เช่น การขึ้นเครื่องบิน หรือขึ้นลิฟต์ มักพบร่วมกับภาวะเหงื่อออก ใจสั่น หรือความรู้สึกร้อนในรูปแบบต่างๆ)

D. ภาวะผิดปกติทางความคิด หรือโรคจิตเภท (schizophrenia disorders): อาการทางจิตที่อาจรวมถึง อาการประสาทหลอนต่างๆ (hallucinations) เช่น ได้ยินเสียงแว่ว, อาการหลงผิด (delusions) เช่น ความเชื่อแปลกๆ, หรืออาการความคิดไม่กระจ่าง (not thinking clearly) เช่น ความคิดที่สับสน

E. ภาวะผิดปกติทางการรับประทาน

- ภาวะเบื่ออาหาร (anorexia): อดอาหารอย่างหนัก หรือพฤติกรรมพยายามให้ถ่ายออกหรือล้วงคออาเจียน (purging behaviours) ซึ่งนำไปสู่การลดน้ำหนักอย่างรวดเร็ว
- ภาวะกินแล้วล้วงคออาเจียน (bulimia): ปฏิกิริยาที่ทานหรือดื่มเกินกว่าปกติในช่วงสั้นๆ ตามด้วยพฤติกรรมพยายามให้ถ่ายออกหรือล้วงคออาเจียน หรืออดอาหารหลังจากนั้น

แม้ว่าจะประสบปัญหาเหล่านี้ งานวิจัยพบว่านักศึกษาส่วนใหญ่อาการดีขึ้น ประสบความสำเร็จในการใช้ชีวิตในมหาวิทยาลัย

ข้อ	คะแนนของคุณลักษณะ (จากน้อยไปมาก)	ใช่	ไม่	ไม่แน่ใจ
3	คุณเคยได้รับการวินิจฉัยว่าเป็นหนึ่งในห้าปัญหาสุขภาพจิตข้างต้นโดยแพทย์หรือไม่			
4	ถ้าใช่ โปรดระบุ			
5	ถ้าใช่, คุณเชื่อว่าการวินิจฉัยนั้นถูกต้องหรือไม่			
6	ถ้าคุณไม่เคยได้รับการตรวจวินิจฉัยว่าเป็นหนึ่งในปัญหาข้างต้นนี้มาก่อน คุณคิดว่าคุณมีปัญหาหนึ่งในห้าข้อนี้หรือไม่			

7	คุณเคยได้รับการตรวจวินิจฉัยเกี่ยวกับสุขภาพจิตอื่นๆโดยแพทย์มาก่อนหรือไม่									
8	ถ้าใช่ โปรดระบุ									
9	ถ้าใช่, คุณเชื่อว่าผลการตรวจวินิจฉัยนั้นถูกต้องหรือไม่									
หากคุณเคยตอบ <u>"ใช่"</u> ในข้อ 1 ถึง 9 ก่อนหน้านี้ กรุณาตอบคำถามต่อไปนี้ โดยเลือกคำตอบที่ดีที่สุดต่อคำถามต่อไปนี้ ***ถ้าไม่เคยตอบว่าใช่ ให้ข้ามไปยังส่วนที่ 7***										
ข้อ	คะแนนของคุณลักษณะ (จากน้อยไปมาก)	ไม่เลย								มากที่สุด
10	ฉันคิดว่าฉันเป็นคนที่มีปัญหาสุขภาพจิต	1	2	3	4	5	6	7	8	9
11	ฉันรู้สึกอับอายเกี่ยวกับปัญหาสุขภาพจิตของตัวเอง	1	2	3	4	5	6	7	8	9
12	ฉันรู้สึกว่าฉันต้องเก็บปัญหาสุขภาพจิตของตัวเองไว้เป็นความลับจากเพื่อนคนอื่น ๆ	1	2	3	4	5	6	7	8	9
13	ฉันรู้สึกว่าฉันต้องเก็บปัญหาสุขภาพจิตของตัวเองไว้เป็นความลับจากพ่อแม่ หรือคนอื่น ๆในครอบครัวของฉัน	1	2	3	4	5	6	7	8	9
14	ฉันรู้สึกว่าฉันต้องเก็บปัญหาสุขภาพจิตของตัวเองไว้เป็นความลับจากอาจารย์/หัวหน้า/เจ้านายของฉัน	1	2	3	4	5	6	7	8	9
15	ฉันอยากจะพูดคุยเกี่ยวกับปัญหาสุขภาพจิตของตัวเองกับเพื่อนคนอื่น ๆ	1	2	3	4	5	6	7	8	9
16	ฉันอยากจะพูดคุยเกี่ยวกับปัญหาสุขภาพจิตของตัวเองกับพ่อแม่ หรือคนอื่น ๆในครอบครัวของฉัน	1	2	3	4	5	6	7	8	9
17	ฉันอยากจะพูดคุยเกี่ยวกับปัญหาสุขภาพจิตของตัวเองกับอาจารย์/หัวหน้า/เจ้านายของฉัน	1	2	3	4	5	6	7	8	9
18	ฉันอยากจะเข้าร่วมโปรแกรมระยะสั้นที่จะช่วยให้ฉันได้เล่าเกี่ยวกับปัญหาสุขภาพจิตของฉันให้กับเพื่อนคนอื่น ๆ	1	2	3	4	5	6	7	8	9
19	ฉันอยากจะเข้าร่วมโปรแกรมระยะสั้นที่จะช่วยให้ฉันได้เล่าเกี่ยวกับปัญหาสุขภาพจิตของฉันให้กับพ่อแม่ หรือคนอื่น ๆในครอบครัวของฉัน	1	2	3	4	5	6	7	8	9
20	ฉันอยากจะเข้าร่วมโปรแกรมระยะสั้นที่จะช่วยให้ฉันได้เล่าเกี่ยวกับปัญหาสุขภาพจิตของฉันให้กับอาจารย์/หัวหน้า/เจ้านายของฉัน	1	2	3	4	5	6	7	8	9

21	ฉันอยากจะจัดโปรแกรมระยะสั้นที่จะช่วยให้นักศึกษาคนอื่น ๆได้บอกเล่าเกี่ยวกับปัญหาสุขภาพจิตของพวกเขา	1	2	3	4	5	6	7	8	9

ส่วนที่ 7 – แบบวัดความภาคภูมิใจในตนเองของโรเซนเบิร์ก Rosenberg Self-Esteem Scale (RSES)

คำแนะนำ ข้อความด้านล้างนี้เกี่ยวข้องกับความรู้สึกต่อตัวคุณเอง กรุณาให้คะแนนตามระดับว่าเห็นด้วยหรือไม่เห็นด้วยในแต่ละข้อความ

ข้อ	คุณลักษณะ	เห็นด้วยอย่างยิ่ง	เห็นด้วย	ไม่เห็นด้วย	ไม่เห็นด้วยอย่างยิ่ง
1	โดยทั่วไปฉันรู้สึกพอใจตัวเอง	4	3	2	1
2	บ่อยครั้งที่ฉันคิดว่าตัวเองไม่มีอะไรดีเลย	4	3	2	1
3	ฉันรู้สึกว่าตัวฉันเองก็มีอะไรดี ๆ เหมือนกัน	4	3	2	1
4	ฉันสามารถทำอะไรได้เหมือนๆ กับคนอื่น	4	3	2	1
5	ฉันรู้สึกว่าตนเองไม่มีอะไรน่าภาคภูมิใจมากนัก	4	3	2	1
6	ฉันรู้สึกบ่อย ๆ ว่าตนเองไร้ค่า	4	3	2	1
7	ฉันรู้สึกว่าตนเองก็มีคุณค่าอย่างน้อยที่สุดก็เท่าๆ กับคนอื่น	4	3	2	1
8	ฉันอยากจะภาคภูมิใจในตัวเองให้มากกว่านี้	4	3	2	1
9	โดยรวมแล้วฉันมีแนวโน้มจะรู้สึกว่าตนเองล้มเหลว	4	3	2	1
10	ฉันมีความรู้สึกที่ดีกับตัวเอง	4	3	2	1

ส่วนที่ 8 – แบบประเมินการเปรียบเทียบกันในสังคม Social Comparison Scale (SCS)

คำแนะนำ: โปรดให้คะแนนที่อธิบายตัวคุณเมื่อเปรียบเทียบกับคนอื่นได้ดีที่สุด
ตัวอย่าง: ตัวเล็ก 1 2 3 4 5 6 7 8 9 10 ตัวใหญ่

ถ้าคุณให้คะแนนที่ 3 หมายความว่าคุณมองตัวเองเล็กกว่าคนอื่น; แต่ถ้าคุณให้คะแนนที่ 5 (คะแนนกลาง) คืออยู่ในเกณฑ์ค่าเฉลี่ย; และถ้าให้คะแนนที่ 7 หมายความว่าค่อนข้างสูงใหญ่

เมื่อคุณเข้าใจคำอธิบายข้างต้นแล้ว โปรดดำเนินการเลือกหมายเลขในแต่ละข้อความว่าคุณมองตัวคุณเองอย่างไร เมื่อเปรียบเทียบกับคนอื่น ๆ

ในความสัมพันธ์กับบุคคลอื่น ฉันรู้สึก ...

ข้อ	ระดับคะแนนของคุณลักษณะ (จากน้อยไปมาก)											
1	ด้อยกว่า	1	2	3	4	5	6	7	8	9	10	เหนือกว่า
2	ไร้ความสามารถ	1	2	3	4	5	6	7	8	9	10	มีความสามารถ
3	ไม่เป็นที่ชื่นชอบ	1	2	3	4	5	6	7	8	9	10	เป็นที่ชื่นชอบ
4	ไม่ได้รับการยอมรับ	1	2	3	4	5	6	7	8	9	10	ได้รับการยอมรับ
5	แตกต่าง	1	2	3	4	5	6	7	8	9	10	ไม่แตกต่าง
6	ไร้พรสวรรค์	1	2	3	4	5	6	7	8	9	10	มีพรสวรรค์
7	อ่อนแอกว่า	1	2	3	4	5	6	7	8	9	10	แข็งแกร่งกว่า
8	ไม่มั่นใจ	1	2	3	4	5	6	7	8	9	10	มั่นใจกว่า
9	ไม่เป็นที่ต้องการ	1	2	3	4	5	6	7	8	9	10	เป็นที่ต้องการมากกว่า
10	ไม่มีเสน่ห์	1	2	3	4	5	6	7	8	9	10	มีเสน่ห์มากกว่า
11	เป็นคนนอก	1	2	3	4	5	6	7	8	9	10	เป็นคนวงใน

ส่วนที่ 9 – แบบประเมินความอับอายภายนอก Other As Shamer Scale (OASS)

คำแนะนำ: เราสนใจว่า คุณคิดว่าคนอื่นมีความเห็นต่อตัวคุณอย่างไร

ข้อความด้านล่างอธิบายความรู้สึกหรือประสบการณ์ เกี่ยวกับการที่คุณอาจรู้สึกว่าคนอื่นมองคุณอย่างไร อ่านแต่ละข้อความอย่างละเอียด และเลือกหมายเลขที่เหมาะสมกับข้อความที่มักจะเกิดขึ้นกับความรู้สึกหรือประสบการณ์ของคุณด้วยระดับคะแนนด้านล่าง

ข้อ	คุณลักษณะ	ไม่เลย	มีบ้าง	บางครั้ง	บ่อยครั้ง	เกือบจะตลอดเวลา
1	ฉันรู้สึกว่าคนอื่นมองฉันว่าดีไม่พอ	0	1	2	3	4
2	ฉันคิดว่าคนอื่นดูถูกฉัน	0	1	2	3	4
3	คนอื่นทำให้ฉันรู้สึกแย่มาก	0	1	2	3	4
4	ฉันรู้สึกกังวลเกี่ยวกับความคิดเห็นที่คนอื่นมีต่อฉัน	0	1	2	3	4
5	คนอื่นมองว่าฉันไม่ได้มาตรฐานของพวกเขา	0	1	2	3	4
6	คนอื่นมองว่าฉันด้อยค่าและไม่สำคัญ	0	1	2	3	4
7	คนอื่นมองว่าฉันเป็นคนบกพร่องบางอย่าง	0	1	2	3	4
8	คนอื่นมองว่าฉันไม่ได้สำคัญเท่ากับคนอื่น ๆ	0	1	2	3	4
9	คนอื่นมองหาจุดบกพร่องของฉัน	0	1	2	3	4
10	คนอื่นมองว่าฉันชอบความสมบูรณ์แบบ แต่ก็ไม่สามารถที่จะรักษามาตรฐานของตัวเองไว้ได้	0	1	2	3	4
11	ฉันคิดว่าคนอื่นเห็นข้อเสียของฉัน	0	1	2	3	4
12	คนอื่นตำหนิหรือลงโทษเมื่อฉันทำผิดพลาด	0	1	2	3	4
13	คนอื่นจะหลีกหนีจากฉันเมื่อฉันทำผิดพลาด	0	1	2	3	4
14	คนอื่นมักจะจดจำความผิดพลาดของฉันได้เสมอ	0	1	2	3	4
15	คนอื่นมองว่าฉันอ่อนแอ	0	1	2	3	4
16	คนอื่น ๆมองว่าฉันไร้ประโยชน์และขาดสมรรถภาพบางอย่าง	0	1	2	3	4
17	คนอื่นมองว่าฉันมีคุณสมบัติบางอย่างที่ขาดหายไป	0	1	2	3	4
18	คนอื่นคิดว่าฉันไม่สามารถควบคุมตัวเองและความรู้สึกของตัวฉันเองได้	0	1	2	3	4

ส่วนที่ 10 – แบบประเมินความอับอายภายใน Internalised Shame Scale (ISS)

คำแนะนำ: ข้อความด้านล่างอธิบายความรู้สึกหรือประสบการณ์ที่คุณอาจจะประสบหรือคุ้นเคยในบางเวลา เพราะคุณประสบกับความรู้สึกหรือสถานการณ์นั้นมาอย่างยาวนาน

ข้อความเหล่านี้ มีบ้างที่แสดงถึงความรู้สึกที่เจ็บปวดหรือ ประสบการณ์ในเชิงลบ บางคนอาจเคยผ่านประสบการณ์แบบนี้มาบ้างหรืออาจจะไม่เคยประสบเหตุการณ์เหล่านี้มาเลย ซึ่งทุกคนจะมีความรู้สึกบางอย่างเหล่านี้บ้าง

การอ่านข้อความเหล่านี้อาจทำให้คุณเจ็บปวด แต่ข้อความเหล่านี้จะช่วยบ่งบอกถึงความรู้สึกเมื่อคุณได้ผ่านช่วงนั้นมา

พยายามซื่อสัตย์ต่อการตอบคำถาม

อ่านแต่ละข้อความโดยละเอียด และให้คะแนนที่แสดงความถี่ของคุณรู้สึกหรือประสบการณ์ดังแสดงในแต่ละข้อความด้านล่าง กรุณาตอบทุกข้อ

ข้อ	คุณลักษณะ	ไม่เคย	มีบ้าง	บางครั้ง	บ่อยครั้ง	เกือบตลอดเวลา
1	ฉันรู้สึกเหมือนกับว่า ฉันไม่เคยดีพอเลย	0	1	2	3	4
2	ฉันรู้สึกโดดเดี่ยว	0	1	2	3	4
3	ฉันคิดว่า คนอื่นดูถูกฉัน	0	1	2	3	4
4	ฉันตำหนิและกดดันตัวเอง	0	1	2	3	4
5	ฉันรู้สึกกังวลเกี่ยวกับความคิดเห็นคนอื่นที่มีต่อฉัน	0	1	2	3	4
6	เมื่อเปรียบเทียบกับคนอื่น ฉันรู้สึกว่า ฉันยังไม่ได้มาตรฐาน	0	1	2	3	4
7	ฉันมองว่าตัวเองด้อยมากและไม่สำคัญเลย	0	1	2	3	4
8	ฉันรู้สึกไม่มั่นใจและกังขากับความสามารถของตัวเองเป็นอย่างมาก	0	1	2	3	4
9	ฉันรู้สึกว่า ฉันเป็นคนมีข้อบกพร่องบางอย่างเหมือนมีบางอย่างผิดพลาดเกี่ยวกับตัวฉันเอง	0	1	2	3	4
10	เมื่อฉันเปรียบเทียบตัวเองกับคนอื่น ฉันรู้สึกว่าฉันไม่ได้สำคัญเหมือนคนอื่นเขา	0	1	2	3	4
11	ฉันมีความกลัวมาก ๆ ว่า ความผิดพลาดของฉันจะถูกเปิดโปงต่อหน้าคนอื่น	0	1	2	3	4
12	ฉันมองตัวเองว่า ฉันทำทุกอย่างเพื่อความสมบูรณ์แบบ เพียงเพื่อที่จะเจอความล้มเหลวถัดมา	0	1	2	3	4
13	ฉันคิดว่าคนอื่นเห็นข้อบกพร่องของฉัน	0	1	2	3	4
14	ฉันสามารถที่จะทำร้ายตัวเองได้เลย เมื่อฉันทำผิดพลาด	0	1	2	3	4
15	ฉันอยากจะจมหายไปเลย เมื่อฉันทำผิดพลาด	0	1	2	3	4
16	ฉันคิดหมกมุ่นกับเหตุการณ์เจ็บปวดซ้ำไปซ้ำมาจนฉันรู้สึกท่วมท้นอึดอัด	0	1	2	3	4

17	บางครั้ง ฉันรู้สึกเหมือนจะแตกเป็นเสี่ยงๆ	0	1	2	3	4
18	ฉันรู้สึกเหมือนกับว่า ฉันไม่สามารถควบคุมตัวเองและความรู้สึกของตัวฉันเองได้	0	1	2	3	4
19	บางครั้งฉันรู้สึกว่า ฉันเป็นคนที่ไม่สำคัญมาก ๆ	0	1	2	3	4
20	บางครั้งฉันรู้สึกอับอายอย่างมาก จนอยากให้โลกสูบฉันให้จมหายไปเลย	0	1	2	3	4
21	ฉันรู้สึกเจ็บปวดอยู่ภายใน และไม่สามารถจะจัดการมันได้	0	1	2	3	4
22	ฉันรู้สึกไร้ประโยชน์และขาดสมรรถภาพบางอย่าง	0	1	2	3	4
23	ความโดดเดี่ยวของฉันเหมือนยิ่งไม่ได้รับการเติมเต็มและไร้ค่า	0	1	2	3	4
24	ฉันรู้สึกเหมือนมีบางสิ่งขาดหายไป	0	1	2	3	4

ส่วนที่ 11 – ข้อมูลส่วนตัว

1. **เพศ:**
   ◯ ชาย ◯ หญิง
2. **อายุ:**_____ ปี **วัน/เดือน/ปี เกิด:** _____ (วว/ดด/ปปปป)
3. **สัญชาติ:**
   ◯ ไทย ◯ อื่นๆ (โปรดระบุ) _____
4. **รายได้ต่อเดือน (รายได้รวมทั้งหมด หากอยู่อาศัยเป็นครอบครัว หรือรายได้ส่วนตัว หากอาศัยคนเดียวหรือยังไม่มีครอบครัว)**
   ◯ ไม่มีรายได้ ◯ < 10,000 บาท ◯ 10,001 - 25,000 บาท
   ◯ 25,001 - 50,000 บาท ◯ 50,001 – 75,000 บาท ◯ 75,001 – 100,000 บาท
   ◯ > 100,001 บาท ◯ ไม่ขอตอบ
5. Education:
   ◯ ไม่ได้เรียน ◯ ประถมศึกษา ◯ มัธยมศึกษาตอนต้น
   ◯ มัธยมศึกษาตอนปลาย ◯ อนุปริญญา ◯ ปริญญาตรี
   ◯ สูงกว่าปริญญาตรี ◯ ไม่ขอตอบ
6. **อาชีพของคุณ (หรือบางส่วนของอาชีพคุณ) เกี่ยวข้องกับงานสาธารณสุข หรือสุขภาพจิต (เช่น แพทย์, พยาบาล, นักเภสัชวิทยา, นักจิตวิทยา, นักสังคมสงเคราะห์ หรือทำงานเกี่ยวข้องกับสุขภาพจิต) หรือไม่?**
   ◯ ใช่ (โปรดระบุ) _____ ◯ ไม่

ก่อนจะปิดหน้าต่างนี้

- กรุณาระบุอีเมล์ของคุณ เพื่อเข้าร่วมชิงรางวัลบัตรกำนัล
  อีเมล์นี้จะจัดเก็บแยกจากข้อมูลที่ตอบในแบบสอบถาม เพื่อให้ไม่สามารถระบุตัวตนถึงข้อมูลวิจัยได้

- ทีมผู้วิจัยขอเชิญชวนคุณให้เข้าร่วมวิจัยโดยตอบแบบสอบถามนี้ เพื่อติดตามการเปลี่ยนแปลงทัศนคติต่อสังคมของคุณอีกสามเดือนข้างหน้า
  ☐ ท่านยินดีให้ส่งอีเมล์แจ้งเตือน เพื่อเข้าร่วมตอบแบบสอบถามนี้อีกสามเดือนข้างหน้า

สิ้นสุดการตอบแบบสอบถาม

กรุณาตรวจสอบคำตอบในทุก ๆ ข้อคำถาม

ขอบพระคุณอย่างสูงที่ให้ความร่วมมือ

Study in Chapter 5

Ethics approvals in Thailand

AL-011_TH

คณะกรรมการจริยธรรมการวิจัยในมนุษย์
คณะแพทยศาสตร์ มหาวิทยาลัยสงขลานครินทร์

หนังสือรับรองฉบับนี้ให้ไว้เพื่อแสดงว่า

รหัสโครงการ :	REC.62-394-3-1	
ชื่อโครงการ :	การศึกษาความสัมพันธ์ของอาการกลัวการเข้าสังคม ความรู้สึกอคติ ความอับอาย และพฤติกรรมป้องกันตัวเอง กับอาการหวาดระแวงของผู้ป่วยโรคจิตเภท (The characteristics of social anxiety, stigma, shame and safety (defence) behaviours in association with paranoia amongst people with a diagnosis of schizophrenia.)	
ผู้วิจัยหลัก :	วรุตม์ อุ่นจิตสกุล	ภาควิชาจิตเวชศาสตร์ คณะแพทยศาสตร์ มหาวิทยาลัยสงขลานครินทร์
ผู้ร่วมวิจัย :	Andrew Gumley	Institute of Health and Well-being, University of Glasgow, UK
	Hamish J McLeod	Institute of Health and Well-being, University of Glasgow, UK

เอกสารที่รับรอง :

1. แบบเสนอเพื่อขอรับการพิจารณาจริยธรรมการวิจัยในมนุษย์ เวอร์ชั่น 2.0 ฉบับวันที่ 16 ธันวาคม 2562
2. โครงการวิจัยฉบับสมบูรณ์ เวอร์ชั่น 2.0 ฉบับวันที่ 16 ธันวาคม 2562
3. เอกสารชี้แจงอาสาสมัคร เวอร์ชั่น 2.0 ฉบับวันที่ 16 ธันวาคม 2562
4. แบบยกเว้นการขอความยินยอมจากอาสาสมัคร (Waiver of Consent) เวอร์ชั่น 1.0 ฉบับวันที่ 16 ธันวาคม 2562
5. แบบสอบถาม เวอร์ชั่น 2.0 ฉบับวันที่ 16 ธันวาคม 2562
6. ประวัติผู้วิจัยและหลักฐานการอบรมด้านจริยธรรมการวิจัย

ได้ผ่านการพิจารณาและรับรองจากคณะกรรมการจริยธรรมการวิจัยในมนุษย์คณะแพทยศาสตร์ มหาวิทยาลัยสงขลานครินทร์ โดยยึดหลักจริยธรรมของประกาศเฮลซิงกิ (Declaration of Helsinki) และแนวทางการปฏิบัติการวิจัยทางคลินิกที่ดี (The International Conference on Harmonization in Good Clinical Practice) โดยบรรจุวาระในการประชุมคณะกรรมการจริยธรรมการวิจัยในมนุษย์ ครั้งที่ 33/2562 ชุดที่ 3 วาระที่ 4.3 วันที่ 25 พฤศจิกายน พ.ศ. 2562

ขอให้นักวิจัยรายงานความก้าวหน้าโครงการวิจัย ทุก 12 เดือน และยื่นต่ออายุก่อนถึงวันหมดอายุอย่างน้อย 30 วัน

ลงชื่อ

(รศ.นพ.บุญสิน ตั้งตระกูลวนิช)
ประธานคณะกรรมการจริยธรรมการวิจัยในมนุษย์
คณะแพทยศาสตร์ มหาวิทยาลัยสงขลานครินทร์

วันที่รับรอง : 7 มกราคม พ.ศ. 2563
หมดอายุ : 6 มกราคม พ.ศ. 2564

คณะกรรมการจริยธรรมการวิจัยในมนุษย์
คณะแพทยศาสตร์ มหาวิทยาลัยสงขลานครินทร์
15 ถนนกาญจนวณิชย์ อำเภอหาดใหญ่ จังหวัดสงขลา
90110
โทรศัพท์ 074451149, 074451157
โทรสาร 074212900

Ref no. yJPV-40mY-2OGp-DW7n
มอ 351.7.2/ec.1337

Information sheet

เอกสารชี้แจงผู้เข้าร่วมการวิจัย

(เพื่อประกอบการตัดสินใจ)

ชื่อโครงการ การศึกษาความสัมพันธ์ของอาการกลัวการเข้าสังคม ความรู้สึกอคติ ความอับอาย และพฤติกรรมป้องกันตัวเอง กับอาการหวาดระแวงของผู้ป่วยโรคจิตเภท

ชื่อผู้วิจัย ผู้ช่วยศาสตรจารย์นายแพทย์วรุตม์ อุ่นจิตสกุล

สถานที่วิจัย คลินิกจิตเวช โรงพยาบาลสงขลานครินทร์

ผู้ให้ทุน คณะแพทยศาสตร์ มหาวิทยาลัยสงขลานครินทร์

ก่อนที่ท่านจะลงนามในหนังสือแสดงเจตนายินยอมร่วมวิจัย ท่านควรได้รับทราบว่า

- โครงการนี้เป็นโครงการวิจัย ไม่ใช่ การรักษาตามปกติ
- ท่าน ไม่จำเป็นจะต้องเข้าร่วมในโครงการวิจัยนี้ และสามารถถอนตัวออกจากโครงการได้ทุกเมื่อ โดยจะไม่มีผลกระทบต่อคุณภาพการบริการหรือการรักษาพยาบาลที่ท่านพึงได้รับตามสิทธิ
- ในเอกสารนี้อาจมีข้อความที่ท่านอ่านแล้วยังไม่เข้าใจ โปรดสอบถามหัวหน้าโครงการวิจัย หรือผู้แทนให้ช่วยอธิบายจนกว่าจะเข้าใจดี
- ก่อนที่ท่านจะเข้าร่วมโครงการวิจัย ท่านอาจจะใช้เอกสารอิเล็กทรอนิกส์นี้ เพื่อปรึกษาหารือกับญาติ พี่น้อง เพื่อนสนิท แพทย์ประจำตัวของท่าน หรือแพทย์ท่านอื่น เพื่อช่วยในการตัดสินใจเข้าร่วมการวิจัย

- **โรคจิตเภทคืออะไร และมีความสัมพันธ์อย่างไรกับอาการกลัวการเข้าสังคม ความรู้สึกอคติ ความอับอาย พฤติกรรมป้องกันตัวเอง และอาการหวาดระแวง**

- **โรคจิตเภท** คือ กลุ่มอาการของโรคที่มีความผิดปกติของความคิด ทำให้ผู้ป่วยมีความคิดและการรับรู้ไม่ตรงกับความเป็นจริง
- **ความสัมพันธ์** เนื่องจากอาการหวาดระแวง พบได้เป็นส่วนใหญ่ในโรคจิตเภท ผู้ป่วยในกลุ่มนี้มักถูกตีตราจากสังคมในด้านลบ ทำให้ผู้ป่วยเกิดความกลัว ความอับอายในการเข้าสังคม และมีพฤติกรรมป้องกันตัวเองเพื่อให้อยู่ในสังคมได้ปกติ เช่น เลี่ยงการสบตาผู้คน ระแวดระวังคนจะมาวิจารณ์ตัวเอง ซึ่งสิ่งเหล่านี้ส่งผลให้ผู้ป่วยมีปัญหาในการใช้ชีวิตประจำวัน และอาจส่งผลย้อนกลับให้อาการหวาดระแวงแย่ลงได้

- **เหตุใดท่านจึงได้รับเชิญให้เข้าร่วมโครงการวิจัยนี้**

ท่านได้รับเชิญให้เข้าร่วมโครงการวิจัยนี้ เพราะท่านได้รับการวินิจฉัยโรคจิตเภท ซึ่งกำลังเข้ารับการรักษาเป็นผู้ป่วยนอกที่คลินิกจิตเวช โรงพยาบาลสงขลานครินทร์

วิจัยนี้มีวัตถุประสงค์เพื่อการศึกษาความสัมพันธ์ของอาการกลัวการเข้าสังคม ความรู้สึกอคติ ความอับอาย และพฤติกรรมป้องกันตัวเองกับอาการหวาดระแวงของผู้ป่วยโรคจิตเภท

ระยะเวลาที่จะทำการวิจัยทั้งสิ้นของโครงการนี้ (1ปี) จะมีผู้เข้าร่วมการวิจัยนี้อย่างน้อย 113 คน

- **ข้อมูลที่ได้จากการทำวิจัยจะนำไปทำอะไร**

  เพื่อทำความเข้าใจความสัมพันธ์ดังกล่าวข้างต้น โดยข้อมูลที่ได้จะนำไปใช้ในการพัฒนาการรักษาอาการกลัวเข้าสังคม และอาการหวาดระแวง ของผู้ป่วยโรคจิตเภท

- **แบบสอบถามที่ใช้ในโครงการนี้**

  แบบสอบถามที่ใช้ในงานวิจัยนี้ ผู้วิจัยได้รวบรวมเครื่องมือที่ออกแบบมาเพื่อสอบถามความคิด และความรู้สึกต่อ ความกังวลในการเข้าสังคม (20 ข้อ) ความคิดและพฤติกรรมป้องกันตัวเองในผู้มีอาการหวาดระแวง (46 ข้อ) การรับรู้การตีตราและความอับอายของผู้ป่วย (29 ข้อ) อาการหวาดระแวง (18 ข้อ) และภาวะซึมเศร้า (14 ข้อ) รวมทั้งข้อมูลส่วนตัว (6 ข้อ)

- **การศึกษานี้เกี่ยวข้องกับตัวท่านอย่างไรบ้าง**

  ถ้าท่านสมัครใจเข้าร่วมตอบแบบสอบถาม หมายถึงท่านยินยอมให้ผู้วิจัยเก็บข้อมูลของท่านเพื่อนำไปวิเคราะห์ และเผยแพร่เป็นองค์ความรู้ในภาพรวม ข้อมูลที่ได้จะไม่สามารถระบุตัวตนถึงท่านได้

- **ประโยชน์ที่ท่านอาจจะได้รับจากการเข้าร่วม**

  ท่านจะไม่ได้รับประโยชน์โดยตรงจากการเข้าร่วมวิจัยนี้ อย่างไรก็ตามข้อมูลที่ได้จากท่านจะเป็นองค์ความรู้ที่สำคัญ ที่สามารถนำไปพัฒนาการรักษาความวิตกกังวลในการเข้าสังคม การช่วยป้องกันความรู้สึกอคติ และเสริมทักษะการเข้าสังคม ของผู้ป่วยโรคจิตเภท รวมถึงผู้ที่มีปัญหาสุขภาพจิตอื่น ๆ ได้ในอนาคต

- ความเสี่ยงและความไม่สะดวกสบายที่อาจจะเกิดจากการเข้าร่วมโครงการ และวิธีการป้องกัน/แก้ไขที่ผู้วิจัยเตรียมไว้หากมีเหตุการณ์ดังกล่าวเกิดขึ้น

  งานวิจัยนี้ใช้แบบสอบถามเพื่อเก็บข้อมูลและไม่มีความเสี่ยงต่อท่าน (ผู้เข้าร่วมวิจัย) อย่างไรก็ตามหากท่านมีความรู้สึกไม่สบายใจ และไม่พร้อมที่จะตอบคำถามต่อท่านสามารถหยุดได้ทันที

- **หน้าที่ของท่านในฐานะของผู้เข้าร่วมในโครงการวิจัย**

  ผู้วิจัยขอให้ท่านอ่านคำแนะนำโดยละเอียด และตอบคำถามแต่ละข้อด้วยความตั้งใจ แบบสอบถามนี้เป็นการตอบด้วยตัวเอง ใช้เวลาประมาณ 35-40 นาที ท่านอาจจะใช้เวลาน้อยกว่าหรือมากกว่าเวลาที่ระบุไว้ก็ได้ ทั้งนี้ท่านสามารถหยุดพักได้หากมีอาการเหนื่อยล้าระหว่างตอบคำถาม โดยสามารถแจ้งผู้วิจัยได้ทันที หรือหลังจากตอบข้อคำถามส่วนที่ 2 เสร็จแล้ว ท่านสามารถหยุดพักได้อีก 5-10 นาที แล้วเริ่มตอบคำถามต่อในส่วนที่ 3 ต่อไป

  หากท่านต้องการให้ผู้วิจัยหรือผู้ช่วยวิจัย อ่านให้ฟังและบันทึกข้อมูลให้ ท่านสามารถแจ้งความประสงค์ได้ตลอดระหว่างเข้าร่วมวิจัย

- **ข้อมูลส่วนตัวของท่านจะถูกเก็บไว้อย่างไร และจะมีใครนำไปใช้หรือไม่**

การบันทึกข้อมูลของท่านจะถูกเก็บเป็นไฟล์อิเล็กทรอนิกส์ในคอมพิวเตอร์ของโครงการวิจัยซึ่งต้องใช้รหัสผ่านในการเข้าถึงข้อมูลเพื่อความปลอดภัย

เพื่อรักษาความลับของข้อมูล ในแบบบันทึกข้อมูลจะใช้รหัสแทนการใช้ชื่อ นามสกุล ของท่าน เพื่อไม่ให้ระบุตัวตนได้โดยง่าย นอกจากนี้ จะไม่มีการเผยแพร่ผลการวิจัยที่มีข้อมูลที่ระบุถึงตัวตนของท่าน แต่จะนำเสนอเป็นข้อมูลวิชาการในภาพรวมเท่านั้น จะไม่มีการส่งต่อข้อมูลของท่านไปให้กับบุคคลอื่นโดยไม่ได้รับอนุญาต

อย่างไรก็ตาม ผู้ตรวจสอบมาตรฐานโครงการวิจัย และคณะกรรมการจริยธรรมการวิจัยในมนุษย์ อาจขอตรวจสอบบันทึกข้อมูลอาสาสมัคร เพื่อให้มั่นใจว่าโครงการวิจัยมีการดำเนินการที่ถูกต้องเหมาะสม

- **ท่านมีสิทธิถอนตัวจากโครงการหรือไม่ และต้องทำอย่างไร**

  ขณะที่ท่านตอบแบบสอบถาม หากท่านรู้สึกไม่สบายใจที่จะตอบคำถามบางข้อ ท่านสามารถข้ามข้อคำถามนั้นไปได้ หรืออาจจะหยุดการทำแบบสอบถามได้ทุกเมื่อ

- **ท่านต้องเสียค่าใช้จ่ายในการเข้าร่วมโครงการวิจัยหรือไม่ และอย่างไร**

  ท่านไม่ต้องเสียค่าใช้จ่ายใด ๆ สำหรับการเข้าร่วมงานวิจัย และท่านจะได้รับค่าเสียเวลาในการตอบแบบสอบถาม ซึ่งเป็นส่วนหนึ่งของงานวิจัยเป็นเงินจำนวนทั้งสิ้น 300 บาท โดยจะได้รับหลังจากเสร็จสิ้นการตอบแบบสอบถาม

- **หากท่านไม่เข้าร่วมโครงการวิจัยนี้ ท่านมีทางเลือกอื่นอย่างไรบ้าง**

  ท่านไม่จำเป็นต้องเข้าร่วมโครงการนี้หากท่านไม่ต้องการ โดยจะไม่มีผลต่อการได้รับบริการการรักษาตามมาตรฐานที่ท่านจะได้รับ

หากท่านมีข้อข้องใจเกี่ยวกับขั้นตอนของการวิจัยหรือได้รับผลข้างเคียงที่ไม่พึงประสงค์จากการวิจัย ท่านสามารถติดต่อกับ**ผู้วิจัย ผู้ช่วยศาสตราจารย์นายแพทย์วรุตม์ อุ่นจิตสกุล และผู้ช่วยวิจัย น.ส. เครือวัลย์ จงบวรวิวัฒน์ ได้ที่ภาควิชาจิตเวชศาสตร์** คณะแพทยศาสตร์ มหาวิทยาลัยสงขลานครินทร์ **หมายเลขโทรศัพท์ 074-451350-2 (ในเวลาราชการ) และโทรศัพท์มือถือ 085-169-4299 (ผู้วิจัย) และ 064-147-9682 (ผู้ช่วยวิจัย) (ได้ตลอด 24 ชั่วโมง)**

หากท่านได้รับการปฏิบัติไม่ตรงตามที่ระบุไว้ในเอกสารชี้แจงผู้เข้าร่วมการวิจัย สามารถขอรับคำปรึกษา/แจ้งเรื่อง/ร้องเรียน ได้ที่สำนักงานคณะกรรมการจริยธรรมการวิจัย คณะแพทยศาสตร์ มหาวิทยาลัยสงขลานครินทร์ โทรศัพท์ 0-7445-1157 หรือจดหมายอิเล็กทรอนิกส์ medpsu.ec@gmail.com

อาสาสมัครโปรดให้ความสำคัญ

- ท่านสามารถดาวน์โหลดเอกสารชี้แจงนี้เก็บไว้ เพื่อเป็นหลักฐานและอ่านเมื่อมีข้อสงสัย
- การตอบแบบสอบถามโดยความสมัครใจของท่าน แสดงถึงความสมัครใจในการลงนามในหนังสือยินยอม

The questionnaires

โครงการวิจัย การศึกษาความสัมพันธ์ของอาการกลัวการเข้าสังคม ความรู้สึกอคติ ความอับอาย และพฤติกรรมป้องกันตัวเอง กับอาการหวาดระแวงของผู้ป่วยโรคจิตเภท

ส่วนที่ 1 – แบบประเมินความกังวลต่อการปฏิสัมพันธ์ในสังคม Social Interaction Anxiety Scale (SIAS)

คำแนะนำ ในแต่ละหัวข้อ กรุณาให้คะแนนเพื่อแสดงระดับของความรู้สึกของคุณต่อประโยคที่ตรงกับคุณลักษณะหรือเป็นจริงสำหรับคุณ ด้วยคะแนนดังนี้:

0 = ไม่ตรงกับคุณลักษณะ หรือไม่เป็นจริงสำหรับฉัน

1 = ตรงกับคุณลักษณะ หรือเป็นจริงสำหรับฉันเล็กน้อย

2 = ค่อนข้างตรงกับคุณลักษณะ หรือเป็นจริงสำหรับฉันพอสมควร

3 = ตรงกับคุณลักษณะ หรือเป็นจริงสำหรับฉันมาก

4 = ตรงกับคุณลักษณะ หรือเป็นจริงสำหรับฉันมากที่สุด

ข้อ	คุณลักษณะ	ไม่เลย	เล็กน้อย	ค่อนข้าง	มาก	มากที่สุด
1	ฉันรู้สึกประหม่า ถ้าฉันต้องพูดคุยกับคนที่มีอำนาจเหนือกว่า เช่น ครู, เจ้านาย เป็นต้น	0	1	2	3	4
2	ฉันรู้สึกอึดอัดในการสบตากับผู้อื่น	0	1	2	3	4
3	ฉันรู้สึกกดดัน ถ้าฉันต้องพูดเรื่องราวหรือความรู้สึกของฉัน	0	1	2	3	4
4	ฉันรู้สึกว่ามันยากที่จะผ่อนคลายและกลมกลืนไปกับกลุ่มคนที่ฉันทำงานด้วย	0	1	2	3	4
5	ฉันรู้สึกว่ามันง่ายที่จะผูกมิตรกับคนในวัยเดียวกัน	0	1	2	3	4
6	ฉันรู้สึกเกร็งเวลาเจอคนรู้จักโดยบังเอิญ	0	1	2	3	4
7	เมื่อต้องเข้าสังคม ฉันไม่ค่อยผ่อนคลาย	0	1	2	3	4
8	ฉันรู้สึกเครียด ถ้าฉันต้องอยู่ตามลำพังกับใครอีกคน	0	1	2	3	4
9	ฉันรู้สึกสบายใจ เมื่อเจอผู้คนในงานปาร์ตี้ต่างๆ	0	1	2	3	4
10	ฉันรู้สึกลำบากในการพูดคุยกับคนอื่นๆ	0	1	2	3	4
11	ฉันรู้สึกว่า มันง่ายที่จะคิดเกี่ยวกับประเด็นชวนคุย	0	1	2	3	4
12	ฉันกังวลเกี่ยวกับการแสดงออกในสถานการณ์ที่ฉันทำตัวไม่ถูก	0	1	2	3	4
13	ฉันรู้สึกว่ามันยากที่จะไม่เห็นด้วยกับมุมมองความเห็นของคนอื่น	0	1	2	3	4
14	ฉันมีปัญหาในการคุยกับเพศตรงข้ามที่ดูมีเสน่ห์น่าสนใจ	0	1	2	3	4

ข้อ	คุณลักษณะ	ไม่เลย	เล็กน้อย	ค่อนข้าง	มาก	มากที่สุด
15	ฉันรู้สึกว่าฉันกังวล ไม่รู้จะพูดอะไรเมื่อเข้าสังคม	0	1	2	3	4
16	ฉันรู้สึกกังวล เมื่อต้องอยู่ร่วมกับคนอื่นที่ฉันไม่รู้จักดี	0	1	2	3	4
17	ฉันรู้สึกว่า ฉันจะพูดในสิ่งที่น่าอายออกไปเวลาสนทนา	0	1	2	3	4
18	เวลาฉันอยู่ในกลุ่ม ฉันรู้สึกว่าฉันกังวลว่าฉันจะถูกละเลย	0	1	2	3	4
19	ฉันรู้สึกเครียดเวลาต้องอยู่ในกลุ่ม	0	1	2	3	4
20	ฉันรู้สึกไม่มั่นใจว่าจะทักคนที่ฉันรู้จักกันผิวเผินดีหรือไม่	0	1	2	3	4

ส่วนที่-2 - แบบประเมินความคิด และพฤติกรรมป้องกันตัวเอง Cognitions and Defences Behaviours Questionnaire (O-CDQ)

ส่วนย่อยที่ 1 ความกลัว เกี่ยวกับการอยู่ข้างนอก (กังวล)

คนเรามักจะประสบปัญหาในสถานการณ์ประจำวันบ้าง เพราะพวกเขามักกังวลว่าอาจมีสิ่งไม่ดีเกิดขึ้น แบบสอบถามนี้ถามเกี่ยวกับความกังวลที่คุณอาจจะมีก่อนออกไปข้างนอก หรือความกังวลที่คุณอาจจะมีเมื่ออยู่นอกบ้านหรือสถานที่ ที่ไม่คุ้นเคย

โปรดอ่านแต่ละข้อความด้านล่าง และเลือกตัวเลขที่ตรงที่สุดที่อธิบายความบ่อยที่คุณประสบความกังวลนี้ในช่วง 2 สัปดาห์ที่ผ่านมา ด้วยคะแนนดังนี้

0 = ไม่เลย
1 = มีบ้าง
2 = บ่อยครั้ง
3 = ประจำ

ในช่วง 2 สัปดาห์ที่ผ่านมาฉันกลัวว่า		ไม่เลย	มีบ้าง	บ่อยครั้ง	ประจำ
1.	ฉันจะทำให้ตัวเองขายหน้า	0	1	2	3
2.	ฉันจะล้มเหลว	0	1	2	3
3.	คนอื่นจะคิดกับฉันในแง่ลบ	0	1	2	3
4.	ฉันจะถูกปฏิเสธ	0	1	2	3
5.	ฉันจะตื่นตกใจ (ฉันจะลนลาน)	0	1	2	3
6.	ฉันจะเสียการควบคุม	0	1	2	3
7.	ทุกคนจะจับตาดูฉัน	0	1	2	3
8.	คนอื่นจะหัวเราะเยาะฉัน	0	1	2	3
9.	ฉันจะพูดจาก้าวร้าวออกไป	0	1	2	3
10.	คนอื่นจะคอยทำให้ฉันรู้สึกแย่	0	1	2	3
11.	ฉันจะไปทำร้ายร่างกายคนอื่น	0	1	2	3
12.	คนอื่นจะมาทำร้ายร่างกายฉัน	0	1	2	3
13.	ฉันจะไม่สามารถรับมือกับคำวิจารณ์ได้	0	1	2	3
14.	พวกคำวิจารณ์จะทำร้ายฉันไม่ทางใดก็ทางหนึ่ง	0	1	2	3

ส่วนย่อยที่ 2 หนีห่างออกจากสถานการณ์ภายนอก (หลีกเลี่ยง)

ความกลัวและความกังวลมักจะทำให้คนหลีกหนีสถานการณ์ต่างๆ เพราะพวกเขากังวลว่าบางอย่างอาจเกิดขึ้นได้ โปรดให้คะแนนความถี่ที่คุณหลีกเลี่ยงสถานการณ์ต่างๆ ด้านล่าง ในช่วง 2 สัปดาห์ที่ผ่านมาอันเนื่องมาจากความกังวลของคุณ

ในช่วง 2 สัปดาห์ที่ผ่านมาฉันหลีกเลี่ยง		ไม่เลย	มีบ้าง	บ่อยครั้ง	ประจำ
1.	ร้านค้าแถวบ้าน	0	1	2	3
2.	ห้างสรรพสินค้า	0	1	2	3
3.	ซุปเปอร์มาร์เก็ต	0	1	2	3
4.	การใช้บริการขนส่งสาธารณะ (เช่น รถบัส รถไฟ)	0	1	2	3
5.	ผับ	0	1	2	3
6.	ร้านอาหาร	0	1	2	3
7.	เพื่อนบ้าน	0	1	2	3
8.	คนแปลกหน้า	0	1	2	3
9.	แพทย์ทั่วไป หมอผ่าตัด หรือสถานพยาบาล	0	1	2	3
10.	ร้านกาแฟ หรือคาเฟ่	0	1	2	3
11.	สถานที่ออกกำลังกาย หรือโรงยิม	0	1	2	3
12.	การเดินบนถนน	0	1	2	3
13.	การนัดพบคนอื่น หรือการเข้าสังคม	0	1	2	3
14.	เจ้าหน้าที่ (เช่น ตำรวจ)	0	1	2	3
15.	ที่ทำงาน หรือสถานศึกษา	0	1	2	3
16.	พื้นที่เปิดโล่ง หรือที่โล่งแจ้ง	0	1	2	3
17.	พื้นที่ปิดตาย หรือพื้นที่ที่เต็มไปด้วยผนัง/สิ่งกีดขวาง และหาทางออกได้ยาก	0	1	2	3
18.	การอยู่บ้านคนเดียว	0	1	2	3
19.	การอยู่บ้านกับคนอื่นๆ	0	1	2	3
20.	การอยู่ห่างจากบ้าน	0	1	2	3
21.	สถานที่ที่ไม่คุ้นเคย	0	1	2	3
22.	สถานที่ที่วุ่นวาย	0	1	2	3

ส่วนย่อยที่ 3 การจัดการกับความเสี่ยงต่างๆ เมื่ออยู่ข้างนอก (การปกป้องตนเอง)

อาจจะมีบางครั้งที่คนเราไม่สามารถหลีกเลี่ยงสถานการณ์ที่เรากังวลได้ ในสถานการณ์เหล่านี้คนเราอาจจะพยายามที่จะใช้กลวิธีบางอย่าง เพื่อที่จะทำให้ตัวเองปลอดภัย

โปรดให้คะแนนที่อธิบายความถี่ที่คุณอาจใช้ในแต่ละกลวิธี เพื่อที่จะทำให้ตัวเองปลอดภัยในสถานการณ์ที่ทำให้กังวล ในช่วง 2 สัปดาห์ที่ผ่านมา

ในช่วง 2 สัปดาห์ที่ผ่านมา		**ไม่เลย**	**มีบ้าง**	**บ่อยครั้ง**	**ประจำ**
1.	ฉันหลีกเลี่ยงการสบตา	0	1	2	3
2.	ฉันจะออกไปข้างนอกก็ต่อเมื่อมีคนที่ฉันรู้จักไปกับฉันด้วย	0	1	2	3
3.	ฉันเฝ้าระวังสัญญาณต่างๆ เผื่อว่าอาจจะมีสิ่งไม่ดีเกิดขึ้น	0	1	2	3
4.	ฉันจะหนีออกไปทันทีที่ฉันรู้สึกกระวนกระวายไม่สบายใจ	0	1	2	3
5.	ฉันจะคอยระวังสีหน้า เพื่อที่จะดูว่าใครตัดสิน หรือวิพากษ์วิจารณ์ฉัน	0	1	2	3
6.	เมื่ออยู่ข้างนอก ฉันจะรักษาระยะห่างของฉันจากคนอื่น ๆ	0	1	2	3
7.	ฉันจะเตรียมแผนการหลบหนี	0	1	2	3
8.	ฉันใช้เวลาส่วนใหญ่คิดเกี่ยวกับสิ่งไม่ดีที่อาจจะเกิดขึ้น	0	1	2	3
9.	เมื่ออยู่ข้างนอก ฉันจะทำทุกอย่างให้เร็วที่สุดเท่าที่จะทำได้	0	1	2	3
10.	ฉันเงี่ยหูฟัง หรือตั้งอกตั้งใจฟัง แต่ปัญหาที่คาดว่าจะเกิดขึ้น	0	1	2	3

ส่วนที่ 3 – แบบประเมินความเชื่อเกี่ยวกับความเจ็บป่วย Personal Beliefs about Illness Questionnaire–Revised (PBIQ-R)

คำแนะนำ กรุณาเลือกตัวเลือกข้างล่างนี้ที่เข้ากับคุณมากที่สุด ด้วยคะแนนดังนี้

1 = ไม่เห็นด้วยอย่างยิ่ง
2 = ไม่เห็นด้วย
3 = เห็นด้วย
4 = เห็นด้วยอย่างยิ่ง

ข้อ	คุณลักษณะ	ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	เห็นด้วย	เห็นด้วยอย่างยิ่ง
1	ฉันจำเป็นต้องได้รับการดูแลจากแพทย์ผู้เชี่ยวชาญตลอดเวลา	1	2	3	4
2	อาการป่วยของฉันทำให้ฉันกลัว	1	2	3	4
3	ฉันสามารถบอกเล่าความเจ็บป่วยของฉันกับคนส่วนใหญ่ได้	1	2	3	4
4	ผลจากความเจ็บป่วยของฉัน ทำให้ฉันทำสิ่งต่างๆได้น้อยลงมาก	1	2	3	4
5	เนื่องจากความเจ็บป่วยของฉัน ทำให้ฉันต้องได้รับการดูแลทางจิตเวช	1	2	3	4
6	อาการป่วยของฉันทำให้ฉันไม่สามารถทำในสิ่งที่ฉันอยากทำ	1	2	3	4
7	ฉันรู้สึกว่ามันยากที่จะจัดการกับอาการป่วยในปัจจุบันของฉัน	1	2	3	4
8	ฉันก็ยังเป็นฉันคนเดิม เหมือนก่อนที่ฉันจะป่วย	1	2	3	4
9	ฉันรู้ตัวว่า เวลาที่อาการฉันกำเริบ ฉันไม่สามารถทำอะไรกับมันได้เลย	1	2	3	4
10	ความเจ็บป่วยของฉัน กลายเป็นตัวกำหนดวิถีชีวิตของฉัน	1	2	3	4
11	ฉันรู้สึกไร้เรี่ยวแรงที่จะจัดการหรือควบคุมความเจ็บป่วยของฉัน	1	2	3	4
12	ความเจ็บป่วยของฉันเป็นอุปสรรคต่อฉันที่จะเข้าร่วมทำในสิ่งที่ฉันอยากทำ	1	2	3	4
13	สังคมจำเป็นต้องแยกคนที่มีความเจ็บป่วยแบบฉันออกจากคนอื่นๆ	1	2	3	4
14	ฉันรู้สึกแปลกแยกเพราะความเจ็บป่วยของฉัน	1	2	3	4
15	ฉันรู้สึกอับอายจากความเจ็บป่วยของฉัน	1	2	3	4
16	อาการป่วยของฉัน ทำให้ฉันทำงานหรือประกอบอาชีพของฉันได้ยากมาก	1	2	3	4
17	ฉันรู้สึกอับอายเกี่ยวกับความเจ็บป่วยของฉัน	1	2	3	4

ข้อ	คุณลักษณะ	ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	เห็นด้วย	เห็นด้วยอย่างยิ่ง
18	เพราะความเจ็บป่วยของฉัน ทำให้ฉันแปลกแยก	1	2	3	4
19	ฉันเปลี่ยนไปในทางที่แย่ลง เพราะความเจ็บป่วยของฉัน	1	2	3	4
20	ฉันยังสามารถเข้ากับคนอื่นได้ดีเหมือนเดิม	1	2	3	4
21	ความเจ็บป่วยกันฉันออกจากการมีเพื่อนและความสัมพันธ์ต่างๆ	1	2	3	4
22	ความเจ็บป่วยของฉันเป็นอุปสรรคต่อการวางแผนอนาคตของฉัน	1	2	3	4
23	ความสัมพันธ์ของฉันกับเพื่อนๆ เปลี่ยนไปในทางที่แย่ลง	1	2	3	4
24	ฉันรู้สึกเป็นคนนอกกลุ่ม เพราะความเจ็บป่วยของฉัน	1	2	3	4
25	ฉันรู้สึกถูกคุกคามโดยความเจ็บป่วยของฉัน	1	2	3	4
26	ฉันรู้สึกเหมือนติดกับดัก หรือถูกจองจำ ด้วยความเจ็บป่วยของฉัน	1	2	3	4
27	เพราะความเจ็บป่วยของฉัน ทำให้คนอื่นมองฉันเปราะบางและอ่อนแอ	1	2	3	4
28	ฉันยังมีเป้าหมายในชีวิตเหมือนเดิม ก่อนที่ฉันจะเจ็บป่วย	1	2	3	4
29	คนอื่นๆ สบประมาทดูถูกฉัน เพราะความเจ็บป่วยของฉัน	1	2	3	4

ส่วนที่ 4 – แบบประเมินความคิดหวาดระแวง Revised Green Paranoid Thought Scales (R-GPTS)

คำแนะนำ กรุณาอ่านแต่ละข้อความอย่างตั้งใจ ข้อความเหล่านี้กล่าวถึงความคิด และความรู้สึกที่คุณอาจจะมีต่อบุคคลอื่นในช่วง 1 เดือนที่ผ่านมา
ให้ระลึกถึงความรู้สึกในช่วง 1 เดือนที่ผ่านมา และให้คะแนนความรู้สึก ดังนี้

0 = ไม่มีเลย
1 = เล็กน้อย
2 = มีบ้าง
3 = มาก
4 = มากที่สุด

กรุณาตอบให้ครบทั้งส่วนA และ B (กรุณาไม่ต้องให้คะแนนหากข้อดังกล่าวเป็นประสบการณ์ที่อาจจะได้รับอิทธิพลจากการใช้ยา)

ข้อ	คุณลักษณะ	ไม่มีเลย	เล็กน้อย	มีบ้าง	มาก	มากที่สุด
ส่วน A						
1	ฉันเคยใช้เวลาคิดว่าเพื่อนกำลังนินทาฉันอยู่	0	1	2	3	4
2	ฉันมักได้ยินคนพูดถึงฉันบ่อยๆ	0	1	2	3	4
3	ฉันเสียใจเมื่อเพื่อนและเพื่อนร่วมงานวิพากษ์วิจารณ์ฉันอย่างจริงจัง	0	1	2	3	4
4	เคยมีคนหัวเราะเยาะฉันลับหลังอย่างแน่นอน	0	1	2	3	4
5	ฉันคิดมากเวลามีคนหลบเลี่ยงฉัน	0	1	2	3	4
6	คนมักจะให้เบาะแสต่างๆกับฉัน	0	1	2	3	4
7	ฉันเคยเชื่อว่า คนบางประเภทไม่ได้เป็นอย่างที่เขาแสดงให้เห็น	0	1	2	3	4
8	มีคนนินทาลับหลังฉัน ทำให้ฉันเสียใจ	0	1	2	3	4

ข้อ	คุณลักษณะ	ไม่มีเลย	เล็กน้อย	มีบ้าง	มาก	มากที่สุด
ส่วน B						
1	คนบางกลุ่มคอยวิพากษ์วิจารณ์ฉันอยู่	0	1	2	3	4
2	เคยมีคนทำให้ฉันรู้สึกถูกข่มขู่ พวกเขาจะจ้องตาฉัน	0	1	2	3	4
3	ฉันมั่นใจว่ามีคนทำอะไรบางอย่างเพื่อที่จะแกล้งฉัน	0	1	2	3	4
4	ฉันเชื่อว่า มีคนวางแผนต่อต้านฉันอยู่	0	1	2	3	4
5	ฉันมั่นใจว่ามีบางคนต้องการทำร้ายฉัน	0	1	2	3	4
6	ฉันไม่สามารถหยุดคิดได้เลย เกี่ยวกับการที่มีคนต้องการจะปั่นหัวฉัน	0	1	2	3	4
7	ฉันรู้สึกทุกข์ใจที่โดนกลั่นแกล้ง	0	1	2	3	4
8	มันยากที่จะหยุดคิดเกี่ยวกับคนที่ต้องการทำให้ฉันรู้สึกแย่	0	1	2	3	4
9	มีคนตั้งใจจะทำร้ายฉัน	0	1	2	3	4
10	ฉันรู้สึกโกรธ ที่มีบางคนต้องการทำร้ายฉัน	0	1	2	3	4

ส่วนที่ 5 – แบบประเมินภาวะซึมเศร้า Depression Anxiety Stress Scales (DASS) - Depression

กรุณาอ่านข้อความด้านล่าง แล้วเลือกให้คะแนน เพื่อวัดความรู้สึกของท่านในสัปดาห์ที่ผ่านมา ด้วยคะแนนดังนี้

0 = ไม่เคยเกิดขึ้นเลย
1 = เกิดขึ้นในบางครั้ง
2 = เกิดขึ้นค่อนข้างบ่อย
3 = เกิดขึ้นบ่อยมากหรือเกือบตลอดเวลา

ข้อความเหล่านี้ไม่มีคำตอบใดที่ผิดหรือถูก ฉะนั้นท่านไม่จำเป็นต้องใช้เวลานานในการพิจารณาข้อความ

ข้อ	คุณลักษณะ	ไม่เลย	บางครั้ง	ค่อนข้างบ่อย	บ่อยมาก
1	ฉันรู้สึกว่าฉันไม่เคยมีความรู้สึกในแง่บวกเลย	0	1	2	3
2	ฉันมีความรู้สึกไม่อยากจะทำอะไร	0	1	2	3
3	ฉันรู้สึกว่า ฉันไม่มีจุดมุ่งหมายในชีวิต	0	1	2	3
4	ฉันรู้สึกโศกเศร้า เสียใจและหดหู่	0	1	2	3
5	ฉันรู้สึกว่า ฉันไม่สนใจกับสิ่งต่างๆ รอบตัว	0	1	2	3
6	ฉันรู้สึกว่าฉันเป็นคนไม่มีคุณค่า	0	1	2	3
7	ฉันมีความรู้สึกว่าชีวิตฉันไม่มีค่า	0	1	2	3
8	ฉันรู้สึกไม่สนุกในสิ่งที่ฉันทำ	0	1	2	3
9	ฉันมีความรู้สึกเหมือนโลกมืดมน ไม่มีความหวัง	0	1	2	3
10	ฉันไม่มีความกระตือรือร้นในสิ่งต่างๆ	0	1	2	3
11	ฉันรู้สึกว่า ฉันเป็นคนไร้ค่า	0	1	2	3
12	ฉันมองไม่เห็นอนาคตของตนเองในวันข้างหน้า	0	1	2	3
13	ฉันรู้สึกว่าชีวิตไม่มีความหมาย	0	1	2	3
14	ฉันพบว่าการที่จะเริ่มต้นทำสิ่งใดสิ่งหนึ่งเป็นเรื่องยาก	0	1	2	3

ส่วนที่ 6 – ข้อมูลส่วนตัว

7. เพศ

◯ ชาย ◯ หญิง

8. อายุ _____ ปี **วัน/เดือน/ปี (พ.ศ.) เกิด** _____ (วว/ดด/ปปปป)

9. สัญชาติ

◯ ไทย ◯ อื่นๆ (โปรดระบุ) _____

10. ศาสนา

◯ พุทธ ◯ อิสลาม ◯ คริสต์

◯ ไม่ได้นับถือศาสนา ◯ อื่นๆ (ระบุ).....

11. รายได้ต่อเดือน (รายได้รวมทั้งหมด หากอยู่อาศัยเป็นครอบครัว หรือรายได้ส่วนตัว หากอาศัยคนเดียวหรือยังไม่มีครอบครัว)

◯ ไม่มีรายได้ ◯ < 10,000 บาท ◯ 10,001 - 25,000 บาท

◯ 25,001 - 50,000 บาท ◯ 50,001 – 75,000 บาท ◯ 75,001 – 100,000 บาท

◯ > 100,001 บาท ◯ ไม่ขอตอบ

12. ระดับการศึกษาสูงสุด:

◯ ไม่ได้เรียน ◯ ประถมศึกษา ◯ มัธยมศึกษาตอนต้น

◯ มัธยมศึกษาตอนปลาย ◯ อนุปริญญา ◯ ปริญญาตรี

◯ สูงกว่าปริญญาตรี ◯ ไม่ขอตอบ

สิ้นสุดการตอบแบบสอบถาม

ขอบพระคุณอย่างสูงที่ให้ความร่วมมือ

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