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# UCC

**University College Cork, Ireland**  
Coláiste na hOllscoile Corcaigh

# **A Study of Psychological Therapies for Psychosis**

**Study 1:** Metacognitive training for psychosis: A meta-analysis

**Study 2:** Exploring the schema mode inventory in an Irish context and its applicability for psychosis



**Lucy Burke, B.A. (Hons), H.Dip. Psych, M.Sc.**

**Thesis submitted to UCC in partial fulfilment of the requirements  
for the degree of Doctor of Clinical Psychology**

**School of Applied Psychology, University College Cork, Ireland**

**May 2019**

## **Declaration**

*This is to certify that the work I am submitting is my own and has not been submitted for another degree, either at University College Cork or elsewhere. All external references and sources are clearly acknowledged and identified within the contents. I have read and understood the regulations of University College Cork concerning plagiarism. This study was granted ethical approval by University College Cork.*

Signed: \_\_\_\_\_

Date: \_\_\_\_\_

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# **Study 1: Metacognitive training for psychosis: A meta-analysis**

Prepared in accordance with submission guidelines\* for the Journal of Mental Health  
(see Appendix A)

*\* For the purpose of the viva voce examination all tables and figures have been included in the main text and will be removed prior to submission to the journal.*

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## **Title Page**

**Title:** Metacognitive training for psychosis: A meta-analysis

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## **Abstract**

**Aim:** The present article provides a meta-analysis of the effectiveness of metacognitive therapy (MCT) for psychosis. Variables such as insight and cognitive bias were also analysed.

**Method:** A systematic search of the literature was completed using the databases: Psychology and Behavioural Sciences Collection, PsycARTICLES and PsycINFO, MEDLINE and ProQuest. The review included 19 studies published between the years 2010 – 2018. Meta-analyses were conducted on positive symptoms (352 participants), negative symptoms (160 participants), general psychopathology (313 participants), delusions (234 participants), insight (219 participants) and cognitive bias (193 participants).

**Results:** The review demonstrates overall statistically significant results which indicate that MCT is an effective treatment for psychosis. This result is classified as having a medium effect size. The largest effect size was for severity of delusions which demonstrated a medium effect. A medium treatment effect size was also found for positive symptoms, negative symptoms, general psychopathology and self-reflection. The effect of MCT on cognitive bias indicate a positive but weak effect and was not statistically significant. Results indicated no difference between gender or age.

**Conclusion:** MCT appears to be an effective treatment for psychosis. Further research is required to determine with more certainty what aspects of cognitive biases are addressed by MCT.

**Keywords:** Meta cognitive therapy, meta-analysis, psychosis

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**Ethics approval and consent to participate:** The study protocol was approved by the internal D.Clin Research Ethics Committee of the University College Cork, Cork, Ireland.

**Disclosure statement:** No potential conflict of interest was reported by the authors.

**Authors' contributions:** LB completed this research study as part of her doctoral training in clinical psychology. SH was the academic supervisor and contributed to the statistical analysis. Both authors contributed to the writing and editing of the paper.

## **1. Introduction**

### **1.1 The development of third wave therapies**

The history of psychological treatment may be viewed in a number of stages or ‘waves’ (Rachman, 2015). Typically, the first wave is identified with the development of behaviour therapy. This derived from the work of the behaviourist school of psychology (Wolpe & Lazarus, 1966) and is based upon environmental influence on the development of specific maladaptive responses (Hayes & Hofmann, 2017; O’Leary & Wilson, 1975).

In the 1970s and 1980s there was a move towards the second wave which encompassed classic cognitive behaviour therapy (CBT; Beck, 2016; Hayes & Hofmann, 2017). This movement was inspired by the work of Aaron Beck, who was trained in psychoanalysis, but who began to explore a more pragmatic approach to therapy (Edwards & Arntz, 2012). Around this time there were two paradigms of thought: the older school of psychoanalysis and the new emerging CBT movement. It is argued that CBT was more rigorous in methodology and grounded in science (David, Cristea & Hofmann, 2018). CBT emphasised the impact of maladaptive cognitions on emotions and behaviours and the role these cognitions have on the formation and maintenance of mental health disorders (Hagen & Turkington, 2011). The efficacy of CBT has been consistently demonstrated by randomised control trials (RCTs; Deale, Chalder, Marks & Wessely, 1997; Hofmann & Smits, 2008; Sensky et al., 2000; Tarrier et al., 1998).

It became apparent however, that the classic model of CBT may be too limited to address the wide variety of presentations and problems (Holmes, 2002). As a result, there was a second shift towards what purports to be a more integrated and

comprehensive approach (Kahl, Winter, & Schweiger, 2012). Third wave cognitive therapies arrived 14 years ago (Hayes & Hofmann, 2017) and attempt to encompass CBT, psychodynamic, humanistic and integrative therapies. Examples of third wave therapies include Mindfulness based cognitive therapy (MBCT; Segal, Williams, Teasdale, 2002), compassion focused therapy (CFT; Gilbert, 2009), acceptance and commitment therapy (ACT; Hayes, Strosahl & Wilson, 1999), dialectical behaviour therapy (DBT; Linehan, 1993), schema therapy (Young, 1990) and metacognitive therapy (Moritz & Woodward, 2007; Wells, 2008).

MBCT was originally developed as a relapse prevention for major depression. It incorporates strategies from CBT while integrating mindfulness practices throughout (Segal, Williams, Teasdale, 2018). CFT also incorporates CBT strategies and combines them with concepts from Buddhism, social psychology, evolutionary psychology, developmental psychology and neuroscience (Gilbert, 2005, 2009). CFT was developed to treat individuals with complex and enduring mental health difficulties who experience shame and self-criticism, often linked to traumatic backgrounds (Gilbert, 2010). ACT aims to increase a person's psychological flexibility through behaviour and mindfulness strategies (Hayes et al., 1999). ACT differs from CBT as it aims to allow and tolerate distressing experiences rather than challenge them directly (Wakefield, Roebuck, & Boyden, 2018). DBT is a modified form of CBT which was originally developed for the treatment of borderline personality disorder (Linehan, 1993). It has since been applied to various other mental health problems such as drug and alcohol misuse (Dimeff & Linehan, 2008) and binge eating disorder (Chapman, 2006). Similarly, schema therapy was developed for personality disorders (Farrell, Shaw & Webber 2009; Young 1990) and chronic mental health difficulties such as eating disorders (Talbot, Smith, Tomkins, Brockman, &

Simpson, 2015). Schema therapy employs CBT strategies as well as psychodynamic therapy, Gestalt therapy and attachment theory. Metacognitive therapy focuses on thoughts and beliefs (Wells, 2011) much like CBT. It is a transdiagnostic therapy that has been successfully used to treat anxiety and depression (Wells, 2011), and has been further developed, by Moritz and Woodward (2007), for the treatment of psychotic disorders.

## **1.2 Psychosis**

Psychotic disorders are characterised by abnormalities including hallucinations, delusions, severely abnormal motor functions (e.g. catatonia), disorganised thinking and speech, and diminished emotional expression (American Psychiatric & American Psychiatric Association, 2013). These symptoms may significantly impact on daily life and contribute to interpersonal difficulties, poor personal care and a reduction in work or school functioning (Mueser & Cook, 2014). Psychotic illnesses are considered burdensome, to both the person and to their wider system, due to early onset, chronicity of the illness, and its impact on societal factors (Whiteford et al., 2013). A high incidence of trauma exposure has been linked to the development of psychosis; it is estimated that 28% to 73% of people experiencing psychosis have suffered childhood trauma (Bendall, Jackson, Hulbert, & McGorry, 2008; Schäfer & Fisher, 2011).

## **1.3 The current treatment of psychosis**

Medication is the predominant treatment option for psychosis (National Institute of Clinical Excellence; NICE, 2014). However, cognitive behaviour therapy for psychosis (CBTp) is the current recommended psychological treatment for the disorder (NICE, 2009). CBTp employs a symptom-focused paradigm that does not

discriminate between different types of psychosis (Bentall, 2003). This is a move away from diagnostic categories and a move towards placing the emphasis on individual symptoms. The focus is on enhancing the person's social and professional functioning through understanding and coping with each symptom (Hagen & Turkington, 2011). The efficacy of the symptom-based approach has been widely demonstrated through RCTs (Rector & Beck, 2001; Sensky et al., 2000; Wykes, Steel, Everitt, & Tarrier, 2008; Zimmerman et al., 2005). More recent research however has indicated that there may be limitations in CBTp. A meta-analysis by Jauhar et al. (2014) found that when they considered sources of bias such as randomisation, masking and incomplete outcome data, CBTp is not effective against positive symptoms of psychosis. Similarly, a meta-analysis by Laws, Darlington, Kondel, McKenna and Jauhar (2018) found no evidence to suggest that CBTp improves quality of life post treatment. Attrition has long been a real challenge in the treatment of psychosis (Fenton, Blyler, & Heinssen, 1997) and an average of 16% of people discontinue CBT for psychosis (Lincoln, Suttner & Nestoriuc, 2008). According to Wykes et al. (2008) approximately 50% of those who continue therapy do not demonstrate significant symptom reduction. In addition to this, an RCT by Garety et al. (2008) examining relapse prevention and CBT, failed to demonstrate any effectiveness against relapse.

This suggests that there is scope to investigate the effectiveness of alternative third wave therapies which could address the needs of those who were not responding to orthodox therapies such as CBT (Kahl et al., 2012). Third wave therapies are currently being explored and have demonstrated promising results in the treatment of psychosis. For example, Braehler et al. (2013) demonstrated the efficacy of group CFT for psychosis and Spidel, Lecomte, Kealy and Daigneault (2018) found that group-based ACT can result in a decrease in overall psychotic symptoms. Research has

demonstrated that people with psychosis will commonly engage in cognitive processes which contribute to the development and maintenance of delusions (Garety, Kuipers, Fowler, Freeman & Bebbington, 2001). These processes include cognitive bias such as: jumping to conclusions (JTC), dysfunctional attributional styles, belief inflexibility, overconfidence of false memories, inaccurate interpretations of information, and biases against disconfirmatory evidence (Fine, Gardner, Craigie & Gold, 2007; Pankowski, Kowalski & Gaweda, 2016). A lack of insight is also associated with delusion severity (Saravanan et al., 2007). At the height of illness, severe delusions prevent the person from considering alternative explanations for their experiences. One third wave therapy which has demonstrated, through RCTs, improvements in overall psychopathology for psychosis is metacognitive therapy (Wells, 2008).

#### **1.4 Metacognitive therapy**

Metacognitive training (MCT) for psychosis was developed by Moritz and Woodward (2007). MCT concentrates on reducing positive symptoms of psychosis, such as delusions, by raising the patient's awareness of the underlying thinking patterns (e.g. JTC) involved in the disorder (Liu, Tang, Hung, Tsai, & Lin, 2018). MCT is an eight session, group-based treatment targeting cognitive biases through a number of tasks. These tasks and discussions aim to demonstrate the fallibility of our cognitive processes. Patients are supported in recognising and understanding biases which are pertinent to the maintenance of psychosis (van Oosterhout et al., 2016).

Research on MCT has demonstrated inconsistent results. A meta-analysis by Jiang, Zhang, Zhu, Li and Li (2015) found a statistically significant reduction in the positive symptoms subscale of the Positive and Negative Syndrome Scale (PANSS) following

MCT. However, the effect size was small, and the authors noted that the variability in measures used to assess outcomes resulted in only four studies being analysed. A further meta-analysis by Pankowski et al. (2016) found significant improvements for positive symptoms in nine studies with effect sizes ranging from small, medium and large. However, there were no statistically significant results for overall psychopathology symptom severity as measured by the PANSS. Van Oosterhout et al. (2016) in their meta-analysis of MCT and psychosis found no evidence to support the efficacy of MCT on positive symptoms or delusions. As MCT was developed in 2007, it is still a relatively young intervention and the number of published studies continues to grow. Given this, a meta-analysis of the growing body of literature is indicated.

### **1.5 Review questions**

- a. Is there evidence for the efficacy of MCT for people diagnosed with a psychotic disorder?
- b. What aspects of psychotic disorders have been addressed by MCT?

## **2. Method**

### **2.1 Search strategy**

This review followed the guidance for systematic reviews outlined by the Preferred Reporting Items for Systematic Reviews and Meta Analyses (PRISMA; Page & Moher, 2017). A comprehensive systematic review of the peer-reviewed literature was conducted from 1<sup>st</sup> January 2007 to 16<sup>th</sup> October 2018. The following electronic databases were used: Psychology and Behavioural Sciences Collection, PsycARTICLES, PsycINFO, MEDLINE and the ProQuest databases. A review of the grey literature was conducted using Google Scholar, [www.greylit.org](http://www.greylit.org) and [www.opengrey.eu](http://www.opengrey.eu). Experts in the field were contacted for additional information and the reference sections of key articles were reviewed and utilised.

### **2.2 Search terms**

A review of the current literature and a consultation with the Specialist Librarian in University College Cork took place to develop appropriate search terms. The following search terms were used:

(psychosis OR schizophrenia OR psychotic OR hallucinations OR "voice hearing" OR "hearing voices" OR "distressing voices" OR delusions) AND (MCT OR metacognitive therapy OR metacognition).

### **2.3 Inclusion and exclusion criteria**

The inclusion criteria for studies were as follows: (a) an MCT intervention and control condition were implemented, (b) participants were over 18 years of age, (c) participants had a diagnosis of schizophrenia spectrum disorder as per the Diagnostic and Statistical Manual of Mental Disorders or the International Classification of

Diseases, (d) treatment effectiveness was evaluated using established outcome measures. The exclusion criteria were as follows: (a) studies that solely implemented a qualitative design, (b) studies with no control or comparison condition, (c) conference abstracts. The final articles were published in English; however, no language restriction was applied.

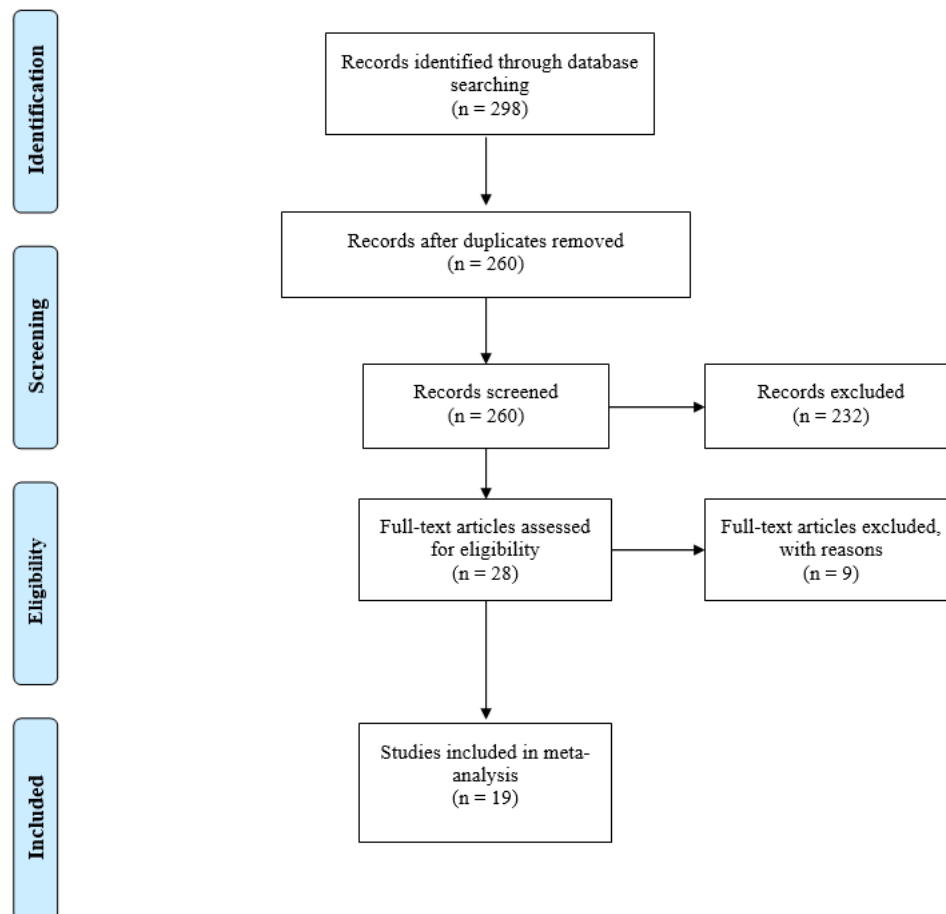


Figure 1: Flowchart of study selection.

## 2.4 Review process and data extraction

Abstracts containing the search terms were selected and full texts were retrieved. Once the final articles were identified the quality assurance checklist, STROBE (von Elm et al., 2008), was used to critically appraise the suitability of each study. Assessment of

eligibility and quality assurance was conducted by the two reviewers (LB and SH). Data were extracted by the first author (LB). Characteristics of the population (e.g. diagnosis), and characteristics of the intervention (e.g. treatment format, control groups) were collected.

## **2.5 Meta-analytic methods**

### *2.5.1 The effect size*

In a meta-analysis one challenge is to identify a common index to summarise the findings of each study. Different researchers will use different statistical tests on samples of different sizes so the meta-analyst must find a way of identifying a common basis for comparison, by estimating a common effect size for each study.

The most commonly used index of effect size is Cohen's  $d$  (Cohen, 1977). This index is an estimate of the standard deviation between two conditions. Thus,  $d=1.5$  indicates the two conditions differ by 1.5 standard deviations, which would be a substantial difference clinically and statistically. Cohen (1977) provides the following rule of thumb for interpreting effect sizes:

Small effect  $\approx 0.2$

Medium effect  $\approx 0.5$

Large effect  $\approx 0.8$

This is a tentative rule because the terms 'small', 'medium' and 'large' can mean different things in different contexts. The clinical significance of the effect size needs to be evaluated with an understanding of the domain under scrutiny (Durlak, 2009). Given the significant impact of psychosis on a person, and within the wider societal context, it could be argued that an effect size of 0.3 is suggestive that MCT has clinical value.

For the purposes of meta-analyses of clinical interventions, Cohen's  $d$  has some limitations especially when applied to samples where  $n < 50$ . A more robust index is Hedges'  $g$  index:

$$g = \frac{Mean_1 - Mean_2}{Pooled\ Weighted\ SD}$$

Hedges'  $g$  is interpreted in the same way as Cohen's  $d$ . Although the formula is based upon the mean difference effect size, it is possible to generate  $g$  for a wide variety of statistical analyses including ANOVA, ANCOVA, and correlation. Typically,  $g$  is corrected for bias (which may be large with small samples). Given the variation in sample sizes in the studies identified for this review, we used the corrected  $g$  as our index of effect size.

### *2.5.2 Fixed effects or random effects model*

The most direct way of pooling the effect sizes is to compute the weighted arithmetic mean. This is legitimate for the corrected  $g$  index because it is scaled to be additive. However, the representativeness of this mean depends on the degree of homogeneity among the effect sizes. This is the assumption of a common population estimate. If the effect sizes are heterogeneous then obtaining a representative estimate of the pooled effect size is more complicated. This is the problem of choosing a fixed effects or a random effects model. If a common population estimate can be assumed, then the simpler fixed effects model is appropriate, but if there is substantial heterogeneity then a random effects model is required. The random effects model involves an estimation of the heterogeneity variance which is a complex exercise and for which there are a number of distinct strategies. For the present study we opted for the Restricted Maximum Likelihood (RML) estimate. This is an iterative estimate that has been

shown to have only a small negative bias and a high degree of statistical efficiency (Lopez-Lopez et al., 2014).

### *2.5.3 Assessing homogeneity*

The simplest strategy for evaluating the degree of homogeneity in the effect sizes is to use the sum of squares of the effect sizes about their weighted mean, where the weights are based upon the sample size of each study in question (Hedges, 1981). This index has a  $\chi^2$  distribution with  $n - 1$  degrees of freedom and is typically designated the symbol  $Q$ . Should the value of  $Q$  exceed that expected for a prespecified probability level, typically 0.05, then the heterogeneity must be considered sufficient to contradict the assumption of a common population estimate, and a random effects model is indicated. Several other strategies exist for assessing homogeneity (Sanchez-Meca & Marin-Martinez, 1997), but the simplicity of the  $Q$  index and its efficiency in detecting heterogeneity makes it the choice for the analyses reported here.

### *2.5.4 Assessing publication bias*

One of the most difficult aspects of any systematic review, whether qualitative or quantitative, is the issue of publication bias (Davey-Smith & Eggar, 1995; Thornton & Lee, 2000). Given an editorial reluctance to publish replication studies in the psychological literature and the fact that results not demonstrating a convincing effect are seldom submitted for publication, there is a clear risk that only positive results are published while negative or insignificant results may outnumber these but be consigned to the back of the file drawer. This was named the File Drawer problem by Rosenthal (1979) who devised a statistical response called failsafe analysis. This involves estimating the number of missing studies with effect sizes of zero that would be needed to reduce the significance of the observed pooled effect size estimate to

insignificance. A number of strategies have been developed in this regard (Rosenthal, 1979; Orwin, 1983; Gleser & Olkin, 1996) but they are all highly approximate. Another approach widely used to explore publication bias is to use funnel plot graphics (Begg and Mazumdar, 1994; Biljana, Jelena & Branislav, 1999; Egger, Davey-Smith & Schneider, 1997) which are intuitively appealing but are not realistic with only a limited number of studies. We have elected to make tentative use of Rosenberg's (2015) revised failsafe N test for the purposes of this review.

## **2.6 Statistical analysis**

The computations and statistical analyses were carried out using the CMAP program custom developed by Hammond (2017) for the Cork Clinical Psychology Programme.

### **3. Results**

#### **3.1 Characteristics of eligible studies**

Nineteen studies were deemed eligible and included in the meta-analysis (see Figure 1). The main reasons for studies being excluded were either not meeting the inclusion criteria stated above or reporting data from which a reliable effect size could not be secured. Study characteristics are summarised in Table 1. Moritz et al., (2013; 2014) reported the six month and three year follow up data, respectively, for the same study and were both included in the review. The duration of the interventions was somewhat varied. Most interventions followed Moritz and Woodward's (2007) MCT programme. However, two studies (Balzan, Delfabbro, Galletly, & Woodward, 2014; Kowalski, Pankowski, Lew-Starowicz, & Gaweda, 2017) focused on brief, adapted MCT interventions. Inchausti et al. (2017) and Rocha and Queiros (2013) added social cognition training. Fifteen of the studies used randomisation and 11 of the studies had blind assessments of outcome. Sample sizes varied ranging from 12 (Kowalski et al. 2017) to 76 (Moritz et al. 2013; 2014). Meta-analysis stands and falls on the quality of the data utilised, and one element of the data quality is sample size. It is important that there are enough studies included in each analysis to give a degree of confidence on the final effect size estimation. For the purpose of these analyses we only conducted analyses if we could identify five or more studies using the focal outcome measure. Individual meta-analyses are summarised in Table 2.

Table 1: Description of interventions, patient characteristics and outcome measures.

| Study                           | Diagnosis/Criteria     | Randomised | Blinded | Intervention | MCT          | Sample Size | M:F Ratio            | Mean Age (SD)        | Control Group         | Outcome Measure  |
|---------------------------------|------------------------|------------|---------|--------------|--------------|-------------|----------------------|----------------------|-----------------------|------------------|
|                                 |                        |            |         |              | No. sessions |             |                      |                      |                       |                  |
|                                 |                        |            |         |              | Duration     |             | Intervention Control | Intervention Control |                       |                  |
| Aghotor et al. (2010)           | SSDs/ICD-10            | Yes        | Yes     | MCT          | 8            | n=16        | 12/4                 | 28.9 (8.3)           | DG                    | PANSS, Fish Task |
|                                 |                        |            |         |              | 4 weeks      | n=14        | 8/6                  | 32.6 (12.1)          |                       |                  |
| Kumar et al. (2010)             | Paranoid SZ/<br>ICD-10 | Yes        | No      | MCT          | 8            | n=8         | 8/0                  | 31.5 (8.0)           | TAU                   | PANSS            |
|                                 |                        |            |         |              | 4 weeks      | n=8         | 8/0                  | 34.1 (8.2)           |                       |                  |
| Naughton et al. (2012)          | SSDs/<br>DSM-IV-TR     | No         | No      | MCT          | 16           | n=11        | 11/0                 | 37 (10.6)            | TAU                   | PANSS            |
|                                 |                        |            |         |              | 8 weeks      | n=8         | 8/0                  | 36 (11.2)            |                       |                  |
| Rocha & Queiros (2013)          | SSDs/DSM-IV            | No         | No      | MCST         | 18           | n=19        | 16/3                 | 39 (8.9)             | TAU                   | PANSS, Fish Task |
|                                 |                        |            |         |              | 10 weeks     | n=16        | 15/1                 | 36 (8.7)             |                       |                  |
| Moritz et al. (2013)            | SSDs/DSM-IV            | Yes        | Yes     | MCT          | 8            | n=76        | 45/31                | 36.8 (11.1)          | CogPack               | PANSS, PSYRATS   |
|                                 |                        |            |         |              | 4 weeks      | n=74        | 49/25                | 32.7 (9.5)           |                       |                  |
| Moritz et al. (2014)            | SSDs/DSM-IV            | Yes        | Yes     | MCT          | 8            | n=76        | 45/31                | 36.8 (11.1)          | CogPack               | PANSS, PSYRATS   |
|                                 |                        |            |         |              | 4 weeks      | n=74        | 49/25                | 32.7 (9.5)           |                       |                  |
| Briki et al. (2014)             | SSDs/DSM-IV            | Yes        | Yes     | MCT          | 16           | n=35        | 16/9                 | 41.1 (8.1)           | Supportive<br>therapy | PANSS, PSYRATS   |
|                                 |                        |            |         |              | 8 weeks      | n=33        | 17/8                 | 41.1 (12.4)          |                       |                  |
| Favrod et al. (2014)            | SSDs/ICD-10            | Yes        | Yes     | MCT          | 8            | n=26        | 17/9                 | 36.9 (10.4)          | TAU                   | PANSS, PSYRATS   |
|                                 |                        |            |         |              | 8 weeks      | n=26        | 17/9                 | 36.6 (9.8)           |                       |                  |
| van Oosterhout et al.<br>(2014) | SSDs/DSM-IV            | Yes        | Yes     | MCT          | 8            | n=75        | 54/21                | 38.3 (11.1)          | TAU                   | PSYRATS, BCSI    |
|                                 |                        |            |         |              | 8 weeks      | n=79        | 56/23                | 36.8 (8.7)           |                       |                  |
| Erawati et al. (2014)           | SSDs/DSM-IV            | No         | No      | MCT          | 8            | n=26        | 16/10                | 37.07 (10.75)        | TAU                   | PSYRATS          |
|                                 |                        |            |         |              | 4 weeks      | n=26        | 15/11                | 42 (12.47)           |                       |                  |

Table 1 (continued)

| Study                   | Diagnosis/Criteria | Randomised | Blinded | Intervention | MCT          | Sample Size          | M:F Ratio            | Mean Age (SD)        | Control Group    | Outcome Measure              |
|-------------------------|--------------------|------------|---------|--------------|--------------|----------------------|----------------------|----------------------|------------------|------------------------------|
|                         |                    |            |         |              | No. sessions |                      |                      |                      |                  |                              |
|                         |                    |            |         |              | Duration     | Intervention Control | Intervention Control | Intervention Control |                  |                              |
| Blazan et al. (2014)    | SSDs/MINI          | No         | No      | MCT-T        | 1            | n=14                 | 11/3                 | 38 (8.1)             | TAU              | PANSS                        |
|                         |                    |            |         |              | 1 hour       | n=14                 | 9/5                  | 35 (8.7)             |                  |                              |
| Lam et al. (2015)       | SSDs/DSM-IV        | Yes        | No      | MCT          | 8            | n=38                 | 21/17                | 41.3 (11.0)          | TAU              | BCIS                         |
|                         |                    |            |         |              | 4 weeks      | n=39                 | 26/13                | 39.9 (11.3)          |                  |                              |
| Gaweda et al. (2015)    | SZ/ICD-10          | Yes        | Partial | MCT          | 8            | n=23                 | 11/12                | 50.41 (10.79)        | TAU              | PSYRATS, Fish Task           |
|                         |                    |            |         |              | 4 weeks      | n=21                 | 11/10                | 51.65 (10.25)        |                  |                              |
| So et al. (2015)        | SZ/<br>DSM-IV-TR   | Yes        | Yes     | MCTd         | 4            | n=23                 | 12/11                | 32.35 (12.97)        | WLC              | PANSS                        |
|                         |                    |            |         |              | 4 weeks      | n=21                 | 12/9                 | 35.62 (10.89)        |                  |                              |
| Andreou et al. (2017)   | SSDs/MINI          | Yes        | Yes     | MCT+ TAU     | 12           | n=44                 | 21/25                | 36.91 (12.5)         | CogPack<br>+ TAU | PANSS, PSYRATS,<br>Fish Task |
|                         |                    |            |         |              | 6 weeks      | n=35                 | 30/16                | 35.59 (13.1)         |                  |                              |
| Kowalski et al. (2017)  | SSDs/ICD-10        | Yes        | No      | JTC or ToM   | 1            | JTC n=12             | JTC 3/9              | 28 (5.41)            | DG               | Fish Task                    |
|                         |                    |            |         |              | 1 week       | TOM n= 9             | TOM 1/8              | 29.11 (4.43)         |                  |                              |
|                         |                    |            |         |              |              | n=10                 | 5/5                  | 31.70 (4.81)         |                  |                              |
| Ochoa et al. (2017)     | SSDs/DSM-IV-TR     | Yes        | Yes     | MCT          | 8            | n=41                 | 44/21                | 28.21 (6.73)         | Psych-ed         | PANSS                        |
|                         |                    |            |         |              | 8 weeks      | n=40                 | 41/16                | 27.05 (7.94)         |                  |                              |
| Inchausti et al. (2017) | SSs/ICD 10         | Yes        | Yes     | MOSST        | 16           | n=35                 | 20/16                | 38.08 (12.09)        | TAU              | PANSS                        |
|                         |                    |            |         |              | 16 weeks     | n=33                 | 18/15                | 37.30 (13.01)        |                  |                              |
| Pos et al. (2018)       | SSDs/DSM-IV-TR     | Yes        | Yes     | MCT          | 8            | n=20                 | 18/7                 | 23.59 (3.03)         | OT group         | PANSS                        |
|                         |                    |            |         |              | 8 weeks      | n=19                 | 22/3                 | 23.08 (4.16)         |                  |                              |

**Notes.** SZ: Schizophrenia. SSD: Schizophrenia spectrum disorders. MINI: Mini International Neuropsychiatric Interview. ICD-10: International Classification of Diseases (10th ed.). DSM-IV: Diagnostic and Statistical Manual of Mental Disorders (4th ed). CogPack: cognitive training package. TAU: treatment as usual. M:F ratio: male-to-female ratio. DG: discussion group. OT: occupational therapy. PSYRATS: The Psychotic Symptom Rating Scale

### **3.2 Outcome domains**

The outcome measures are divided into three domains. The first involves symptoms. A large proportion of the studies identified used the PANSS to assess the extent of psychotic symptoms. The PANSS identifies positive symptoms, negative symptoms and general psychopathology associated with psychosis. The PANSS is a validated and standardised clinical interview which rates both symptom presence and severity (Kay, Fiszbein, & Opler, 1987). A total score indicating general symptomatology is also often used. Not all studies reported all the subscales of the PANSS. For instance 13 reported changes in positive symptoms while only seven reported negative symptom changes. Nevertheless, the PANSS was the single most widely used symptom outcome measure. A second measure of symptoms was the Psychotic Symptoms Rating Scale (PSYRATS). The PSYRATS assesses the multidimensional nature of delusions and hallucinations, as well as the severity of distress caused by these symptoms (Steel et al., 2007). A total of seven studies used the PSYRATS as an outcome measure.

The second outcome domain relates to insight. This was assessed variously by those studies that used this construct as an outcome. The most common approach was to use the Beck Cognitive Insight Scale (BCIS; Beck, Baruch, Balter, Steer, & Warman, 2004) tapping Reflection and Certainty. The BCIS is a 15 item self-report questionnaire which assesses the individual's self-reflectiveness and self-certainty. In this instance self-certainty refers to the person's over-confidence in their interpretation of their experiences. In all, seven studies used this measure.

Finally, several studies were interested in seeing how MCT impacts upon cognitive functioning with particular reference to cognitive bias. Jumping to Conclusions (JTC)

is a cognitive bias whereby individuals make quick decisions based on insufficient or inaccurate information. Research has demonstrated that it is frequently observed among individuals with delusions or those at risk of developing delusions (Garety et al. 2001). A variety of measures were used to assess cognitive bias but the one that was most common for our purposes was the Fish Task. Eight of the studies reported results of the Fish Task. JTC was measured using this probabilistic reasoning task (Moritz & Woodward, 2007). Individuals are presented with two lakes containing coloured fish in opposing likelihood with a ratio of 80:20. Individuals are asked to make judgements about the likelihood that the fish were caught in the first lake versus the second, and whether the amount of information they are given is enough to make an accurate decision. JTC was defined as a decision after only one or two fish (Moritz et al. 2015).

Table 2: Summary of meta-analyses for eight outcome variables.

|                   | Outcome Measure<br>(N of Studies) | N   | Heterogeneity |    |     | Effect Size Estimates (RML) |      |            | Failsafe<br>Rosenberg | Moderator Effects |          |
|-------------------|-----------------------------------|-----|---------------|----|-----|-----------------------------|------|------------|-----------------------|-------------------|----------|
|                   |                                   |     | Q             | df | Sig | Mean                        | SD   | CI         |                       | Sex               | Age      |
| <b>Symptoms</b>   | PANSS Positive (12)               | 352 | 36.14         | 11 | **  | 0.46                        | 0.11 | 0.21–0.72  | 492                   | −0.67 ns          | −0.02 ns |
|                   | PANSS Negative (6)                | 160 | 11.6          | 5  | *   | 0.36                        | 0.12 | 0.03–0.68  | 54                    | −0.03 ns          | −0.00 ns |
|                   | PANSS General (10)                | 313 | 37.99         | 9  | **  | 0.6                         | 0.13 | 0.29–0.9   | 526                   | −0.09 ns          | −0.03 ns |
|                   | PANSS Total (9)                   | 236 | 18.41         | 8  | *   | 0.47                        | 0.09 | 0.23–0.71  | 299                   | −0.16 ns          | −0.00 ns |
|                   | PSYRATS (7)                       | 234 | 38.03         | 6  | **  | 0.65                        | 0.18 | 0.19–1.11  | 346                   | −0.05 ns          | −0.05 ns |
| <b>Insight</b>    | BCIS Reflection (6)               | 219 | 30.63         | 5  | **  | 0.39                        | 0.16 | 0.02–0.81  | 83                    | −1.92 ns          | −0.02 ns |
|                   | BCIS Certainty (6)                | 219 | 5.68          | 5  | ns  | 0.23                        | 0.07 | 0.05–0.41  | 29                    | −0.06 ns          | −0.01 ns |
| <b>Cognitive</b>  | Fish Task (7)                     | 193 | 7.14          | 6  | ns  | 0.34                        | 0.08 | 0.14–0.54  | 79                    | −0.85 ns          | −0.01 ns |
| <b>Aggregated</b> | All (19)                          | 498 | 47.67         | 18 | **  | 0.44                        | 0.07 | 0.28–0.592 | 953                   | −0.01 ns          | −0.32 ns |

### 3.3 Meta analyses of symptoms

#### 3.3.1 Positive symptoms

Twelve studies utilised the PANSS Positive Symptoms subscale. The index of heterogeneity was 36.14 ( $p < 0.001$ ) suggesting that a random effects model is indicated. The RML pooled effect size estimate was found to be 0.46 based on a full sample of 352. This analysis is summarised in Figure 2 where a forest plot is presented. In this graph, the effect size for each study is represented by an asterisk and the line directly above each represents the standard error. The diamond shape represents the pooled effect. The centre of the diamond is situated at the estimated pooled effect size and the left–right extremes indicate the 95% confidence interval.

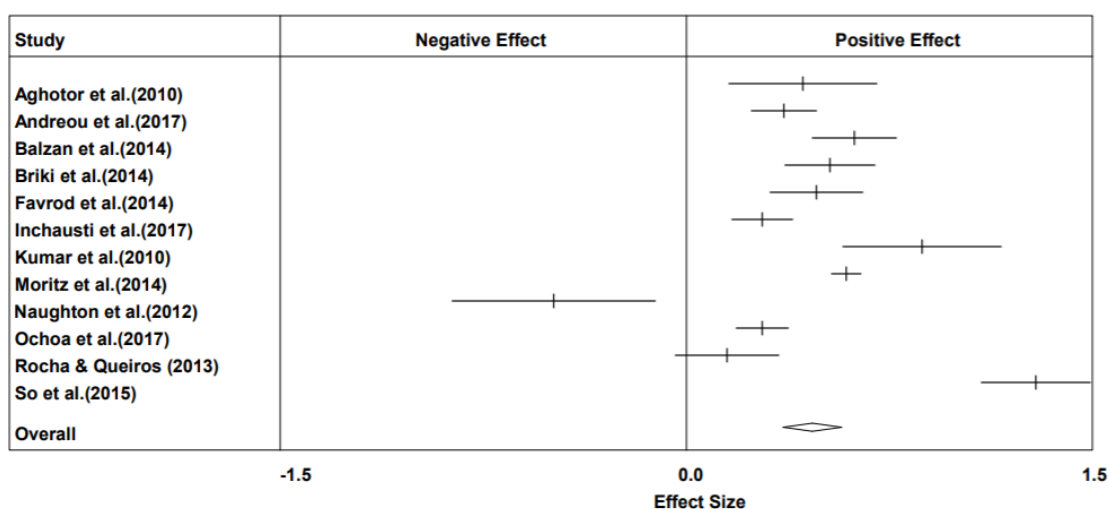


Figure 2: Forest plot of PANSS positive symptoms scores

It is notable that all studies report a positive effect except that of Naughton et al. (2012) which also manifests the largest standard error. So et al. (2015) report the largest effect size and the remaining studies appear consistent around the pooled estimate. This finding would suggest that MCT would have a reducing effect on positive symptoms and, using Cohen's (1977) criteria, this effect would be classed as medium.

### 3.3.2 Negative symptoms

Six studies utilised the PANSS negative symptoms subscale. In this case the heterogeneity was 11.60 ( $p < 0.05$ ) suggesting that a random effects model is indicated. The RML pooled effect size estimate was 0.36 based on a sample of 106. Figure 3 below outlines the forest plot for the negative symptoms subscale of the PANSS. There is a positive effect for all six studies. The largest effect size is Kumar et al. (2010). The rest of the effect sizes are generally around the pooled estimate. This finding would indicate that MCT is effective in reducing negative symptoms of psychosis and this would be classified as a small effect size using Cohen's (1977) criteria.

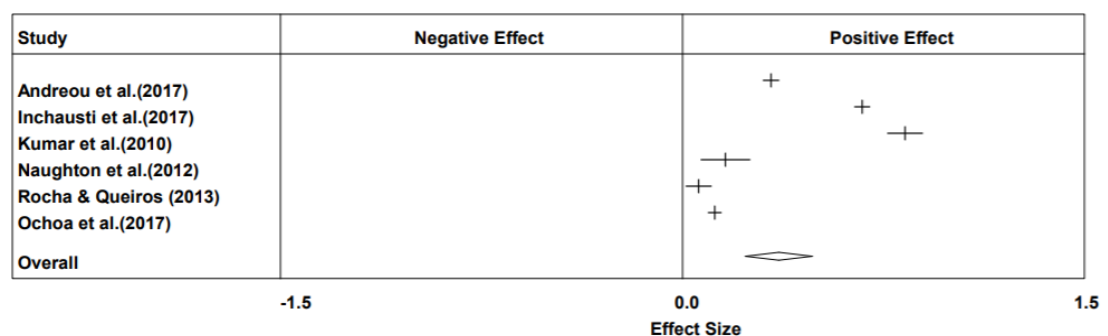


Figure 3: Forest plot of PANSS negative symptom scores

### 3.3.3 General psychopathology symptoms

Ten studies evaluated general psychopathology symptoms using the PANSS. The index of heterogeneity was 37.99 ( $p < 0.001$ ) indicating a random effects model. The RML pooled effect size estimate was 0.60 based on a full sample of 313. There is a positive effect across the ten studies overall. As seen in Figure 4, So et al. (2015) and Kumar et al. (2010) demonstrate the largest effect size. The remaining effect sizes are consistent with the pooled estimate. This suggests that MCT is effective in improving

general psychopathology and using Cohen's criteria it is categorised as a medium effect size.

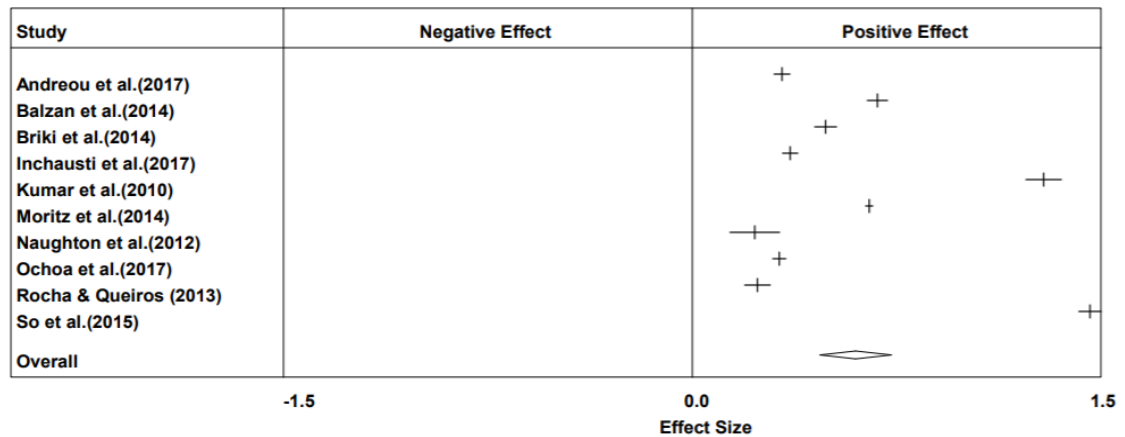


Figure 4: Forest plot of PANSS general psychopathology scale

### 3.3.4 Total symptomatology

Nine studies considered the total PANSS score using all subscales. The index of heterogeneity was 18.41 ( $p < 0.05$ ) indicating a random effects model. The RML pooled effect size estimate was 0.47 based on a full sample of 236. All studies indicated a positive effect. Naughton et al. (2012) demonstrated the smallest effect size.. Kumar et al. (2010) again demonstrated the largest effect size. The overall positive effect suggests that MCT can reduce symptoms of psychosis and this effect can be classed as medium(Cohen,1977).

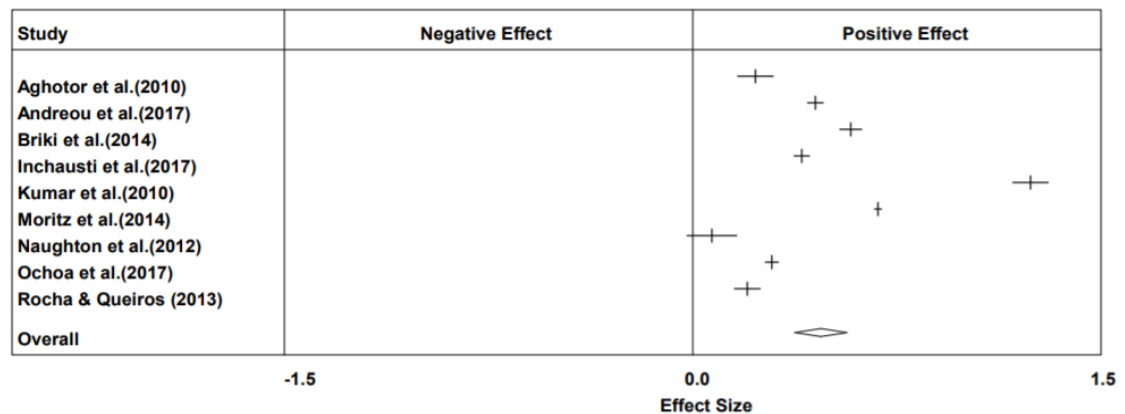


Figure 5: Forest plot of PANSS total score

### 3.3.5 The psychotic symptoms rating scale

Seven studies utilised the PSYRATS to assess delusions. The index of heterogeneity was 38.03 ( $p < 0.001$ ) suggesting that a random effects model is indicated. The RML pooled effect size estimate was found to be 0.65 based on a full sample of 234. This analysis is summarised in Figure 6 where a forest plot is presented. There is a promising treatment effect for MCT on delusions and delusion severity. Of note, So et al. (2015) has the strongest treatment effect and found that MCT reduced delusions and their severity when compared to TAU.

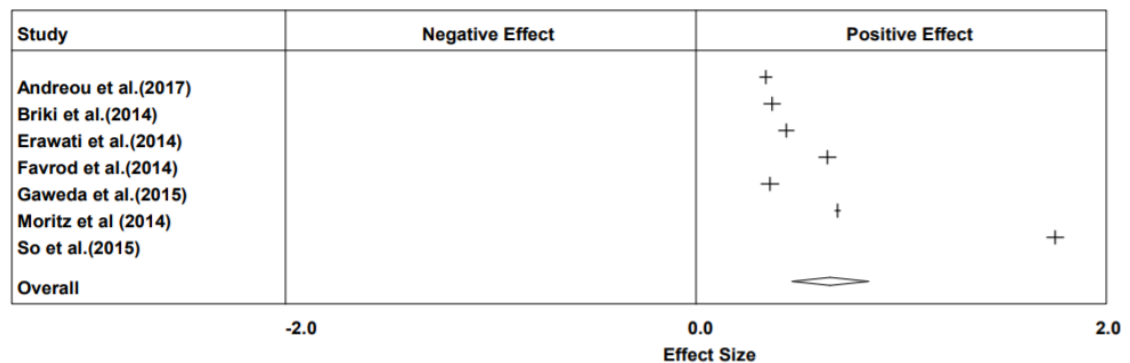


Figure 6: Forest plot of PSYRATS score

### 3.3.6 Meta-analysis of insight

#### Reflection

Six studies examined self-reflection using the BCIS. The index of heterogeneity was 30.63 ( $p < 0.001$ ) indicating a random effects model. The RML pooled effect size estimate was 0.39 based on a full sample of 219. Of note, van Oosterhout et al. (2014) is the only study to find that MCT has a negative effect on reflective capacity. Andreou et al. (2017) reported the largest effect size and the remaining effect sizes are consistent with the pooled estimate. This indicates that MCT has a positive effect on self-reflective ability and this effect can be classified as small (Cohen, 1977).

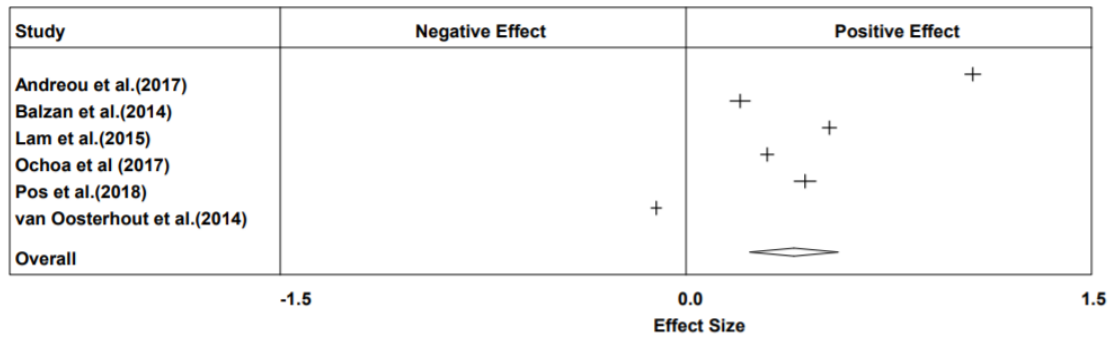


Figure 7: Forest plot of the BCIS reflection scores

### Certainty

Six studies examined self-certainty using the BCIS. The index of heterogeneity was not significant at 5.68. The RML pooled effect size estimate was 0.23 based on a full sample of 219. Based on the forest plot in Figure 8, MCT appears to have a positive effect on certainty as measured by the BCIS, however, the effect size is small.

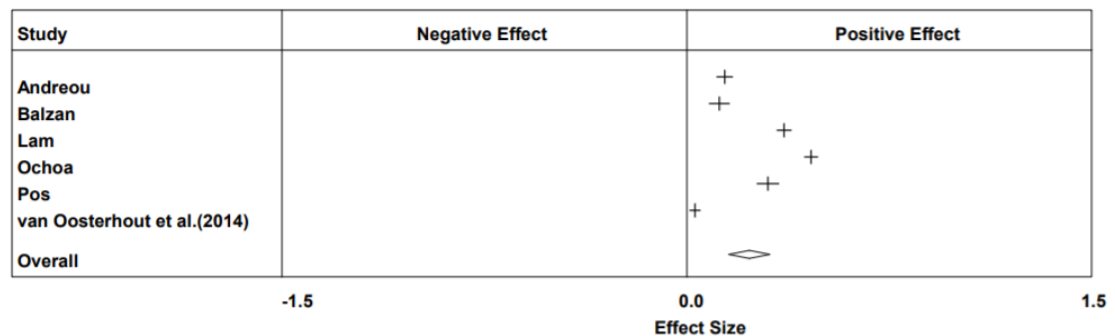


Figure 8: Forest plot of the BCIS certainty scores

### *3.3.7 Meta-analysis of cognitive bias*

Seven studies utilised the fish task to determine changes in cognitive reasoning bias. In this instance the index of heterogeneity was not significant at 7.14. The RML pooled effect size estimate was 0.34 based on a sample of 193. In Figure 9, Kowalski et al. (2017) demonstrated the largest standard error and this may be due to the small sample size in the study. The effect sizes are all positive but weak.

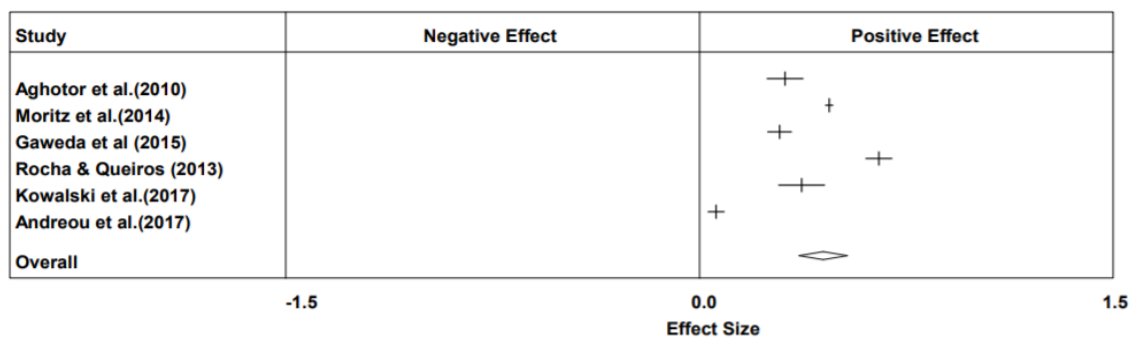


Figure 9: Forest Plot of the fish task scores

### 3.3.8 Meta-analysis of aggregated effect sizes

To obtain a general estimate of the overall effect size of MCT, an aggregate effect size was generated for each study irrespective of the particular outcome measures used. To do this, the corrected effect size for each outcome measure for every study was estimated and the mean effect size was calculated. This is a somewhat crude estimate because, as we have seen, a variety of domains including symptomatology, insight, cognitive functioning as well as other more idiosyncratic outcomes such as wellbeing and mindfulness are grouped together in an aggregated effect size. Nevertheless, this procedure provides a descriptive picture of the likely overall effect of MCT. Figure 10 outlines the aggregated effect size across the 19 studies (Moritz 2014 and 2015 data were combined). Results are positive, albeit tentative. Van Oosterhout et al. (2014), Naughton et al. (2012) and Kowalski et al. (2017) reported effect sizes close to zero. The index of heterogeneity for the aggregated effect sizes was 47.67 ( $p < 0.001$ ) suggesting that a random effects model is indicated. The RML pooled effect size estimate was found to be 0.44 based on a full sample of 498. This cautiously suggests that MCT has a positive, medium effect on psychosis.

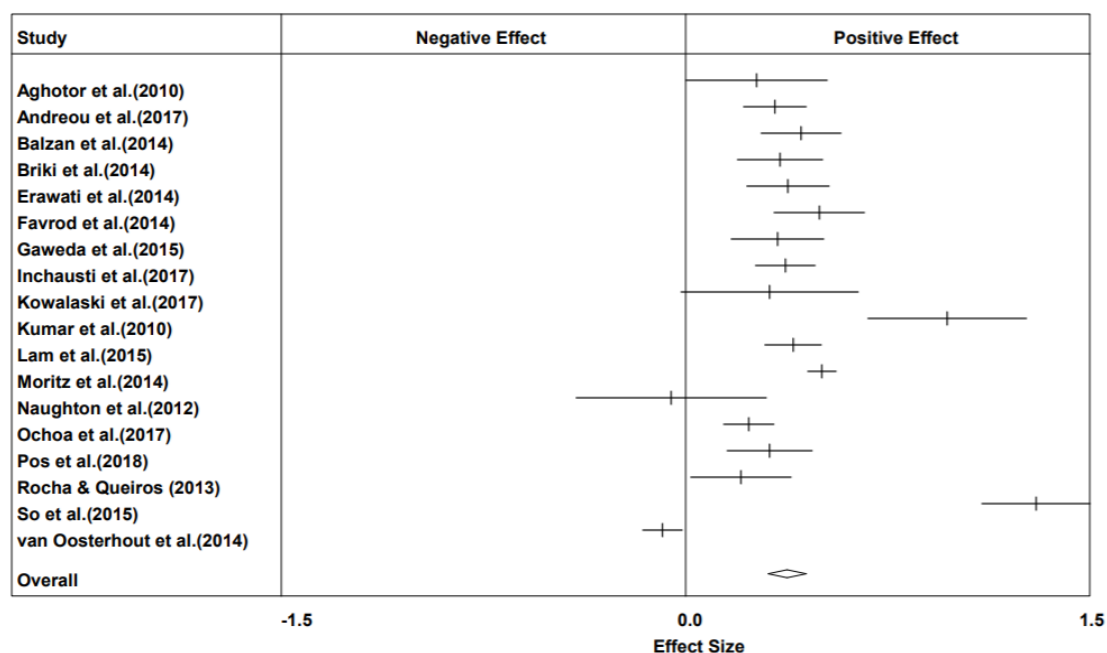


Figure 10: Forest plot of the aggregated effect sizes

### 3.4 Publication bias

Publication bias is a constant concern for any systematic review. Quantitative reviewers have developed several strategies to identify the risk of making recommendations based upon biased reports, but all of these are approximate at best. Rosenberg's (2005) Failsafe N was estimated for each meta-analysis performed in this review. These are summarised in Table 2 and they suggest that we can assume a fairly low risk of bias in these results. However, MCT is a relatively new intervention and the number of studies evaluating its effects are limited. The relatively small number of studies used in these analyses does raise the need for caution in making strong claims. For completeness a funnel plot was generated for each meta-analysis carried out and these are presented in Appendix B. They do not form a central place in our publication bias analysis because of the sparseness of the information available.

### 3.5 Moderator effects

In any meta-analysis it is important to consider extraneous variables that may impact upon the variability of the observed effect sizes. For these analyses it was considered

important to examine the potential effects of age and gender of the participants. No specific hypothesis was formally made regarding these effects although it might be reasonable to assume that an older cohort may have received more therapeutic input than a younger one. This might influence the effectiveness of MCT. The mean age of participants in each study was used as a moderating variable for each meta-analysis performed. Similarly, it is possible that MCT may be better received by one gender over another. The ratio of male to female participants was used as a moderator variable. Again, no formal hypothesis was generated so the moderator analysis was essentially exploratory.

A random effects model was utilised for each meta-analysis using the restricted maximum likelihood method and mixed effect regression was carried out. The resulting slope parameters (beta weights) are reported in the summary in Table 2. It is very clear that there were no moderator effects due to age or gender for any of the outcome measures considered here. This suggests that MCT is equally effective for older and younger participants. The effectiveness of MCT is equivalent for males and females.

#### **4. Discussion**

The primary aims of this review were to analyse the effectiveness of MCT at treating people diagnosed with a psychotic illness, and to determine the aspects of the illness that are addressed by MCT. Overall there are statistically significant results which indicates that MCT is an effective treatment for psychosis and this result is classified as having a medium effect size.

Considering the PANSS first, based on 12 studies there was a medium effect size in the reduction of the positive symptoms of psychosis (i.e. delusions, hallucinations). This result is not only statistically significant but it is also significant as the primary aim of MCT is to reduce the positive symptoms of schizophrenia and psychosis (Moritz & Woodward, 2007). So et al. (2015) reported a large treatment effect size for delusions. Similarly, Kumar et al. (2010) demonstrated medium to large effect sizes for the improvement of positive symptoms. A meta-analysis by Pankowski et al. (2016) supports these findings as they found significant improvements for positive symptoms in nine studies with effect sizes ranging between small, medium and large. Of the 12 studies in this review, Naughton et al. (2012) was the only study to report a negative effect in relation to positive symptoms. This may be a result of their small sample size. Van Oosterhout et al. (2014) used the Delusions Rating Scale rather than the PANSS and was therefore not included in the meta-analysis of positive symptoms. However, they found no difference between MCT plus TAU when compared to TAU for the treatment of delusions.

Based on 10 studies there was also a medium effect size pertaining to a reduction in the general psychopathology scale (i.e. anxiety, disorientation, and attention). A small effect size was found for MCT effectiveness in reducing the negative symptoms of

psychosis (i.e. blunted affect and emotional withdrawal) based on six studies analysed. All studies reported a positive effect with Kumar et al. (2010) reporting the largest treatment effect size for negative symptoms. When considering the total score of the PANSS, an analysis of nine studies demonstrated a positive effect with a medium effect size. This suggests that MCT is an effective intervention for reducing the symptoms of psychosis. The findings of this review contrast the findings of the meta-analysis by van Oosterhout et al. (2016) which concluded that MCT does not have a positive effect on positive symptoms or delusions. A number of more recent studies have been included in this review which may account for the contrasting result (Inchausti et al., 2017; Kowalski et al., 2017; Ochoa et al., 2017; Pos et al., 2018).

MCT aims to reduce the positive symptoms of psychosis through modules targeting cognitive bias such as JTC (Moritz & Woodward, 2007). Seven studies utilised the fish task to determine changes in cognitive reasoning bias, but the findings were not statistically significant. A qualitative view of the results indicates a positive effect for improvements in the cognitive reasoning bias of JTC (Aghotor et al., 2010; Gaweda et al., 2015; Kowalski et al., 2017; Moritz et al., 2013; 2014; Rocha & Queiros, 2013). Rocha and Queiros (2013) and Kowalski et al. (2017) demonstrated a reduction in JTC but with a large standard error. It is possible that this outcome measure may need larger sample sizes to determine significant results.

Analysis of the BCIS was used to determine the effect of MCT on patient insight. Patient insight is associated with delusion severity (Saravanan et al., 2007). A medium treatment effect size was found for self-reflection. Conversely, on the certainty subscale of the BCIS MCT appeared to have a positive effect, albeit not statistically significant.

An aggregate effect size was generated irrespective of the outcome measures used in each study. A medium treatment effect was observed. This is a general estimate and should be interpreted with caution due to the variability of domains assessed in each study. However, it provides a tentative positive effect for MCT in the treatment of psychosis.

#### **4.1 Clinical implications**

Results indicate that MCT is an effective third wave therapy which could be considered in the treatment plan for people diagnosed with schizophrenia or psychosis. Moritz and Woodward's (2007) protocol is a free, open-access programme, available in numerous languages. Direct comparisons between CBTp and MCT should be made with caution as more research into MCT is required. Nevertheless, research indicates that attrition is a real challenge in the treatment of psychosis (Fenton et al., 1997) and that up to 16% of patients discontinue CBTp (Lincoln et al., 2008). This review suggests that MCT improves insight, and this could potentially effect attrition rates through patient-clinician compliance (Jacob, 2014) and increase motivation to complete treatment (Panowski et al. 2016). Further research into attrition rates and MCT is required to establish this.

Furthermore, Jauhar et al. (2014) demonstrated that CBTp does not improve positive symptoms of psychosis. In contrast, this review of MCT found that the largest improvements were for positive symptoms. Additionally, this review found no significant differences regarding age and gender. This suggests that MCT is equally effective for older and younger patients and is equivalent for males and females. This suggests that MCT may be used in a multitude of settings such as forensic units or general adult mental health services without discriminating for age or gender.

## **4.2 Limitations**

A limitation to this review concerns the various possible cognitive bias which could have been assessed. JTC, a reasoning bias, was assessed using the fish task. JTC is considered a mechanism in the development and maintenance of delusions. However, there are other cognitive bias which also perpetuate delusions such as belief inflexibility, overconfidence of false memories and inaccurate interpretations of information, and biases against disconfirmatory evidence (Fine, Gardner, Craige & Gold, 2007; Pankowski et al., 2016). In order to achieve a degree of confidence in the final effect sizes, analysis was carried out only when five or more studies were identified as using the same outcome measure. As a result, there was insufficient information to assess other cognitive biases which may theoretically be addressed by MCT. Further research with a focus on the wider range of cognitive bias is required.

## **4.3 Conclusion**

This study updates earlier reviews and emerges as consistent with those smaller scale meta-analytic studies (Jiang et al., 2015; Moritz et al., 2014; Panowski et al., 2016). The review demonstrates an overall positive effect for MCT for psychosis across several domains of symptomology, cognition and insight. The results appear to be consistent across the published studies identified. Further research is required to determine with more certainty what aspects of cognitive biases are addressed by MCT.

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## **Appendices**

### **Appendix A: Author guidelines for the Journal of Mental Health**

#### **About the Journal**

The **Journal of Mental Health** features original research papers on important developments in the treatment and care in the field of mental health. Theoretical papers, reviews and commentaries are also accepted if they contribute substantially to current knowledge.

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## Appendix B: Funnel Plots for each Meta-Analysis

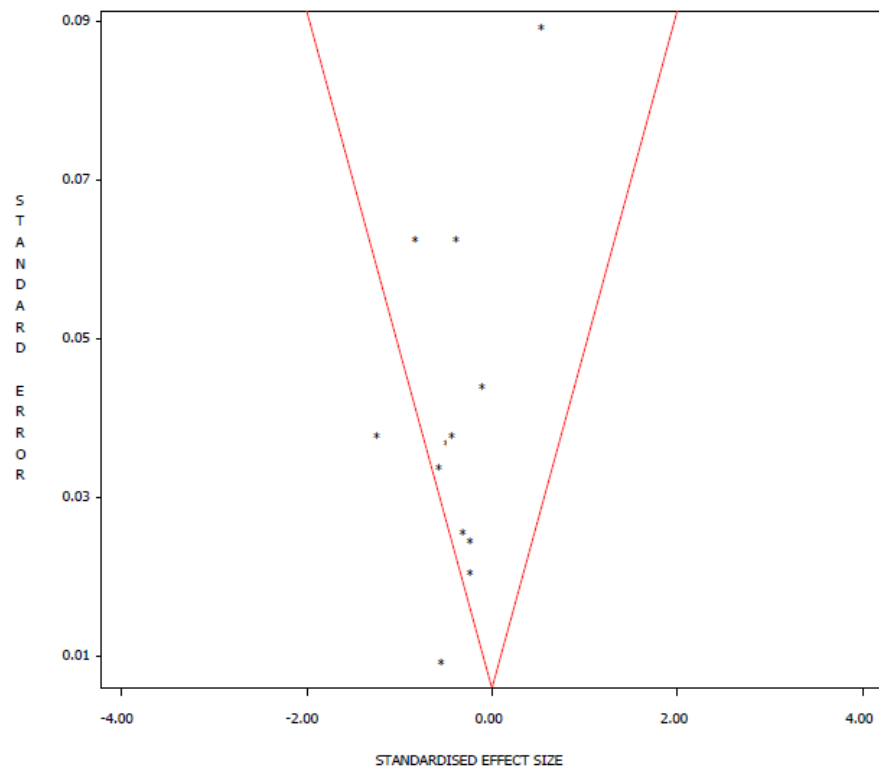


Figure 11: Funnel plot of PANSS positive symptoms scale effect sizes

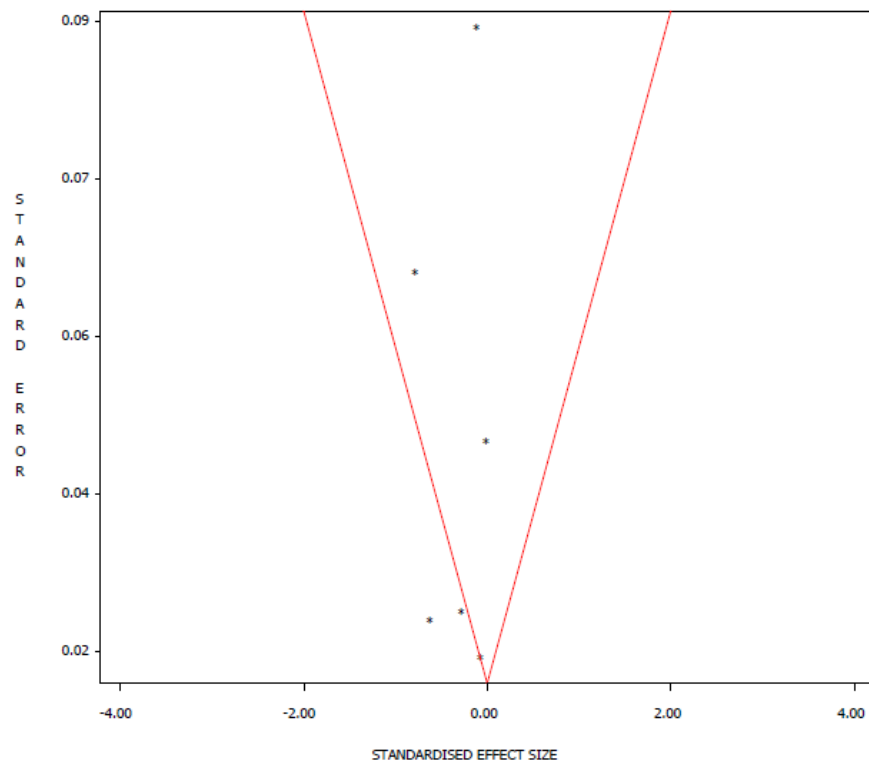


Figure 12: Funnel plot of PANSS negative symptom scale effect sizes

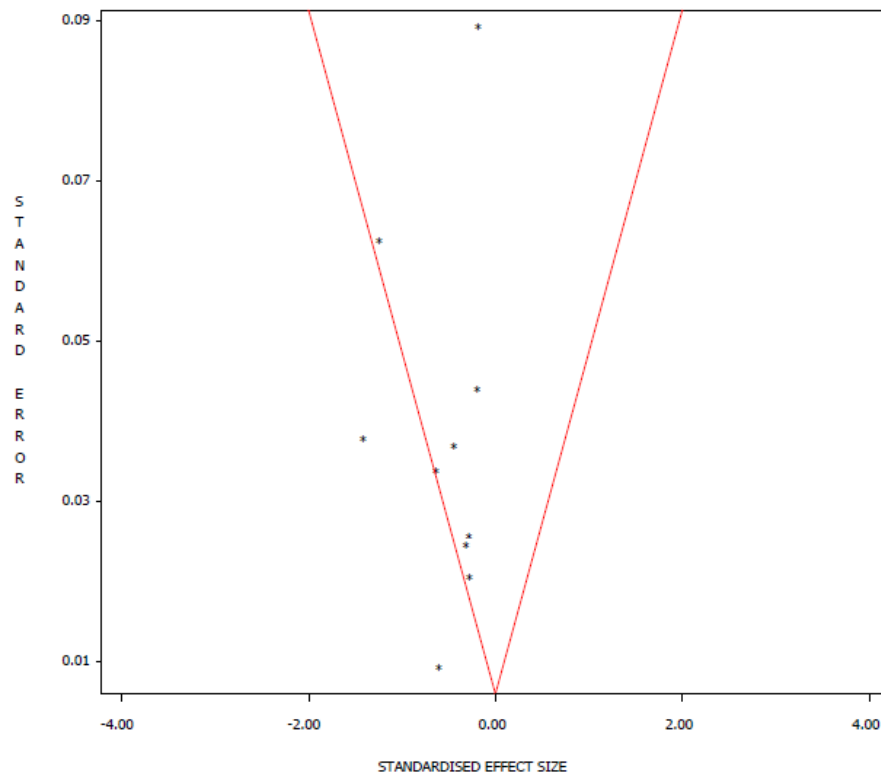


Figure 13: Funnel plot of PANSS general pathology scale effect sizes

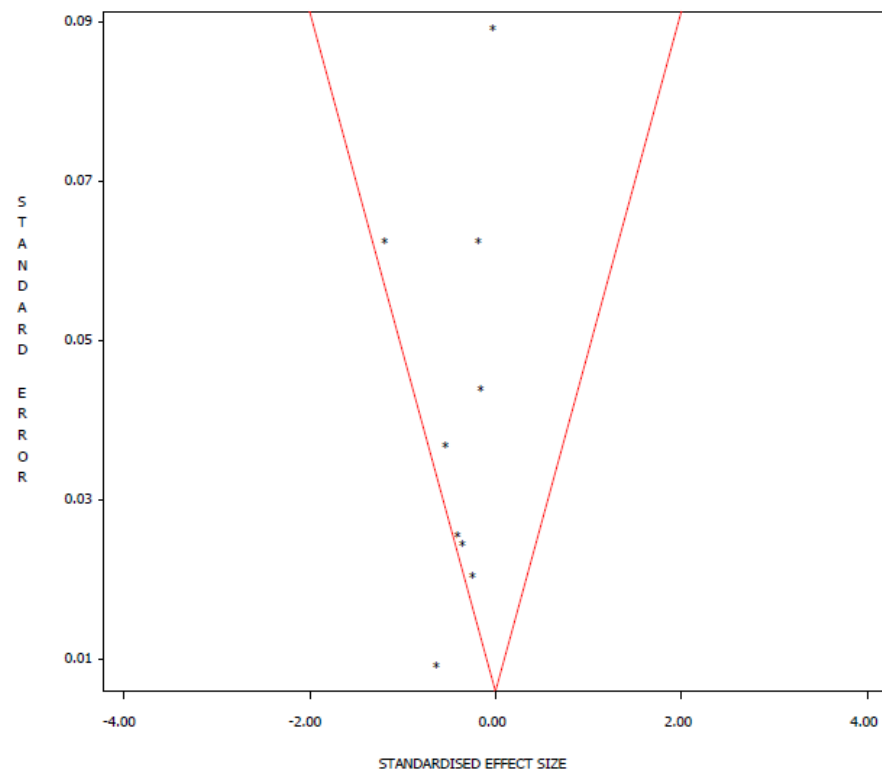


Figure 14: Funnel plot of PANSS total scale effect sizes

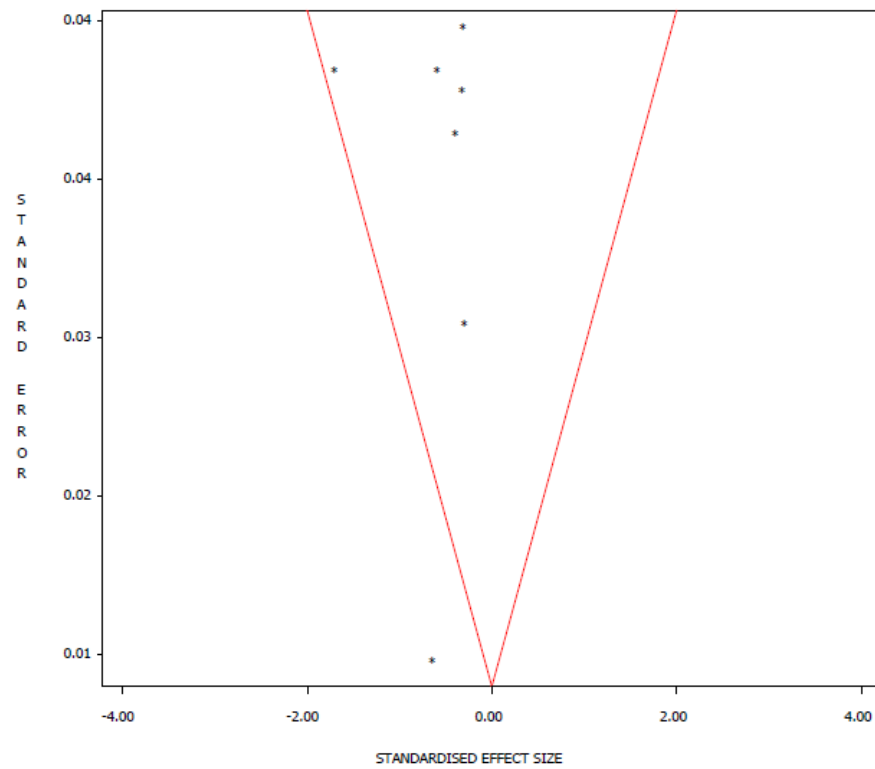


Figure 15: Funnel plot of PSYRATS effect sizes

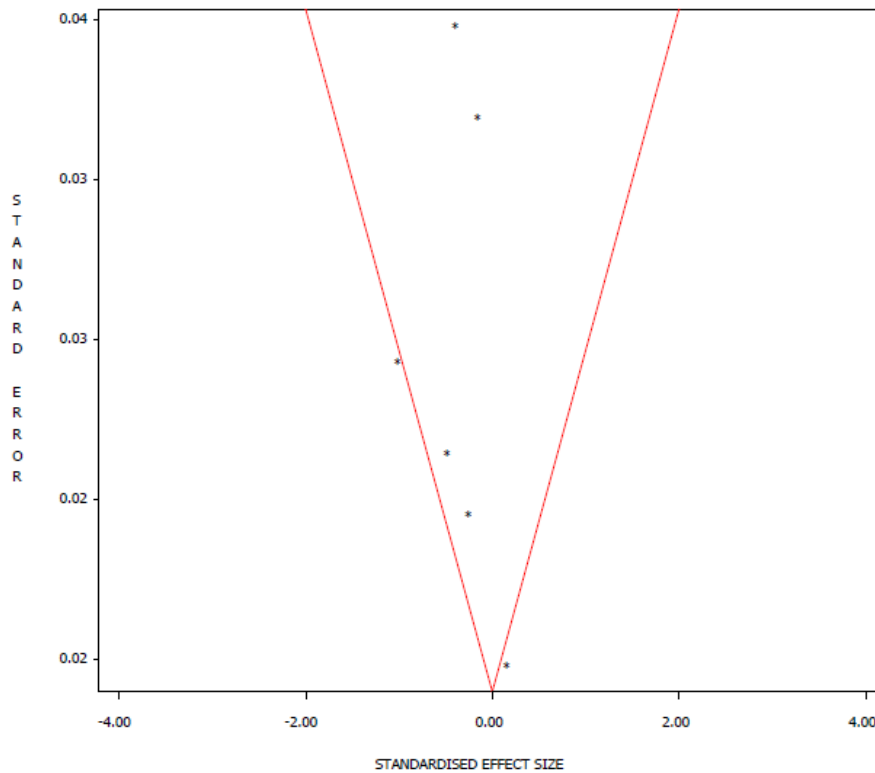


Figure 16: Funnel plot of BCIS reflection scale effect sizes

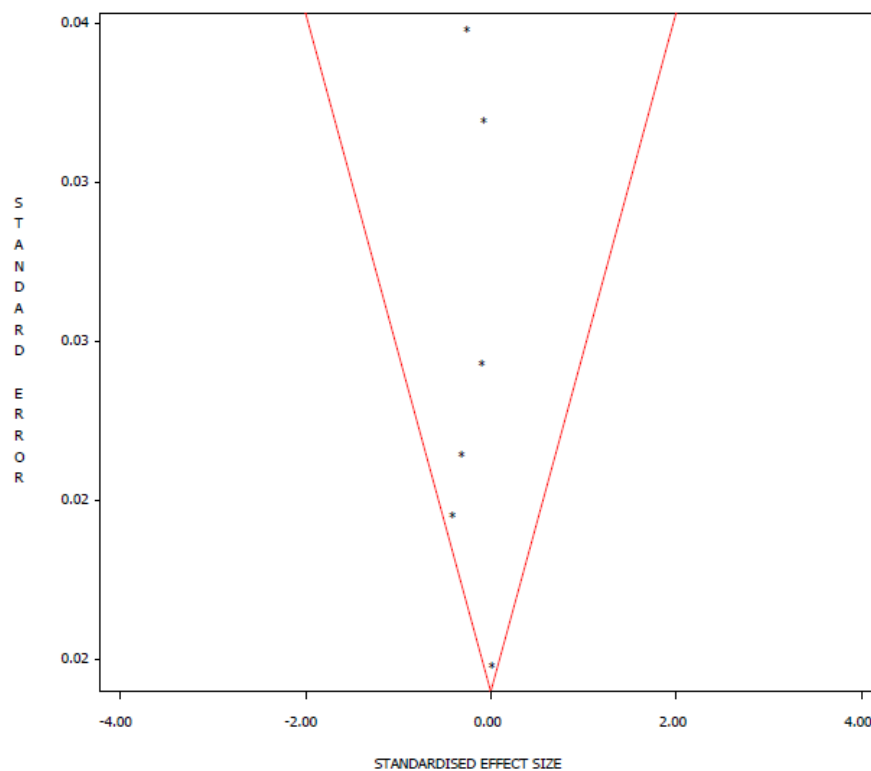


Figure 17: Funnel plot of BCIS certainty scale effect sizes

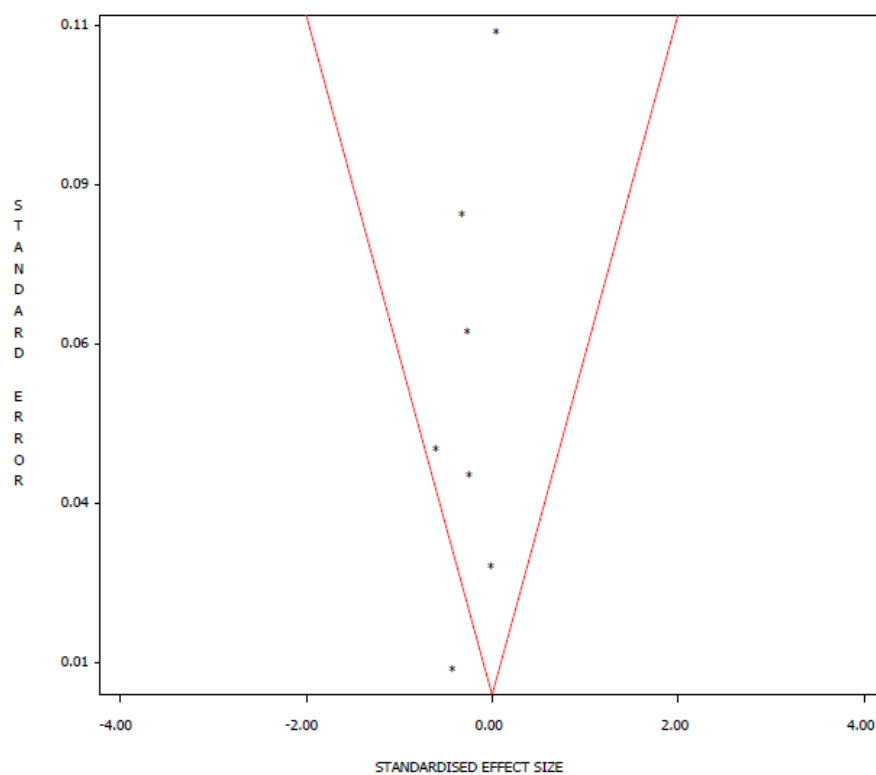


Figure 18: Funnel plot of the Fish Task effect sizes

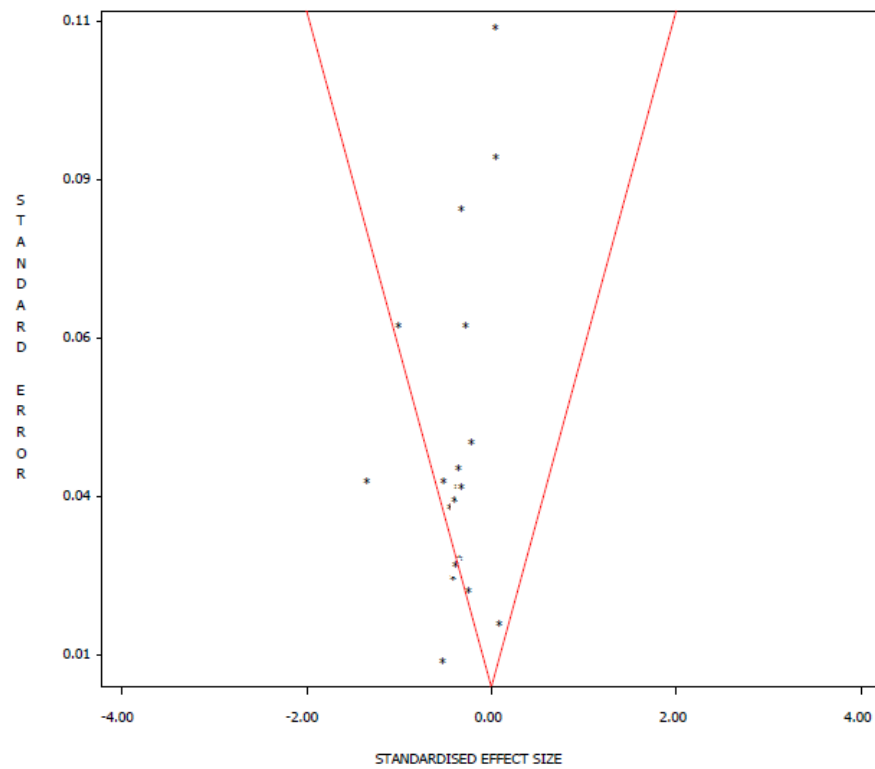


Figure 19: Funnel plot of aggregated effect sizes

## **Study 2: Exploring the schema mode inventory in an Irish context and its applicability for psychosis**

Prepared in accordance with submission guidelines\* for the Journal of Behavioural and Cognitive Psychotherapy (see Appendix C)

*\* For the purpose of the viva voce examination all tables and figures have been included in the main text and will be removed prior to submission to the journal.*

Word count (excluding references): 5054

## **Title Page**

**Title:** Exploring the schema mode inventory in an Irish context and its applicability for psychosis

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## **Abstract**

**Background:** The Schema Mode Inventory (SMI) is a self-report measure used to assess schema modes.

**Aims:** The aim of the study was to explore the psychometric properties and factor structure of the SMI within an Irish population and determine its viability for use for psychotic disorders.

**Method:** 834 participants were recruited online from the general population. A further 19 participants were recruited with a diagnosis of a psychotic disorder. Schema modes were measured in both groups using the SMI. The Community Assessment of Psychic Experiences was utilised to determine symptoms of psychosis. A full psychometric evaluation of the SMI was carried out. Multidimensional Scaling was used to assess the equivalence of the two samples.

**Results:** Confirmatory factor analysis confirms the 14-factor mode model within the general population and good scale score reliabilities. The pattern of inter-scale correlations are consistent with expectations and are equivalent across samples. The multi-dimensional scaling reveals a common underlying structure of the SMI for both samples. However, the psychometric properties of some SMI scale scores are weaker in the psychosis group. Possible reasons for this are discussed.

**Conclusions:** This study represents a preliminary step towards understanding the viability of the schema mode model within the psychosis population. The psychometric results indicated that the SMI is a valuable measure that can be used for mode assessment within Ireland and possibly for psychotic disorders. An adapted version of the SMI could increase its relevance for a psychosis population and could facilitate the development of individualised case conceptualisations.

**Key words:** Schema Therapy, Psychometric Properties, Modes, Psychosis

## **1. Introduction**

Schema therapy (ST) is a unifying integrative therapy which incorporates elements from CBT, attachment, object relations, Gestalt, constructivist and psychoanalytic schools. It was originally developed as an intervention for personality disorders (e.g. borderline personality disorder [BPD] and narcissistic personality disorder) and chronic Axis I disorders, as outlined in the *Diagnostic and Statistical Manual* (DSM; Young, 1990). The basic principle of ST is that early maladaptive schemas (EMS) develop when a child's core emotional needs are not adequately met (Nordahl, Holthe, & Haugum, 2005; Young et al. 2003). In the case of complex and enduring mental health difficulties (e.g. BPD) it is not uncommon for the person to present with multiple EMS present simultaneously (Arntz & van Genderen, 2009). This has implications regarding therapy as it can be difficult to separate the concurrent schemas. Schema Modes were developed to account for this. Schema modes are the person's current emotional states and coping strategies and can be triggered by the environment (Young et al. 2003). There are 14 different modes or states, and a person can rapidly switch between states when one strong EMS, or several EMSs are triggered (Young et al. 2003). The 14 modes are typically grouped into four main categories; three maladaptive categories and one adaptive category. The first are the innate child modes which are characterised by emotional distress in the context of unmet childhood needs. Secondly, the Dysfunctional Parent Modes are internalised messages often resulting from critical or demanding parents. The third category includes the Maladaptive Coping Modes. In ST, coping modes are the child's attempts to survive in an environment where their emotional needs are not adequately met. These coping modes are akin to the old survival strategies of Flight, Fight, and Freeze. The fourth category includes the adaptive modes (i.e. Healthy Adult Mode and Happy Child Mode). ST

focuses on strengthening a person's adaptive modes in order to support them in getting their emotional needs met as an adult, whilst reducing the power of the maladaptive modes and related EMS (Young et al. 2003). There is a large body of evidence suggesting that ST is effective both in terms of cost and treatment outcomes for complex and long-standing disorders such as BPD (Bamelis, Arntz, Wetzelaer, Verdoorn & Evers, 2015; de Klerk, Abma, Bamelis & Arntz, 2016; Farrell, Shaw & Webber 2009; Giesen-Bloo et al. 2006; Nadort et al. 2009).

The Schema Mode Inventory (SMI; Young et al. 2007) is a 124 item self-report questionnaire developed to determine the presence of schema modes. The SMI was validated, and further shortened to 118 items, by Lobbestael, van Vreeswijk, Spinhoven, Schouten and Arntz (2010) within a sample of Axis I and Axis II patients, and healthy controls. It was found to have acceptable internal consistency and reliability. The SMI was initially developed to assess modes associated with borderline personality disorder (BPD) and anti-social personality disorder. However, recent studies have focused on validating the SMI in different languages (Lobbestael, et al., 2010; Panzeri et al. 2018; Reiss, Krampen, Cristoffersen & Bach, 2015) and settings. For example, Simpson et al. (2018) examined the factor structure and validity of an adapted schema mode inventory for eating disorders (SMI-ED) which provided greater insight into the prevalent EMS and modes in eating disorders. The need for exploratory studies to determine schema mode profiles within specific clinical groups has been outlined by Lobbestael et al. (2010). To our knowledge, no studies have been carried out on the reliability of the SMI within an Irish population or its viability for use with psychotic disorders.

Psychotic disorders are defined by abnormalities including hallucinations, delusions, severely disorganised or abnormal motor functions, disorganised thinking and speech, and negative symptoms, e.g. apathy (American Psychological Association, 2013). Psychotic disorders significantly impact on daily life resulting in academic, occupational, self-care and interpersonal difficulties (Mueser & Cook, 2014). It is estimated that up to 75,000 people in Ireland are affected by psychosis and up to 34,000 people meet the criteria for schizophrenia (DETECT, 2006). A systematic review on suicide rates and risk factors linked to schizophrenia revealed that the lifetime risk of suicide is approximately 5% (Hor & Taylor, 2010).

In the past, psychosis was considered a medical illness with biological origins (Bentall, 2003; 2009). Recently, more critical psychological models of psychosis that emphasise the role of meaning in understanding the symptoms have been developed. Psychiatric diagnoses such as psychosis have been criticised for their lack of validity, for increasing stigma, and for excluding the social context of the patient's lives (Bentall, 2009; Boyle 2002). According to Boyle (2013) the emphasis on psychosis as a brain disease limits the treatment options considerably, with an emphasis on medication. Furthermore, according to Smail (2001) psychological distress is exacerbated when the person can't understand how it relates to what is happening in his/her life. Formulating a client's symptoms and difficulties can help the client understand how their past is impacting their present. Formulations restore power, meaning and hope (Johnstone, 2018). In ST the mode model provides a formulation of the major symptoms and interpersonal difficulties experienced by people with personality disorders and puts their symptoms into context with their developmental origins (Fassbinder, Brand – deWilde & Arntz, 2019). Using the mode model to formulate a person's psychotic experiences could result in a move away from psychiatric

diagnoses being medical illness with biological causes. Instead it can move towards conceptualising psychiatric symptoms as understandable emotional responses to traumatic early life experiences or barren environments.

There is a wealth of evidence demonstrating a high incidence of trauma exposure reported by individuals with a diagnosis of psychosis (approximately 28% to 73% of individuals with psychosis have suffered childhood trauma; Bendall, Jackson, Hulbert, & McGorry, 2008; Cutajar et al., 2010; Schäfer & Fisher, 2011). The literature pertaining to the prevalence of trauma during childhood demonstrates certain commonalities between the aetiology of BPD and psychosis. Thus, it is possible that EMS and maladaptive schema modes exist in both presentations.

The 14-factor mode model assessed by the SMI is predicted in the psychosis population. It is predicted that within the psychosis population there will be elevated scores for the innate child modes, the dysfunctional parent modes, and the maladaptive coping modes. Correspondingly, it is predicted that the psychosis population will have low scores on the adaptive modes of Healthy Adult and Happy Child. The presence of potential modes has been demonstrated in the literature. For example, people with psychosis have reported experiencing fear and isolation. Boevink and Corstens (2013) in their personal reflection of experiencing psychosis refer to the “damaged child inside” experiencing fear, shame and grief. Hence, it is predicted that Vulnerable Child Mode will be present in the mode model for psychosis. It is possible that Angry and Enraged Child Modes are secondary to the Vulnerable Child’s distress due to feeling disempowered or controlled in situations. This concept is supported in the literature which suggests that disempowerment is a core experience of trauma (Herman, 2015; Van der Kolk, 2015). Based on the existing literature on the association between

trauma and the development of psychosis, these modes are predicted in the mode model for psychosis.

Maladaptive Coping Modes are a child's attempt to survive situations where their core emotional needs are unmet. Young et al. (2003) reported that the coping modes serve a protective function in childhood but later become maladaptive in adulthood. Bentall, Corcoran, Howard, Blackwood, and Kinderman (2001) argue that paranoid delusions arise as a result of maladaptive attempts to avoid negative feelings about oneself.

The Dysfunctional Parent Mode is characterised by feelings of self-loathing and guilt (Arntz & Jacob, 2017). The Demanding Parent Mode frequently places undue pressure on the person to achieve across different domains. The Punitive Parent Mode is a person's internal critical voice which typically takes on the voice of a parent who criticised them as a child (Arntz & Jacob, 2017). Adverse shaming experiences or hostile criticism from attachment figures appear to have a fundamental role in the development of paranoid ideation in adults and adolescents (Carvalho, Sousa, da Motta & Cabral, 2019; Hutton, Kelly, Lowens, Taylor & Tai, 2013). A person living with psychosis can experience internal shame due to negative evaluations of the self (Turner, Bernard, Birchwood, Jackson and Jones, 2013) or can internalise perceived prejudice from others (Corrigan & Watson, 2002). This can result in negative self-talk or self-criticism. Carvalho et al. (2019) observed that youth who internalised feelings of inferiority and weakness were at increased risk of mistrusting others which exacerbated paranoid ideation. Given the association between self-criticism and psychosis it is predicted that the Dysfunctional Parent Modes will be presented in our findings.

According to Gilbert (2009), feelings of shame and being flawed result in difficulties feeling safe or content. With that in mind it is predicted that people with psychosis may have an underdeveloped healthy adult. The Healthy Adult Mode performs routine adult functions and pleasurable activities (Arntz & Jacob, 2017). Research suggests that people with psychosis have difficulty engaging in healthy activities. Buhagiar, Parsonage and Osborn (2011) in their study of physical health behaviours demonstrated that people with severe mental health disorders appear to place less priority on their physical health. Additionally, Stouten, Veling, Laan, van der Helm and van der Gaag (2017) noted the link between psychosis and impaired psychosocial functioning. A prerequisite to the development of a strong Healthy Adult Mode is the fulfilment of core emotional needs in childhood (Jacob, van Genderen & Seebauer, 2011). These opportunities may be limited in a barren, emotionally invalidating or abuse environment.

In order to explore the schema mode profile within the psychosis population in Ireland we must first establish the reliability and validity of the SMI within the Irish population as this has not been previously done. The Republic of Ireland is primarily a Roman Catholic State. In recent years a more sinister side of the catholic church has come to light with reports of institutional, physical and sexual abuse. An obvious example being the Magdalene Laundries where unmarried mothers were forced to give their babies up for adoption and were subjected to physical and emotional abuse. Clough (2017) argues that the Church has historically used shame as a mechanism to control sexuality. The history of Irish sexuality remains relatively hidden and suppressed (Inglis, 2005) and this results in shame and stigma around sexuality and victims of abuse. We know that experiencing trauma has been linked to increased psychological distress and depression (Anders, Frazier, & Shallcross, 2014).

According to Lee, Scragg and Turner (2001) shame arises when a traumatic life event is congruent to and activates the person's latent underlying schemas pertaining to shame. Because of Ireland's difficult history with regards to religion and institutional abuse and based on the concept of culture contributing to a person's psychological development it would be unwise to assume that the SMI is completely comparable to other cultures and populations. Therefore, the aim of the present study is to validate and confirm the psychometric properties of the SMI within an Irish context and to explore which schema modes are experienced by individuals with psychosis living in Ireland. The study will aim to address the following questions: (1) Is the SMI an appropriate psychometric tool to use in an Irish population? (2) Is the SMI an appropriate tool to use for people with psychosis? (3) Do people with psychosis have a schema mode profile?

## **2. Method**

### **2.1 Setting**

This study was conducted in two parts. The first was an online survey (see Appendix D) which was shared on social media sites and emailed to the total student population of University College Cork. The second was conducted within North Lee Adult Mental Health Community Services and Clozapine Clinic in Cork, Ireland.

### **2.2 Sample**

The current study had a total sample of 834 online participants and a total of 19 individuals who were diagnosed with psychosis or schizophrenia. Of the online participants a total of 834 completed the SMI and 806 continued on to complete the Community Assessment of Psychic Experiences questionnaire. Exclusion criteria were (a) any person acutely unwell at the time of data collection, (b) any person with a mental health diagnosis within the general population survey, (c) any person under the age of 18 years. Three people were excluded based on criterion (a) and 179 people were excluded by criterion (b).

The mean age of the online sample was 26.32 (SD=9.35, range 18–73 years). The sample comprised of 683 females (70.4%) and 285 males (29.4%). With regards to the 19 participants with a diagnosis of psychosis, 16 were Irish, one was Polish, one was Croatian, and one was from Hong Kong. The team psychiatrist confirmed the diagnosis of psychosis. The sample comprised of 6 females (31.6%) and 13 males (68.4%). All 19 participants were taking psychiatric medication to manage their symptoms. Fifteen individuals reported that they had engaged with some form of psychotherapeutic intervention at some point.

## **2.3 Measures**

### *2.3.1 Schema Mode Inventory*

The Schema Mode Inventory short version (SMI; Young et al. 2007; see Appendix E) is a 124 item questionnaire consisting of 14 subscales. The total 124 items are scored on frequency using a 6-point scale ranging from “never or hardly ever” to “always”. The overall score is calculated from the sum of the scale score divided by the number of items in that scale. The higher the score, the more frequent the manifestation of the modes. The SMI was used to determine the presence and frequency of schema modes. It was used in the online survey and the measure was completed by all participants. The internal consistencies were good to excellent, with Cronbach’s  $\alpha$  ranging from .76 to .96 for each subscale. The SMI establishes the presence of 14 central schema modes.

### *2.3.2 Community Assessment of Psychic Experiences (CAPE-42)*

The Community Assessment of Psychic Experiences (CAPE-42; see Appendix F) is a 42 item questionnaire assessing the positive, negative and depressive symptoms of psychosis. The CAPE-42 demonstrated good reliability and validity within a general population sample (Konings, Bak, Hanssen, van Os & Krabbendam, 2006; Mark & Touloupoulou, 2015). In this study it was administered as a symptom checklist. Completing both measures was considered time consuming. In the interest of reducing the burden to participants, the distress scale was removed from the CAPE-42.

## **2.4 Procedure**

Participants provided informed consent before participating in the study (see Appendix G). Demographic information was collected for both groups (see Appendix H). The online survey was created and distributed via Qualtrics. Sixteen participants with a diagnosis of psychosis were tested individually at the Clozapine Clinic they

attended each month. A further three participants completed the questionnaires in an out-patient setting. Mental health staff informed patients of the research study and provided information sheets (see Appendix I) Those interested approached the researcher to complete the questionnaires. They completed the paper and pencil questionnaires and a numerical code was used to ensure confidentiality. The administration time was approximately 40 minutes. Any person who presented as acutely unwell was not informed of the study. All participants were provided with a debriefing form (see Appendix J). The protocol of this study was approved by the internal ethics committee of the School of Applied Psychology, University College Cork, Ireland (see Appendix K).

## **2.5 Statistical analysis**

The confirmatory factor analysis was performed using Multiple Group Factor Analysis Routine (Hammond, 1998). Item Analysis and Multidimensional Scaling Analysis were performed using SPSS version 25.

### **3. Results**

#### **3.1 Psychometric properties of the SMI**

The psychometric properties of the SMI are summarised in Table 3. The internal consistencies of the 14 subscale scores of the SMI in the general population sample were all acceptable (ranging from  $\alpha=.73$  to  $\alpha=.93$ ) (Nunnally & Bernstein 1994). The Internal consistencies of 10 subscales of the SMI in the psychosis population were acceptable (ranging from  $\alpha=.74$  to  $\alpha=.93$ ). However, the healthy adult subscale demonstrated the lowest alpha coefficient ( $\alpha=.26$ ). When the items pertaining to the healthy adult subscale were individually considered it was apparent that item 76 (“I’m capable of taking care of myself”) was impacting on the internal consistency. Interestingly, when this item was removed from the analysis  $\alpha$  increased to an acceptable range ( $\alpha=.80$ ).

A confirmatory factor analysis was carried using the Multiple Group Confirmatory approach (Harman, 1976; Nunnally & Bernstein 1994). This is a least-squares method for testing the degree to which the factors reflect the item groups posited by the measurement model. The resulting pattern matrix is presented in Appendix L. The degree to which the factors fit the model has been evaluated using Fleming’s (1985) Factor Fit Index. This ranges between 0 and 1 and may be viewed as a signal-to-noise ratio similar to Cronbach’s alpha. The overall fit of the factor solution to the expected measurement model is 0.85. An additional Monte-Carlo analysis was carried out in which 10,000 randomly generated models were fitted to the observed data. This resulted in a mean fit index of 0.55 with a standard deviation of 0.02. An approximate statistical appraisal shows that the overall fit exceeds expectation and may be

considered a confirmation of the viability of the measurement model ( $z=15.51$ ,  $p<0.001$ ).

Table 3: Psychometric properties of the SMI; general population and psychosis sample

| Mode                  | Number of items | Factor fit | General population ( $N = 834$ ) |      |       | Psychosis population ( $N = 19$ ) |       |       |
|-----------------------|-----------------|------------|----------------------------------|------|-------|-----------------------------------|-------|-------|
|                       |                 |            | Mean                             | SD   | Alpha | Mean                              | SD    | Alpha |
| Vulnerable Child      | 10              | 0.77       | 24.92                            | 9.62 | 0.936 | 23.00                             | 11.10 | 0.932 |
| Angry Child           | 10              | 0.87       | 22.79                            | 7.25 | 0.833 | 23.28                             | 7.58  | 0.749 |
| Enraged Child         | 10              | 0.9        | 14.31                            | 5.23 | 0.872 | 13.39                             | 5.00  | 0.879 |
| Impulsive Child       | 9               | 0.88       | 20.40                            | 6.26 | 0.842 | 19.95                             | 8.51  | 0.875 |
| Undisciplined Child   | 6               | 0.81       | 17.31                            | 4.65 | 0.733 | 16.21                             | 6.34  | 0.808 |
| Happy Child           | 10              | 0.82       | 40.22                            | 8.54 | 0.907 | 40.79                             | 9.24  | 0.886 |
| Compliant Surrender   | 7               | 0.85       | 21.17                            | 5.37 | 0.769 | 22.00                             | 5.71  | 0.672 |
| Detached Protector    | 9               | 0.82       | 20.08                            | 7.75 | 0.907 | 20.89                             | 9.32  | 0.920 |
| Detached Self-Soother | 4               | 0.85       | 11.74                            | 3.99 | 0.752 | 13.26                             | 2.99  | 0.128 |
| Self-Aggrandizer      | 10              | 0.85       | 26.22                            | 6.68 | 0.778 | 23.05                             | 8.40  | 0.805 |
| Bully Attack          | 9               | 0.79       | 17.48                            | 5.25 | 0.735 | 16.89                             | 4.43  | 0.374 |
| Punitive Parent       | 10              | 0.87       | 21.28                            | 7.67 | 0.885 | 19.50                             | 7.50  | 0.824 |
| Demanding Parent      | 10              | 0.83       | 36.33                            | 7.90 | 0.816 | 36.33                             | 7.78  | 0.669 |
| Healthy Adult         | 10              | 0.86       | 43.14                            | 7.08 | 0.823 | 48.84                             | 16.68 | 0.262 |

### 3.2 Psychometric properties of the CAPE-42

The psychometric properties of the CAPE-42 are summarised in Table 4. Internal consistencies were all acceptable for both the general population and the psychosis population ranging from  $\alpha=.785$  to  $\alpha=.93$ , and  $\alpha=.83$  to  $\alpha=.92$  respectively.

Table 4: Psychometric properties of the CAPE-42; general population and psychosis sample

| CAPE                | General population ( $N = 806$ ) |       |       | Psychosis population ( $N = 19$ ) |       |       |
|---------------------|----------------------------------|-------|-------|-----------------------------------|-------|-------|
|                     | Mean                             | SD    | Alpha | Mean                              | SD    | Alpha |
| Positive Symptoms   | 29.12                            | 6.69  | 0.858 | 31.00                             | 9.06  | 0.881 |
| Depressive Symptoms | 15.78                            | 4.29  | 0.863 | 14.28                             | 3.97  | 0.839 |
| Negative Symptoms   | 24.40                            | 6.52  | 0.875 | 24.17                             | 5.33  | 0.840 |
| Total               | 70.98                            | 15.38 | 0.931 | 71.50                             | 15.72 | 0.922 |

### 3.3 Correlations between the SMI and CAPE-42

The correlations between the SMI and CAPE-42 scores are presented in Table 5. As expected, there are positive correlations between the maladaptive modes on the SMI and the symptom subscales on the CAPE-42 for the general population. Likewise,

there are negative correlations in the general population between the adaptive modes (i.e. Healthy Adult and Happy Child) and the symptoms of psychosis as measured by the CAPE-42.

Given the small sample size of the psychosis group the equivalence of the correlation pattern is of interest rather than statistical significance. The correlations between the measures in the psychosis sample appear to be more varied which may be a function of the smaller *N*. However, a similar pattern to the general population sample is emerging even after acknowledging the poor reliability of four SMI scale scores in the psychosis group.

Table 5: Pearson's correlations for SMI & CAPE-42; general population and psychosis sample.

|                              | General population (N = 806) |            |          |        | Psychosis Population (N = 19) |            |          |        |
|------------------------------|------------------------------|------------|----------|--------|-------------------------------|------------|----------|--------|
|                              | Positive                     | Depressive | Negative | Total  | Positive                      | Depressive | Negative | Total  |
| <b>Vulnerable Child</b>      | 0.475                        | 0.817      | 0.719    | 0.760  | 0.584                         | 0.761      | 0.560    | 0.744  |
| <b>Angry Child</b>           | 0.538                        | 0.585      | 0.512    | 0.634  | 0.569                         | 0.549      | 0.612    | 0.691  |
| <b>Enraged Child</b>         | 0.510                        | 0.409      | 0.351    | 0.499  | 0.362                         | 0.155      | 0.504    | 0.419  |
| <b>Impulsive Child</b>       | 0.493                        | 0.397      | 0.385    | 0.504  | 0.081                         | -0.113     | 0.321    | 0.108  |
| <b>Undisciplined Child</b>   | 0.353                        | 0.516      | 0.623    | 0.579  | 0.449                         | 0.472      | 0.847    | 0.692  |
| <b>Happy Child</b>           | -0.316                       | -0.669     | -0.638   | -0.614 | -0.314                        | -0.624     | -0.565   | -0.578 |
| <b>Compliant Surrender</b>   | 0.396                        | 0.507      | 0.520    | 0.550  | 0.526                         | 0.497      | 0.534    | 0.635  |
| <b>Detached Protector</b>    | 0.456                        | 0.650      | 0.750    | 0.728  | 0.182                         | 0.419      | 0.791    | 0.501  |
| <b>Detached Self-Soother</b> | 0.410                        | 0.564      | 0.463    | 0.546  | 0.322                         | 0.149      | -0.003   | 0.206  |
| <b>Self-Aggrandizer</b>      | 0.335                        | 0.130      | 0.122    | 0.243  | 0.476                         | 0.040      | 0.046    | 0.272  |
| <b>Bully Attack</b>          | 0.418                        | 0.189      | 0.266    | 0.364  | -0.035                        | -0.021     | 0.254    | 0.064  |
| <b>Punitive Parent</b>       | 0.485                        | 0.767      | 0.642    | 0.716  | 0.501                         | 0.640      | 0.651    | 0.709  |
| <b>Demanding Parent</b>      | 0.277                        | 0.362      | 0.237    | 0.329  | -0.136                        | -0.266     | -0.078   | -0.199 |
| <b>Healthy Adult</b>         | -0.296                       | -0.529     | -0.503   | -0.503 | -0.181                        | -0.412     | -0.365   | -0.353 |

### 3.4 Equivalence of schema structures

In order to examine the equivalence of the scores between the general population sample and the psychosis sample, it is necessary to explore the underlying structure of the SMI for each sample. If the SMI scores mean the same thing in both samples then the relationships between the scores will reveal a common latent structure. In psychometric terms this is often described as an issue of differential item functioning

or measurement invariance (Millsap, 2011). Typically, this is addressed either through a multiple group factor analytic approach (Kaplan, 2008) or by using an item response theory strategy (Osterlind & Everson, 2009). These methods are not indicated for small samples so a non-metric scaling approach is used in the current case in which the ordinal relationships between the Mode scores are modelled using Multidimensional Scaling (MDS; Borg & Groenen, 1997). The Proxscal routine in SPSS (Busing, Commandeur & Heiser, 1996) was used stipulating an ordinal model based upon a starting matrix of Euclidean distances between mode scores. This has the advantage of avoiding any strong parametric assumptions about the data being made (Borg & Groenen, 1997).

The resulting mappings are presented in Figures 20 and 21. Figure 20 shows the 2-dimensional solution for the general population sample while Figure 21 shows the 2-dimensional solution for the psychosis sample. Both of these solutions fit the data extraordinarily well; stress for the general population sample was 0.049 with a Tucker coefficient of 0.998 while the stress for the psychosis sample was 0.061, with a Tucker coefficient of 0.998. Both coefficients range between 0 and 1; the former should be as small as possible as it represents the strain involved in squeezing the 14 scores into two dimensions, the latter is essentially a correlation between the distances in the plot and the starting distances between mode scores.

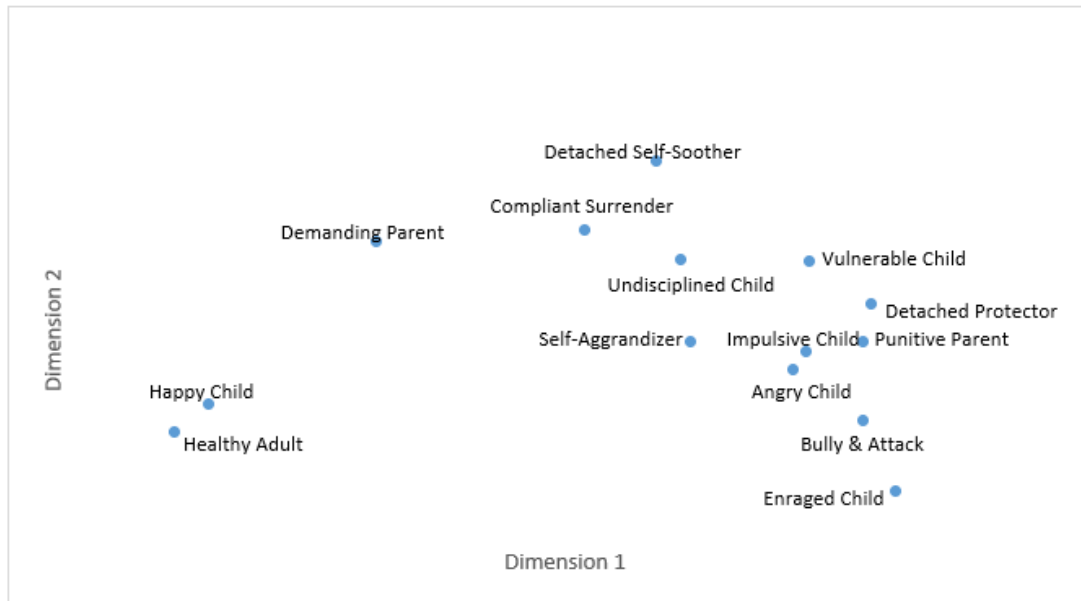


Figure 20: MDS of schema mode scores for the general population

The two MDS solutions reported in Figures 20 and 21 are remarkably similar. It should first be pointed out that the orientation of the resulting plots is arbitrary and the relative distances between the points is the relevant feature of any comparison. It should be clear that both solutions reveal a rough U-shaped curve which in non-metric MDS often indicates a one-dimensional solution represented in 2D space. Certainly dimension 1 does seem to reflect a continuum of pathology from Healthy Adult and Happy Child to Enraged Child and Bully Attack. In this case, however the second dimension (vertical) does appear to have a substantive meaning which might be tentatively labeled passive-active. For both the samples a similar structure is observed, notwithstanding the differing orientations.

This is further evidenced by observing the derived distances between the points in each map. These are presented in Table 6. Here we see that the order of the distances are in very close equivalent between the psychosis sample (above the diagonal) and the general population sample (below the diagonal). Borg and Leutner's (1985) index of concordance between the two configurations is 0.96 which indicates a very close

concordance between the underlying structure of the SMI for the psychosis sample with that of the general population sample.

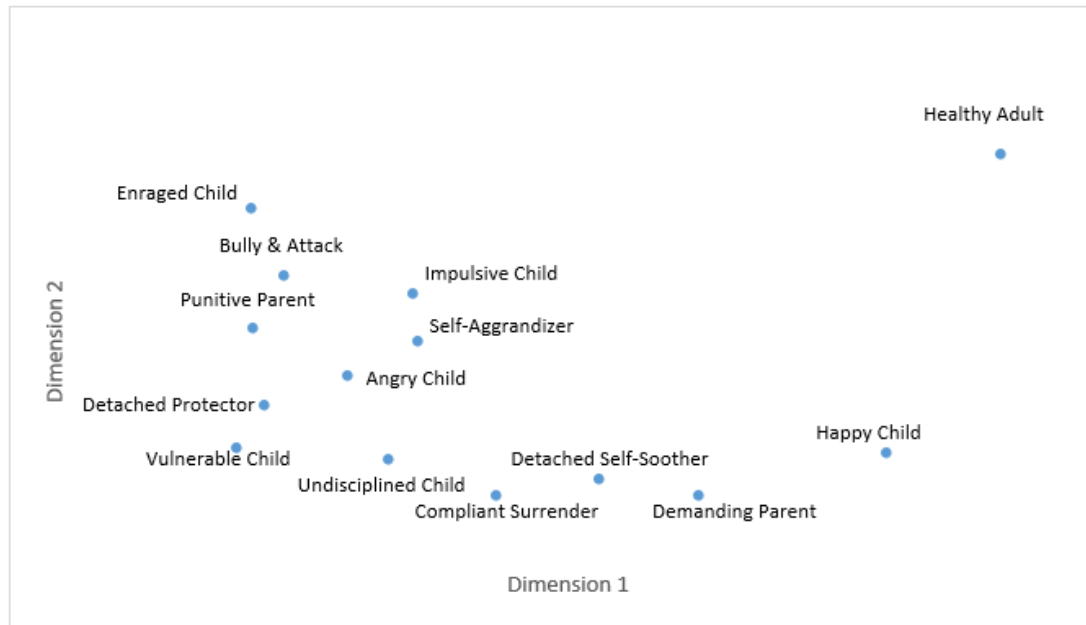


Figure 21:MDS of schema mode scores for the psychosis sample

Table 6: Derived distances between the mode scores

|     | VC    | AC    | EC    | IC    | UC    | HC    | CS    | DP    | DSS   | SA    | BA    | PP    | DmP   | HA    |
|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| VC  | 0     | 0.360 | 0.752 | 0.649 | 0.396 | 1.637 | 0.669 | 0.146 | 0.922 | 0.559 | 0.546 | 0.374 | 1.175 | 2.135 |
| AC  | 0.342 | 0     | 0.582 | 0.298 | 0.283 | 1.376 | 0.526 | 0.232 | 0.715 | 0.200 | 0.348 | 0.282 | 0.960 | 1.786 |
| EC  | 0.898 | 0.575 | 0     | 0.493 | 0.865 | 1.777 | 1.092 | 0.623 | 1.229 | 0.596 | 0.235 | 0.379 | 1.447 | 1.901 |
| IC  | 0.410 | 0.074 | 0.530 | 0     | 0.518 | 1.291 | 0.659 | 0.509 | 0.749 | 0.148 | 0.326 | 0.414 | 0.957 | 1.550 |
| UC  | 0.326 | 0.473 | 1.033 | 0.504 | 0     | 1.253 | 0.290 | 0.356 | 0.536 | 0.374 | 0.630 | 0.535 | 0.789 | 1.817 |
| HC  | 1.613 | 1.525 | 1.767 | 1.485 | 1.313 | 0     | 0.994 | 1.571 | 0.726 | 1.232 | 1.611 | 1.642 | 0.492 | 0.979 |
| CS  | 0.581 | 0.725 | 1.263 | 0.745 | 0.266 | 1.156 | 0     | 0.645 | 0.268 | 0.517 | 0.864 | 0.803 | 0.513 | 1.664 |
| DP  | 0.224 | 0.244 | 0.714 | 0.317 | 0.511 | 1.719 | 0.777 | 0     | 0.878 | 0.432 | 0.407 | 0.245 | 1.130 | 2.019 |
| DSS | 0.538 | 0.810 | 1.384 | 0.856 | 0.373 | 1.457 | 0.316 | 0.762 | 0     | 0.633 | 1.019 | 0.996 | 0.253 | 1.439 |
| SA  | 0.430 | 0.295 | 0.765 | 0.278 | 0.316 | 1.242 | 0.502 | 0.480 | 0.688 | 0     | 0.390 | 0.414 | 0.858 | 1.588 |
| BA  | 0.616 | 0.296 | 0.283 | 0.261 | 0.764 | 1.657 | 1.006 | 0.441 | 1.106 | 0.525 | 0     | 0.180 | 1.248 | 1.846 |
| PP  | 0.333 | 0.149 | 0.573 | 0.206 | 0.558 | 1.673 | 0.822 | 0.145 | 0.857 | 0.437 | 0.297 | 0     | 1.239 | 1.963 |
| DmP | 1.095 | 1.161 | 1.614 | 1.156 | 0.769 | 0.748 | 0.525 | 1.270 | 0.768 | 0.879 | 1.401 | 1.285 | 0     | 1.315 |
| HA  | 1.731 | 1.628 | 1.837 | 1.584 | 1.436 | 0.134 | 1.286 | 1.828 | 1.590 | 1.349 | 1.744 | 1.777 | 0.882 | 0     |

*General Population below the diagonal, Psychosis sample above the diagonal*

VC: Vulnerable Child, AC: Angry Child, EC: Enraged Child, IC: Impulsive Child, UC: Undisciplined Child, HC: Happy Child, CS: Compliant Surrender, DP: Detached Protector, DSS: Detached Self-Soother, SA: Self-Aggrandiser, BA: Bully Attack, PP: Punitive Parent, Dmp: Demanding Parent, HA: Healthy Adult

#### **4. Discussion**

The study aimed to evaluate the psychometric properties of the short SMI (Young et al. 2007) and to contribute to the test's validation in Ireland. It also aimed to explore the SMI's utility for psychotic disorders. A confirmatory factor analysis was carried out on the general population sample, using the Multiple Group Confirmatory approach. The results indicated an overall fit that exceeded expectation and may be considered a confirmation of the viability of the measurement model. The reliabilities of the 14 subscale scores were assessed with Cronbach's alpha resulting in psychometric confidence in the SMI scores. These results are consistent with Lobbestael et al. (2010) and Reiss et al. (2010). The same analysis was conducted for the psychosis sample and the results are slightly more equivocal. Ten subscale scores of the SMI demonstrated good reliability but Bully Attack, Healthy Adult and Detached Self-Soother (DSS) showed poor internal consistency. The reasons for the observed weakness could be due to the semantics of the SMI items, the small number of items pertaining to the subscale or due to the complex nature of the psychosis experience.

Based on a review of the literature pertaining to the experiences of psychosis the child modes were expected, and found, in the mode model. Vulnerable Child is characterised by feelings of fear, loneliness and emptiness (Young, et al. 2003). When core emotional needs such as love, safety, and validation are obstructed, the Vulnerable Child Mode develops. It is possible that individuals with psychosis develop similar concepts when experiencing an obstruction of needs in childhood. This supports Boevink and Corstens (2013) personal reflections of the "damaged child inside" experiencing fear, shame and grief. Enraged Child was present, as expected,

given the higher rates of violence in this population compared to other psychiatric disorders (Arseneaul, Moffitt, Caspi, Taylor & Silva 2000; Walsh et al., 2004). It is possible that interpersonal conflict triggers Enraged Child if the person perceives that their needs are not being met by others. Nolan, Shope, Citrome and Volavka (2009) explored staff and patient views of the reasons for aggressive behaviour on a psychiatric ward. They found that staff tended to attribute aggression to psychotic symptoms and increased tension. In contrast, patients tended to report interpersonal conflict (e.g. requests denied by staff, teased by other patients) as the main reason for aggression.

The presence of the Dysfunctional Parent Modes supports the literature which outlines the experience of shame, criticism and feelings of inferiority within the psychosis population (Carvalho et al., 2019; Hutton et al. 2013). Furthermore, self-criticism and shame can have been linked to the development of voice-hearing (Gilbert et al., 2001).

Detached Protector was demonstrated within the psychosis model. In this mode the person disconnects from and avoids emotional distress. Bentall et al. (2001) and Udachina, Varese, Myin-Germeys and Bentall (2014) argue that experiential avoidance, due to low self-worth, contributes to paranoid delusions. It is possible that Detached Protector reinforces paranoia as engaging in avoidance limits opportunities to test negative predictions.

Campbell and Morrison (2007) suggested paranoia may function as a defence mechanism by alerting the person to potential harmful others. In this instance, paranoia could be linked to a 'Paranoid Over-Controller Mode' (Arntz & Jacob, 2017) which is not measured by the current SMI. There is a focus on vigilance and controlling others' behaviour due to suspicion. An extended version of the SMI has been

developed to include paranoid, histrionic and narcissistic personality disorders (Bamelis, Renner, Hiedkamp & Arntz, 2011). This includes a Suspicious Over-Controller Coping Mode which may be relevant to the psychosis population.

When the individual items for Bully Attack were considered it was apparent that item 93 (“I am invulnerable”) and item 1 (“I demand respect by not letting other people push me around”) were the least consistent. Panzeri et al. (2018) reported similar findings in their study validating the SMI in an Italian population. They demonstrated low internal consistency within the Bully Attack subscale and suggested the possible elimination of items to increase the alpha value. Simpson et al. (2018) have conducted similar research whereby they adapted the SMI for eating disorders. This involved validating the SMI within the eating disorder population as well as developing specific items to fully capture the experience of those with eating disorders. Simpson et al., developed specific items with a team of clinicians and service users. When piloting the scale, service users suggested rewording “invulnerable” to “invincible”. They identified the feeling of invincibility as a possible coping mechanism to avoid underlying vulnerability. Of note, during the present study many participants from the psychosis sample asked the researcher to explain the word “invulnerable”. Like the current findings, Simpson et al. demonstrated a low loading for “I am invincible” and stated that it will be removed from the adapted SMI. The authors suggest that it may have a low loading due to its possible passive nature, as opposed to overt bullying behaviour. Another factor may be that the participants in the psychosis sample reported attending various psychological interventions in the past. It is possible that they are interpreting “I am invulnerable” as a positive statement. For example, in Dialectical Behaviour Therapy (Linehan, 1993) cheerleading statements are used by the patient to support themselves when being assertive. It is possible therefore that

the participants in the psychosis group interpreted this item through the lens of assertiveness skills, rather than bullying behaviour.

Item 76 (“I am capable of taking care of myself”) pertaining to Healthy Adult Mode, demonstrated very low internal reliability in the psychosis sample. Once removed, the subscale of Healthy Adult showed acceptable reliability. Several participants in the psychosis group stated that they had been involuntarily hospitalised. It is possible that this experience impacted on their sense of autonomy or self-confidence which led them to interpret item 76 differently to the general population. For instance, Murphy et al. (2017) examined patients’ experiences of involuntary hospital admission under the Mental Health Act 2001 in Ireland. Participants reported feeling coerced and disempowered. Furthermore, several participants reflected that they no longer felt in control of their life, experienced low self-confidence since the admission, and had difficulty trusting their own judgement. Similarly, Katsakou & Priebe (2007) in their review of qualitative studies exploring the experiences of involuntary hospital admissions found that participants experience a lack of autonomy while hospitalised. Additionally, until a decade ago psychosis was considered a brain disease and professionals were pessimistic about treatment alternatives other than medication (Morrison, Renton, Dunn, Williams & Bentall, 2004). While significant innovations have occurred in the psychological treatment options available for psychosis, it is possible that the pessimism from the past continues to reinforce clients’ sense of powerlessness.

#### 4.1 Limitations

There are certain limitations to the study. While the underlying structures appear to be showing similarities the findings of the study do not account for the discrepancies in subscales such as DSS. This subscale was also found to have very low internal consistency in the psychosis group. This may have been due to the small sample size. The results do not necessarily mean that DSS is not present in the mode model for psychosis but may indicate that the 124 item SMI cannot measure its presence in this population. Alternatively, DSS may simply be an alien schema in psychosis. DSS involves generating soothing feelings or stimulating activities such as thrilling computer games or drug and porn use (Arntz & Jacob, 2017). According to Bentall (2004) patients with psychosis experience anhedonia, or a lack of subjective pleasure. Anhedonia-asociality implies a dearth of interests and hobbies, a loss of sexual interest, and an inability to experience intimacy and closeness in relationships. The presence of anhedonia may impact on a person's ability to fully engage in self-soothing or stimulating activities or to recognise the effects of DSS Mode.

This study may be only relevant to medicated psychosis. Eighteen participants were taking Clozapine and one was taking Risperdal. Several participants indicated that they were prescribed antidepressants in conjunction to this. It is possible that this effected the results of the study. Firstly, the small sample size comprising only of those taking antipsychotic medication means that the results of the study are not generalisable. Secondly, emotional blunting is a well-documented side effect of antipsychotic and antidepressant medication (Citrome, 1997; Haverkamp, 2013; Szmulewicz et al., 2016). According to Haverkamp (2013) individuals with psychosis reported that emotional blunting prevented them from engaging in activities which they might find pleasurable. In other words, their experience is not in line with their

experience of themselves (i.e. not ego-syntonic). Although they focused on bipolar disorder, Szmulewicz et al. (2016) found an association between emotional blunting, an inability to cry, and exposure to selective serotonin reuptake inhibitors. It is possible that this side effect could impact on a person's ability to complete an introspective questionnaire such as the SMI which aims to measure a person's emotional states and coping strategies. Additionally, the participants who attended the clozapine clinic had been engaged with services for many years. It is possible that they were not engaging in self-soothing activities such as drug taking at this point in their lives.

#### **4.2 Future research**

Future research should involve conducting the study with a large sample size for the psychosis population in order to complete a confirmatory factor analysis with regards to the SMI. In addition, future research could focus on establishing items for the SMI specific to the psychosis population to effectively capture modes which were not successfully measured in the present study (e.g. DSS and Bully Attack), much as Simpson et al. (2018) did for an eating disordered sample.

#### **4.3 Conclusion**

The current study represents a preliminary step towards understanding the schema mode model within the psychosis population. Formulating psychotic experiences using the mode model could have clinical implications in how people make sense of their symptoms within a social context. In other words it can help people see their symptoms as an understandable response to traumatic early life experiences (Johnstone, 2018). This understanding can foster empowerment and reduce psychological distress. The findings of this study also indicated that the SMI and CAPE-42 are valid and reliable to use within the Irish population. There is emerging

evidence that the underlying structure of the SMI is similar in the general population and psychosis sample. However, this finding is tentative at this early stage due to the small sample size. While the underlying structure appears to be similar there are number of mode presentations for psychosis (e.g. DSS) which are not adequately captured using the current SMI. Therefore, it may be appropriate to develop an adapted version for the SMI with items specific to the experiences reported by individuals with psychosis e.g. Suspicious/Paranoid Over-Controller Mode. An adapted version could increase the relevance of the SMI for a psychosis population and could facilitate the development of individualised case conceptualisations. This may pave the way for developing schema therapy for psychosis in the future.

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**Authors' contributions:** LB completed this research study as part of her doctoral training in clinical psychology. CQ was the field supervisor and contributed to the study protocol and recruitment of participants. SH was the academic supervisor and contributed to the statistical analysis. All authors contributed to the writing and editing of the paper.

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## Appendices

### Appendix C: Author guidelines for the Journal of Behavioural and Cognitive Psychotherapy

#### Preparing your manuscript

- Articles must be under 5,000 words at the point of submission, excluding references, tables and figures (please see separate instructions for Brief Clinical Reports and Study Protocols). Manuscripts describing more than one study may exceed this limit but please make this clear to the editorial office in your cover letter.
- Authors who want a blind review should indicate this at the point of submission of their article, omitting details of authorship and other identifying information from the main manuscript. Authors who do not omit this information will be assumed as submitting a non-blinded manuscript. Submission for blind review is encouraged.
- All submissions should be submitted via this portal: <http://mc.manuscriptcentral.com/babcp>

#### Style

- **APA style should be followed throughout.** <http://www.apastyle.org/>
- Abbreviations where used must be standard. The Systeme International (SI) should be used for all units. Probability values and power statistics should be given with statistical values and degrees of freedom (e.g.  $t(34) = 2.39$ ,  $p < .001$ ), but such information may be included in tables rather than in the main text. Spelling must be consistent within an article, using either British spelling (*The Shorter Oxford English Dictionary*), or American (*Webster's New World College Dictionary*). However, spelling in the list of references must be literal to each publication.

#### In-text references

- In-text references should be cited as follows: "...Given the critical role of the prefrontal cortex (PFC) in working memory (Cohen et al., 1997; Goldman-Rakic, 1987; Perlstein et al., 2003a, 2003b)..." with multiple references in alphabetical order. Another example: "...Cohen et al. (1994, 1997), Braver et al. (1997), and Jonides and Smith (1997) demonstrated..."
- References cited in the text with two authors should list both names. References cited in the text with three, four, or five authors, list all authors at first mention; with subsequent citations include only the first author's last name followed by et al. References cited in the text with six or more authors should

list the first author et al. throughout. In the reference section, for works with up to seven authors, list all authors. For eight authors or more, list the first six, then ellipses followed by the last author's name.

- Details of style not specified here may be determined by reference to the *Publication Manual of the American Psychological Association*.

## **Suggested reviewers**

- During the submission process, you will be asked to indicate your preferred and non-preferred reviewers, and the reasons for your choices.

### **1. Title Page**

The title should phrase concisely the major issues. Author(s) to be given with departmental affiliations and addresses, grouped appropriately. A running head of no more than 40 characters should be indicated and carried through the document as a header. This should be uploaded as a separate file.

### **2. Main Manuscript**

**a. Abstract.** Unless a Study Protocol (see separate guidelines), a 250 word abstract should be structured under the following five headings: Background, Aims, Method, Results, and Conclusions. Include up to six key words that describes the article.

**b. Main Text.** Following APA guidelines, this should contain the sections *Introduction* (including overview and theoretical background), *Method* (participants, design and data analyses), *Results* (described in detail with summary figures and tables), *Discussion* (including conclusions and limitations).

### **c. Required Sections**

#### *Acknowledgements*

You may acknowledge individuals or organizations that provided advice, support (non-financial). Formal financial support and funding should be listed in the following section.

#### *Ethical statements*

All papers should include a statement indicating that authors have abided by the Ethical Principles of Psychologists and Code of Conduct as set out by the APA <http://www.apa.org/ethics/code/>. Authors should also confirm if ethical approval was needed, by which organisation, and provide the relevant reference number. If no ethical approval was needed, the authors should state why.

### *Conflict of Interest*

Please provide details of all known financial, professional and personal relationships with the potential to bias the work. Where no known conflicts of interest exist, please include the following statement: “(Authors names) have no conflict of interest with respect to this publication”.

Where conflict of interest, ethical statements and acknowledgements would compromise blind review, these may be anonymized from the main manuscript, but should be included in full on the separate title page which is not seen by reviewers. During the review process within the main text it is acceptable to replace identifiable information by using XXXXXX or similar.

### *Financial Support*

Please provide details of the sources of financial support for all authors, including grant numbers. For example, “This work was supported by the Medical research Council (grant number XXXXXXXX)”. Multiple grant numbers should be separated by a comma and space, and where research was funded by more than one agency the different agencies should be separated by a semi-colon, with “and” before the final funder. Grants held by different authors should be identified as belonging to individual authors by the authors’ initials. For example, “This work was supported by the Wellcome Trust (A.B., grant numbers XXXX, YYYY), (C.D., grant number ZZZZ); the Natural Environment Research Council (E.F., grant number FFFF); and the National Institutes of Health (A.B., grant number GGGG), (E.F., grant number HHHH)”. Where no specific funding has been provided for research, please provide the following statement: “This research received no specific grant from any funding agency, commercial or not-for-profit sectors.”

### **d. References**

References should be consistent with the *Publication Manual of the American Psychological Association (6th Edition)*, but with the additional requirement that author names be listed in **bold face**.

- If a DOI has been assigned to an article that you are citing, you should include this after the page numbers for the article. If no DOI has been assigned and you are accessing the periodical online, use the URL of the website from which you are retrieving the periodical.
- Examples of the *Behavioural and Cognitive Psychotherapy* reference style are as follows:
- *Online/Electronic Journal Article (with DOI):*
- **Kaltenthaler, E., Parry, G. & Beverley, C.** (2004). Computerized cognitive behaviour therapy: a systematic review. *Behavioural and Cognitive Psychotherapy*, 32, 31–55. doi:10.1017/S135246580400102X.
- *Book:*

- **Tharp, R. G. & Wetzel, R. J.** (1969). *Behaviour Modification in the Natural Environment*. New York: Academic Press.
- *Book Chapter:*
- **Roskies, E. & Lazarus, R.S.** (1980). Coping theory and the teaching of coping skills. In P. O. Davidson and S. M. Davidson (Eds.), *Behavioural Medicine: Changing health lifestyles* (pp. 38-69). New York: Brunner/Mazel.
- *Manual, Diagnostic Scheme, etc.:*
- **American Psychiatric Association.** (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: American Psychiatric Publishing.
- Authors are encouraged to make use of referencing software packages (e.g. Endnote, Mendeley, Reference Manager etc.) to assist with formatting - extensions for APA formatting are easily accessible. However, you are also reminded to check citations and reference lists in detail and not to rely on software packages to format references correctly. Authors are also reminded to use **bold face** for author names in the reference list.
- Detailed guidelines on the APA citation and referencing style can be obtained online from sources including the Purdue University Online Writing Lab, among others.
- **e. Footnotes.** The first, and preferably only, footnote will appear at the foot of the first page of each article, and subsequently may acknowledge previous unpublished presentation (e.g. dissertation, meeting paper), financial support, scholarly or technical assistance, or a change in affliction.

### 3. Tables and Figures

- Manuscripts should not usually include more than five tables and/or figures. They should be supplied as *separate files*, but have their intended position within the paper clearly indicated in the manuscript. They should be constructed so as to be intelligible without reference to the text.
- **Figures.** Tints and shading in figures may be used, but colour should be avoided unless essential. Although colour is possible in the online version, when designing a figure please ensure that any line variation/distinction demonstrated by colour can still be noted when in black and white. Colour figures are free of charge for online published articles but if authors wish figures to be published in colour in the print version the cost is £200. Numbered figure captions should be provided. All artwork should be submitted as separate TIFF format files.
- The minimum resolution for submission of electronic artwork is:
- Halftone Images (Black and White Photographs only): 300 dpi (dots per inch).
- LineTone (Black and White Photographs plus Line Drawings in the same figure): 600 dpi.

- Bitmap (Line Drawings only): 1200 dpi
- Please follow this link for full guidance on artwork.
- **Tables** should be provided in editable Word format. They should be numbered and given explanatory titles.

#### **4. Appendices**

If any, are intended for inclusion in the printed version of the manuscript and should be kept to a minimum. Please consider the use of supplementary information instead.

#### **5. Supplementary Information – Online only**

- Where unpublished material e.g. behaviour rating scales or therapy manuals are referred to in an article, copies should be submitted as an additional document (where copyright allows) to facilitate review.
- Supplementary files can be used to convey supporting or extra information to your study, however, the main manuscript should be able to ‘stand-alone’ as these documents are not published in the printed issues.
- Supporting documents are reviewed but not copyedited on acceptance of the article. They can therefore be submitted in PDF format, and include figures and tables within the text. There is no word limit for supporting online information.
- Ethical Standards
- *Behavioural and Cognitive Psychotherapy* is committed to actively investigating any cases of suspected misconduct, even in the event of the manuscript being withdrawn. All manuscripts are screened for plagiarism before being accepted for publication. All editors and reviewers are asked to disclose any conflict of interest when they are assigned a manuscript. If deemed necessary, alternative or additional opinions will be sought in order to maintain the balance of fair and thorough peer review.

## Appendix D: Online survey with information sheet, consent form, and debriefing forms

# Exploring Schema Modes in Psychotic Illness using the Schema Mode

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Start of Block: Info sheet

**INFORMATION SHEET** ‘Exploring schema modes in psychotic illness using the schema mode inventory’ You are being invited to take part in a research study being conducted with University College Cork. Thank you for taking the time to read this information sheet.

**PURPOSE OF THE RESEARCH STUDY** Schema therapy is a therapy developed by psychologists to help support people experiencing complex psychological difficulties. Schemas are important beliefs and feelings we have about ourselves and our environment. A negative schema can be developed during childhood and can influence our ways of thinking and behaving as adults. Schema therapy often involves working with our ‘schema modes’. A schema mode is the group of schemas that are triggered for a person. Currently there are a large number of research studies showing that schema therapy is an effective treatment for people experiencing a number of different mental health issues such as depression and personality disorders. However, there are no studies to show how effective it is for people with psychosis. This study aims to understand what schema modes people with psychosis have, so that schema therapy might be developed for people with psychosis in the future. In order to do this I first need to investigate if there is a typical schema mode profile for an Irish population. It is hoped that this research will gain a further understanding of schema therapy in an Irish context and will contribute to the growing body of literature of effective treatment options for people experiencing psychosis.

**WHAT WILL IT INVOLVE?** Your participation in the study will consist of filling out a questionnaire. Completing the questionnaire will take approximately 20 minutes. The statements on the questionnaire are in relation to your feelings, behaviours and ways of thinking (e.g. *I feel that I have plenty of stability and security in my life*).

**VOLUNTARY PARTICIPATION** Should you agree to take part in this study a consent form will be provided, to be read and signed by ticking a box before

completing the questionnaire. The survey involves answering a few short demographic questions (e.g. age, gender) and the questionnaire will involve answering 166 questions. Your participation is entirely voluntary. You do not have to send the survey if you change your mind at any stage of the completion process. The survey will be anonymous (you will not be asked to provide your name or contact details). As the survey is anonymous, this means that once it is completed and submitted, it cannot be identified or withdrawn from the study

**CONFIDENTIALITY/ANONYMITY** The data collected from this interview will be used in a Doctorate Dissertation which is to be submitted through University College Cork in May 2019. No identifying information will be included. The data collected may be published in scholarly journals and presented locally and nationally but no individual participant will be identified.

**DATA STORAGE** The digital copies of the questionnaires will be stored for 10 years after the completion of a research project, in line with the University's Code of Research Conduct. This file will be password protected and only accessed by the researcher.

**RESULTS** As the survey is anonymous individual results of the questionnaires will not be provided.

**CONTACT DETAILS** If you have any further questions about the research you can contact me by: **Email:** [lucy.burke1@hse.ie](mailto:lucy.burke1@hse.ie)

Start of Block: Consent

By consenting to complete this survey you, the participant, are confirming that you have read and understood the information sheet.

You understand that you have been asked to give your consent for the information from the questionnaire to be included in a Doctorate level dissertation carried out by Lucy Burke, Psychologist in Clinical Training at University College Cork.

You understand that no identifying information will be used in the write up of the thesis, and that all the information that you provide will be confidential and anonymous.

You are confirming that you understand that once you have completed the survey it will be submitted anonymously and therefore cannot be retrieved should you change your mind.

By clicking the 'Next' button below you are providing consent and will be directed to the survey questions:

End of Block: Consent

---

Start of Block: Demos

Q1 Please select your gender:

- ☐ Male (1)
  - ☐ Female (2)
  - ☐ Prefer not to say (3)
- 

Q2 What is your age?

---

Q3 Have you lived in Ireland all your life?

- ☐ Yes (1)
- ☐ No (2)

*Skip To: Q7 If Have you lived in Ireland all your life? = Yes*

---

Q4 What is your nationality?

---

Q5 How much of your childhood (i.e. birth to 12 years old) did you spend in Ireland?

- ☐ All (1)
- ☐ Some (2)
- ☐ None (3)

---

Q6 How many years have you lived in Ireland?

---

---

Q7 Do you currently have a diagnosis of a mental health disorder (e.g. Depression, Psychosis)

☐ Yes (1)

☐ No (2)

---

Q8 Have you ever received/attended a psychological intervention for mental health concerns? (e.g. counselling, cognitive behavioral therapy)

☐ Yes (1)

☐ No (2)

---

Q9 If yes, please write the type of psychological intervention you received

---

**End of Block: Demos**

---

**Start of Block: Thanks 1**

*Display This Question:*

*If Do you currently have a diagnosis of a mental health disorder (e.g. Depression, Psychosis) = Yes*

T1 Thank you for your participation and contribution. Unfortunately, we are seeking information from individuals who do not have a current diagnosis of a mental health disorder. Your willingness to participate is greatly appreciated and you are now eligible to enter the draw for the €100 One4All Voucher (click 'Next' below).

If your participation has caused you concerns, anxiety or any distress, we encourage

you to contact your doctor or call Samaritans on 116 123. The Samaritans are a national voluntary organisation providing 24-hour confidential emotional support at any time day or night.

If you have any questions you can email [Lucy.Burke1@hse.ie](mailto:Lucy.Burke1@hse.ie).

Lucy Burke

Researcher

*Skip To: End of Survey If Thank you for your participation and contribution. Unfortunately, we are seeking information from...() Is Displayed*

**End of Block: Thanks 1**

---

**Start of Block: SMI**

**Q1 INSTRUCTIONS:** Listed below are statements that people might use to describe themselves. Please rate each item based on **how often** you believe or feel each statement **in general** using the frequency scale provided.

|                                                                               | Never or<br>almost<br>never (1) | Rarely<br>(2)         | Occasionally<br>(3)   | Frequently<br>(4)     | Most of<br>the time<br>(5) | All of<br>the time<br>(6) |
|-------------------------------------------------------------------------------|---------------------------------|-----------------------|-----------------------|-----------------------|----------------------------|---------------------------|
| I demand respect by not letting other people push me around. (1)              | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I feel loved and accepted. (2)                                                | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I deny myself pleasure because I don't deserve it. (3)                        | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I feel fundamentally inadequate, flawed, or defective. (4)                    | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I have impulses to punish myself by hurting myself (e.g., cutting myself) (5) | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I feel lost (6)                                                               | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |

Q2

|                                                                                                                            | Never or<br>almost<br>never (1) | Rarely<br>(2)         | Occasionally<br>(3)   | Frequently<br>(4)     | Most of<br>the time<br>(5) | All of<br>the time<br>(6) |
|----------------------------------------------------------------------------------------------------------------------------|---------------------------------|-----------------------|-----------------------|-----------------------|----------------------------|---------------------------|
| I'm hard on<br>myself. (1)                                                                                                 | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I try very<br>hard to please<br>other people<br>in order to<br>avoid<br>conflict,<br>confrontation,<br>or rejection<br>(2) | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I can't forgive<br>myself. (3)                                                                                             | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I do things to<br>make myself<br>the centre of<br>attention. (4)                                                           | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I get irritated<br>when people<br>don't do what<br>I ask them to<br>do.(5)                                                 | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I have trouble<br>controlling<br>my impulses.<br>(6)                                                                       | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |

Q3

|                                                                                           | Never or<br>almost<br>never (1) | Rarely<br>(2)         | Occasionally<br>(3)   | Frequently<br>(4)     | Most of<br>the time<br>(5) | All of<br>the time<br>(6) |
|-------------------------------------------------------------------------------------------|---------------------------------|-----------------------|-----------------------|-----------------------|----------------------------|---------------------------|
| If I can't reach a goal, I become easily frustrated and give up. (1)                      | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I have rage outbursts. (2)                                                                | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I act impulsively or express emotions that get me into trouble or hurt other people. (3)  | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| It's my fault when something bad happens. (4)                                             | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I feel content and at ease. (5)                                                           | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I change myself depending on the people I'm with, so they'll like me or approve of me (6) | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |

Q4

|                                                                                     | Never or<br>almost<br>never (1) | Rarely<br>(2)         | Occasionally<br>(3)   | Frequently<br>(4)     | Most of<br>the time<br>(5) | All of<br>the time<br>(6) |
|-------------------------------------------------------------------------------------|---------------------------------|-----------------------|-----------------------|-----------------------|----------------------------|---------------------------|
| I feel<br>connected<br>to other<br>people. (1)                                      | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| When there<br>are<br>problems, I<br>try hard to<br>solve them<br>myself.<br>(2)     | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I don't<br>discipline<br>myself to<br>complete<br>routine or<br>boring<br>tasks.(3) | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| If I don't<br>fight, I will<br>be abused<br>or ignored.<br>(4)                      | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I have to<br>take care<br>of the<br>people<br>around me.<br>(5)                     | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| If you let<br>other<br>people<br>mock or<br>bully you,<br>you're a<br>loser. (6)    | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |

Q5

|                                                                                                                                                                | Never or<br>almost<br>never (1) | Rarely<br>(2)         | Occasionally<br>(3)   | Frequently<br>(4)     | Most of<br>the time<br>(5) | All of<br>the time<br>(6) |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|-----------------------|-----------------------|-----------------------|----------------------------|---------------------------|
| I physically<br>attack<br>people when<br>I'm angry<br>with them.<br>(1)                                                                                        | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| Once I start<br>to feel<br>angry, I<br>often don't<br>control it<br>and lose my<br>temper. (2)                                                                 | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| It's<br>important<br>for me to be<br>Number<br>One (e.g.,<br>the most<br>popular,<br>most<br>successful,<br>most<br>wealthy,<br>most<br>powerful,<br>etc.) (3) | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I feel<br>indifferent<br>about most<br>things. (4)                                                                                                             | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I can solve<br>problems<br>rationally<br>without<br>letting my<br>emotions<br>overwhelm<br>me. (5)                                                             | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| It's<br>ridiculous to<br>plan how<br>you'll<br>handle<br>situations.<br>(6)                                                                                    | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |

Q6

|                                                                                                     | Never or<br>almost<br>never (1) | Rarely<br>(2)         | Occasionally<br>(3)   | Frequently<br>(4)     | Most of<br>the time<br>(5) | All of<br>the time<br>(6) |
|-----------------------------------------------------------------------------------------------------|---------------------------------|-----------------------|-----------------------|-----------------------|----------------------------|---------------------------|
| I won't<br>settle for<br>second<br>best. (1)                                                        | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| Attacking<br>is the best<br>defence.<br>(2)                                                         | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I feel cold<br>and<br>heartless<br>towards<br>other<br>people. (3)                                  | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I feel<br>detached<br>(no contact<br>with<br>myself, my<br>emotions,<br>or other<br>people).<br>(4) | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I blindly<br>follow my<br>emotions.<br>(5)                                                          | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I feel<br>desperate.<br>(6)                                                                         | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |

Q7

|                                                                                             | Never or<br>almost<br>never (1) | Rarely<br>(2)         | Occasionally<br>(3)   | Frequently<br>(4)     | Most of<br>the time<br>(5) | All of<br>the time<br>(6) |
|---------------------------------------------------------------------------------------------|---------------------------------|-----------------------|-----------------------|-----------------------|----------------------------|---------------------------|
| I allow other people to criticize me or put me down. (1)                                    | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| In relationships, I let the other person have the upper hand. (2)                           | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I feel distant from other people. (3)                                                       | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I don't think about what I say, and it gets me into trouble or hurts other people. (4)      | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I work or play sports intensively so that I don't have to think about upsetting things. (5) | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I'm angry that people are trying to take away my freedom or independence. (6)               | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |

Q8

|                                                                                                                           | Never or<br>almost<br>never (1) | Rarely<br>(2)         | Occasionally<br>(3)   | Frequently<br>(4)     | Most of<br>the time<br>(5) | All of<br>the time<br>(6) |
|---------------------------------------------------------------------------------------------------------------------------|---------------------------------|-----------------------|-----------------------|-----------------------|----------------------------|---------------------------|
| I feel<br>nothing. (1)                                                                                                    | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I do what I<br>want to do,<br>regardless<br>of other<br>people's<br>needs and<br>feelings.<br>(2)                         | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I don't let<br>myself<br>relax or<br>have fun<br>until I've<br>finished<br>everything<br>I'm<br>supposed to<br>do.<br>(3) | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I throw<br>things<br>around<br>when I'm<br>angry. (4)                                                                     | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I feel<br>enraged<br>towards<br>other<br>people. (5)                                                                      | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I feel that I<br>fit in with<br>other<br>people. (6)                                                                      | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |

Q9

|                                                                                                                                                                                            | Never or<br>almost<br>never (1) | Rarely<br>(2)         | Occasionally<br>(3)   | Frequently<br>(4)     | Most of<br>the time<br>(5) | All of<br>the time<br>(6) |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|-----------------------|-----------------------|-----------------------|----------------------------|---------------------------|
| I have a lot<br>of anger<br>built up<br>inside of<br>me that I<br>need to let<br>out. (1)                                                                                                  | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I feel<br>lonely. (2)                                                                                                                                                                      | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I try to do<br>my best at<br>everything.<br>(3)                                                                                                                                            | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I like doing<br>something<br>exciting or<br>soothing to<br>avoid my<br>feelings<br>(e.g.,<br>working<br>gambling,<br>eating,<br>shopping,<br>sexual<br>activities,<br>watching<br>TV). (4) | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| Equality<br>doesn't<br>exist, so it's<br>better to be<br>superior to<br>other<br>people (5)                                                                                                | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| When I'm<br>angry, I<br>often lose<br>control and<br>threaten<br>other<br>people (6)                                                                                                       | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |

Q10

|                                                                                                         | Never or<br>almost<br>never (1) | Rarely<br>(2)         | Occasionally<br>(3)   | Frequently<br>(4)     | Most of<br>the time<br>(5) | All of<br>the time<br>(6) |
|---------------------------------------------------------------------------------------------------------|---------------------------------|-----------------------|-----------------------|-----------------------|----------------------------|---------------------------|
| I let other people get their own way instead of expressing my own needs. (1)                            | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| If someone is not with me, he or she is against me. (2)                                                 | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| In order to be bothered less by my annoying thoughts or feelings, I make sure that I'm always busy. (3) | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I'm a bad person if I get angry at other people (4)                                                     | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I don't want to get involved with people. (5)                                                           | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I have been so angry that I have hurt someone or killed someone(6)                                      | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |

**Q21 INSTRUCTIONS:** Listed below are statements that people might use to describe themselves. Please rate each item based on how often you believe or feel each statement in general using the frequency scale provided.

|                                                                                                    | Never or<br>almost<br>never (1) | Rarely<br>(2)         | Occasionally<br>(3)   | Frequently<br>(4)     | Most of<br>the time<br>(5) | All of<br>the time<br>(6) |
|----------------------------------------------------------------------------------------------------|---------------------------------|-----------------------|-----------------------|-----------------------|----------------------------|---------------------------|
| I feel that I have plenty of stability and security in my life.(1)                                 | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I know when to express my emotions and when not to. (2)                                            | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I'm angry with someone for leaving me alone or abandoning me. (3)                                  | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I don't feel connected to other people. (4)                                                        | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I can't bring myself to do things that I find unpleasant, even if I know it's for my own good. (5) | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I break rules and regret it later. (6)                                                             | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |

Q22

|                                                                                                                     | Never or<br>almost<br>never (1) | Rarely<br>(2)         | Occasionally<br>(3)   | Frequently<br>(4)     | Most of<br>the time<br>(5) | All of<br>the time<br>(6) |
|---------------------------------------------------------------------------------------------------------------------|---------------------------------|-----------------------|-----------------------|-----------------------|----------------------------|---------------------------|
| I feel<br>humiliated.<br>(1)                                                                                        | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I trust most<br>other<br>people. (2)                                                                                | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I act first<br>and think<br>later. (3)                                                                              | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I get bored<br>easily and<br>lose interest<br>in things.<br>(4)                                                     | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| Even if<br>there are<br>people<br>around me,<br>I feel<br>lonely. (5)                                               | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I don't<br>allow<br>myself to<br>do<br>pleasurable<br>things that<br>other<br>people do<br>because I<br>am bad. (6) | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |

Q23

|                                                                                                                | Never or<br>almost<br>never (1) | Rarely<br>(2)         | Occasionally<br>(3)   | Frequently<br>(4)     | Most of<br>the time<br>(5) | All of<br>the time<br>(6) |
|----------------------------------------------------------------------------------------------------------------|---------------------------------|-----------------------|-----------------------|-----------------------|----------------------------|---------------------------|
| I assert what I<br>need without<br>going<br>overboard.(1)                                                      | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I feel special<br>and better than<br>most other<br>people. (2)                                                 | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I don't care<br>about<br>anything;<br>nothing<br>matters to me.<br>(3)                                         | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| It makes me<br>angry when<br>someone tells<br>me how I<br>should feel or<br>behave. (4)                        | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| If you don't<br>dominate<br>other people,<br>they will<br>dominate you.<br>(5)                                 | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I say what I<br>feel, or do<br>things<br>impulsively,<br>without<br>thinking of<br>the<br>consequences.<br>(6) | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |

Q24

|                                                                                                  | Never or<br>almost<br>never (1) | Rarely<br>(2)         | Occasionally<br>(3)   | Frequently<br>(4)     | Most of<br>the time<br>(5) | All of<br>the time<br>(6) |
|--------------------------------------------------------------------------------------------------|---------------------------------|-----------------------|-----------------------|-----------------------|----------------------------|---------------------------|
| I feel like<br>telling<br>people off<br>for the way<br>they have<br>treated me.<br>(1)           | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I'm capable<br>of taking<br>care of<br>myself. (2)                                               | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I'm quite<br>critical of<br>other<br>people. (3)                                                 | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I'm under<br>constant<br>pressure to<br>achieve<br>and get<br>things<br>done. (4)                | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I'm trying<br>not to<br>make<br>mistakes;<br>otherwise,<br>I'll get<br>down on<br>myself.<br>(5) | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I deserve to<br>be<br>punished.<br>(6)                                                           | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |

Q25

|                                                                                               | Never or<br>almost<br>never (1) | Rarely<br>(2)         | Occasionally<br>(3)   | Frequently<br>(4)     | Most of<br>the time<br>(5) | All of<br>the time<br>(6) |
|-----------------------------------------------------------------------------------------------|---------------------------------|-----------------------|-----------------------|-----------------------|----------------------------|---------------------------|
| I can learn,<br>grow, and<br>change. (1)                                                      | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I want to<br>distract<br>myself<br>from<br>upsetting<br>thoughts<br>and<br>feelings.<br>(2)   | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I'm angry<br>at myself.<br>(3)                                                                | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I feel flat.<br>(4)                                                                           | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I have to<br>be the best<br>in<br>whatever I<br>do. (5)                                       | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I sacrifice<br>pleasure,<br>health, or<br>happiness<br>to meet my<br>own<br>standards.<br>(6) | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |

Page Break

Q41

|                                                                                           | Never or<br>almost<br>never (1) | Rarely<br>(2)         | Occasionally<br>(3)   | Frequently<br>(4)     | Most of<br>the time<br>(5) | All of<br>the time<br>(6) |
|-------------------------------------------------------------------------------------------|---------------------------------|-----------------------|-----------------------|-----------------------|----------------------------|---------------------------|
| I'm<br>demanding<br>of other<br>people. (1)                                               | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| If I am<br>angry, I can<br>get so out of<br>control that I<br>injure other<br>people. (2) | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I am<br>invulnerable.<br>(3)                                                              | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I'm a bad<br>person. (4)                                                                  | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I feel safe.<br>(5)                                                                       | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I feel<br>listened to,<br>understood,<br>and<br>validated (6)                             | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |

Q42

|                                                                        | Never or<br>almost<br>never (1) | Rarely<br>(2)         | Occasionally<br>(3)   | Frequently<br>(4)     | Most of<br>the time<br>(5) | All of<br>the time<br>(6) |
|------------------------------------------------------------------------|---------------------------------|-----------------------|-----------------------|-----------------------|----------------------------|---------------------------|
| It is impossible for me to control my impulses. (1)                    | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I destroy things when I'm angry. (2)                                   | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| By dominating other people, nothing can happen to you. (3)             | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I act in a passive way, even when I don't like the way things are. (4) | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| My anger gets out of control. (5)                                      | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I mock or bully other people. (6)                                      | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |

Q43

|                                                                                                                                                                                   | Never or<br>almost<br>never (1) | Rarely<br>(2)         | Occasionally<br>(3)   | Frequently<br>(4)     | Most of<br>the time<br>(5) | All of<br>the time<br>(6) |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|-----------------------|-----------------------|-----------------------|----------------------------|---------------------------|
| I feel like<br>lashing out<br>of hurting<br>someone<br>for what<br>he/she did<br>to me. (1)                                                                                       | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I know that<br>there is a<br>'right' and a<br>'wrong'<br>way to do<br>things; I<br>try hard to<br>do things<br>the right<br>way, or<br>else I start<br>criticizing<br>myself. (2) | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I often feel<br>alone in<br>the world.<br>(3)                                                                                                                                     | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I feel weak<br>and<br>helpless.<br>(4)                                                                                                                                            | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I'm lazy.<br>(5)                                                                                                                                                                  | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I can put<br>up with<br>anything<br>from<br>people who<br>are<br>important<br>to me. (6)                                                                                          | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |

Q44

|                                                                                                 | Never or<br>almost<br>never (1) | Rarely<br>(2)         | Occasionally<br>(3)   | Frequently<br>(4)     | Most of<br>the time<br>(5) | All of<br>the time<br>(6) |
|-------------------------------------------------------------------------------------------------|---------------------------------|-----------------------|-----------------------|-----------------------|----------------------------|---------------------------|
| I've been<br>cheated or<br>treated<br>unfairly.<br>(1)                                          | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| If I feel the<br>urge to do<br>something,<br>I just do it.<br>(2)                               | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I feel left<br>out or<br>excluded.<br>(3)                                                       | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I belittle<br>others. (4)                                                                       | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I feel<br>optimistic.<br>(5)                                                                    | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I feel I<br>shouldn't<br>have to<br>follow the<br>same rules<br>that other<br>people do.<br>(6) | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |

Q45

|                                                                                                                         | Never or<br>almost<br>never (1) | Rarely<br>(2)         | Occasionally<br>(3)   | Frequently<br>(4)     | Most of<br>the time<br>(5) | All of<br>the time<br>(6) |
|-------------------------------------------------------------------------------------------------------------------------|---------------------------------|-----------------------|-----------------------|-----------------------|----------------------------|---------------------------|
| My life<br>right now<br>revolves<br>around<br>getting<br>things done<br>and doing<br>them 'right'.<br>(1)               | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I'm pushing<br>myself to<br>be more<br>responsible<br>than most<br>people are.<br>(2)                                   | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I can stand<br>up for<br>myself<br>when I feel<br>unfairly<br>criticized,<br>abused, or<br>taken<br>advantage<br>of.(3) | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I don't<br>deserve<br>sympathy<br>when<br>something<br>bad<br>happens to<br>me.(4)                                      | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I feel that<br>nobody<br>loves me.<br>(5)                                                                               | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I feel that<br>I'm<br>basically a<br>good<br>person (6)                                                                 | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |

Q46

|                                                                                                                           | Never or<br>almost<br>never (1) | Rarely<br>(2)         | Occasionally<br>(3)   | Frequently<br>(4)     | Most of<br>the time<br>(5) | All of<br>the time<br>(6) |
|---------------------------------------------------------------------------------------------------------------------------|---------------------------------|-----------------------|-----------------------|-----------------------|----------------------------|---------------------------|
| When<br>necessary, I<br>complete<br>boring and<br>routine<br>tasks in<br>order to<br>accomplish<br>things I<br>value. (1) | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I feel<br>spontaneous<br>and playful.<br>(2)                                                                              | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I can<br>become so<br>angry that I<br>feel capable<br>of killing<br>someone.<br>(3)                                       | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |
| I have a<br>good sense<br>of who I am<br>and what I<br>need to<br>make<br>myself<br>happy. (4)                            | <input type="radio"/>           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/>      | <input type="radio"/>     |

Page Break

End of Block: SMI

Start of Block: CAPE

A INSTRUCTIONS: Listed below are statements that people might use to describe themselves. Please rate each item based on how often you believe or feel each statement in general using the frequency scale provided.

|                                                                                                     | Never (1)             | Sometimes (2)         | Often (3)             | Nearly Always (4)     |
|-----------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Do you ever feel sad? (1)                                                                           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Do you ever feel as if people seem to drop hints about you or say things with a double meaning? (2) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Do you ever feel that you are not a very animated person? (3)                                       | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Do you ever feel that you are not much of a talker when you are conversing with other people? (4)   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Do you ever feel as if things in magazines or on TV were written especially for you? (5)            | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Do you ever feel as if some people are not what they seem to be? (6)                                | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

B

|                                                                                  | Never (1)             | Sometimes (2)         | Often (3)             | Nearly Always (4)     |
|----------------------------------------------------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Do you ever feel as if you are being persecuted in some way? (1)                 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Do you ever feel that you experience few or no emotions at important events? (2) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Do you ever feel pessimistic about everything? (3)                               | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Do you ever feel as if there is a conspiracy against you? (4)                    | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Do you ever feel as if you are destined to be someone very important? (5)        | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Do you ever feel as if there is no future for you? (6)                           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

C

|                                                                                                  | Never (1)             | Sometimes (2)         | Often (3)             | Nearly Always (4)     |
|--------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Do you ever feel that you are a very special or unusual person? (1)                              | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Do you ever feel as if you do not want to live anymore? (2)                                      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Do you ever think that people can communicate telepathically? (3)                                | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Do you ever feel that you have no interest to be with other people? (4)                          | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Do you ever feel as if electrical devices such as computers can influence the way you think? (5) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Do you ever feel that you are lacking in motivation to do things? (6)                            | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

| D                                                                                   | Never (1)             | Sometimes (2)         | Often (3)             | Nearly Always (4)     |
|-------------------------------------------------------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Do you ever cry about nothing? (1)                                                  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Do you believe in the power of witchcraft, voodoo or the occult? (2)                | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Do you ever feel that you are lacking in energy? (3)                                | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Do you ever feel that people look at you oddly because of your appearance? (4)      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Do you ever feel that your mind is empty? (5)                                       | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Do you ever feel as if the thoughts in your head are being taken away from you? (6) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

E

|                                                                                               | Never (1)             | Sometimes (2)         | Often (3)             | Nearly Always (4)     |
|-----------------------------------------------------------------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Do you ever feel that you are spending all your days doing nothing? (1)                       | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Do you ever feel as if the thoughts in your head are not your own? (2)                        | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Do you ever feel that your feelings are lacking in intensity? (3)                             | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Have your thoughts ever been so vivid that you were worried other people would hear them? (4) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Do you ever feel that you are lacking in spontaneity? (5)                                     | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Do you ever hear your own thoughts being echoed back to you? (6)                              | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

| F                                                                                                | Never (1)             | Sometimes (2)         | Often (3)             | Nearly Always (4)     |
|--------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Do you ever feel as if you are under the control of some force or power other than yourself? (1) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Do you ever feel that your emotions are blunted? (2)                                             | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Do you ever hear voices when you are alone? (3)                                                  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Do you ever hear voices talking to each other when you are alone? (4)                            | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Do you ever feel that you are neglecting your appearance or personal hygiene? (5)                | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Do you ever feel that you can never get things done? (6)                                         | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

G

|                                                                                                     | Never (1)             | Sometimes (2)         | Often (3)             | Nearly Always (4)     |
|-----------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Do you ever feel that you have only few hobbies or interests? (1)                                   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Do you ever feel guilty? (2)                                                                        | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Do you ever feel like a failure? (3)                                                                | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Do you ever feel tense? (4)                                                                         | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Do you ever feel as if a double has taken the place of a family member, friend or acquaintance? (5) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Do you ever see objects, people or animals that other people cannot see? (6)                        | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

End of Block: CAPE

Start of Block: Thanks 3

T3 Thank you for your participation and contribution to this study. Your participation today is greatly appreciated and will hopefully help mental health professionals further their understanding into mental health difficulties and possible treatment interventions. The answers you have provided today will be confidential as no names or identifying information will be used at any stage of the study. It is my hope that completing this questionnaire has not caused you any emotional distress. If your participation has caused you concerns, anxiety or any distress, we encourage you to contact your doctor or call Samaritans on 116 123. The Samaritans are a national voluntary organisation providing 24-hour confidential emotional support at any time day or night. If you have any questions about the questionnaire you have completed, you can email [Lucy.Burke1@hse.ie](mailto:Lucy.Burke1@hse.ie). Thanks again for your time and contribution,

Lucy Burke  
Researcher

End of Block: Thanks 3

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## Appendix E: The Schema Mode Inventory

### SMI (version 1.1)

**INSTRUCTIONS:** Listed below are statements that people might use to describe themselves. Please rate each item based on **how often** you believe or feel each statement **in general** using the frequency scale provided.

| FREQUENCY: In general    |                     |
|--------------------------|---------------------|
| 1= Never or Almost Never | 4= Frequently       |
| 2= Rarely                | 5= Most of the time |
| 3= Occasionally          | 6= All of the time  |

| Frequency | In general...                                                                                                    |
|-----------|------------------------------------------------------------------------------------------------------------------|
|           | 1 I demand respect by not letting other people push me around.                                                   |
|           | 2 I feel loved and accepted.                                                                                     |
|           | 3 I deny myself pleasure because I don't deserve it.                                                             |
|           | 4 I feel fundamentally inadequate, flawed, or defective.                                                         |
|           | 5 I have impulses to punish myself by hurting myself (e.g. cutting myself).                                      |
|           | 6 I feel lost.                                                                                                   |
|           | 7 I'm hard on myself.                                                                                            |
|           | 8 I try very hard to please other people in order to avoid conflict, confrontation, or rejection.                |
|           | 9 I can't forgive myself.                                                                                        |
|           | 10 I do things to make myself the centre of attention.                                                           |
|           | 11 I get irritated when people don't do what I ask them to do.                                                   |
|           | 12 I have trouble controlling my impulses.                                                                       |
|           | 13 If I can't reach a goal, I become easily frustrated and give up.                                              |
|           | 14 I have rage outbursts.                                                                                        |
|           | 15 I act impulsively or express emotions that get me into trouble or hurt other people.                          |
|           | 16 It's my fault when something bad happens.                                                                     |
|           | 17 I feel content and at ease.                                                                                   |
|           | 18 I change myself depending on the people I'm with, so they'll like me or approve of me.                        |
|           | 19 I feel connected to other people.                                                                             |
|           | 20 When there are problems, I try hard to solve them myself.                                                     |
|           | 21 I don't discipline myself to complete routine or boring tasks.                                                |
|           | 22 If I don't fight, I will be abused or ignored.                                                                |
|           | 23 I have to take care of the people around me.                                                                  |
|           | 24 If you let other people mock or bully you, you're a loser.                                                    |
|           | 25 I physically attack people when I'm angry at them.                                                            |
|           | 26 Once I start to feel angry, I often don't control it and lose my temper.                                      |
|           | 27 It's important for me to be Number One (e.g. the most popular, most successful, most wealthy, most powerful). |

|  |    |                                                                                                                                              |
|--|----|----------------------------------------------------------------------------------------------------------------------------------------------|
|  | 28 | I feel indifferent about most things.                                                                                                        |
|  | 29 | I can solve problems rationally without letting my emotions overwhelm me.                                                                    |
|  | 30 | It's ridiculous to plan how you'll handle situations.                                                                                        |
|  | 31 | I won't settle for second best.                                                                                                              |
|  | 32 | Attacking is the best defense.                                                                                                               |
|  | 33 | I feel cold and heartless toward other people.                                                                                               |
|  | 34 | I feel detached (no contact with myself, my emotions or other people).                                                                       |
|  | 35 | I blindly follow my emotions.                                                                                                                |
|  | 36 | I feel desperate.                                                                                                                            |
|  | 37 | I allow other people to criticize me or put me down.                                                                                         |
|  | 38 | In relationships, I let the other person have the upper hand.                                                                                |
|  | 39 | I feel distant from other people.                                                                                                            |
|  | 40 | I don't think about what I say, and it gets me into trouble or hurts other people.                                                           |
|  | 41 | I work or play sports intensively so that I don't have to think about upsetting things.                                                      |
|  | 42 | I'm angry that people are trying to take away my freedom or independence.                                                                    |
|  | 43 | I feel nothing.                                                                                                                              |
|  | 44 | I do what I want to do, regardless of other people's needs and feelings.                                                                     |
|  | 45 | I don't let myself relax or have fun until I've finished everything I'm supposed to do.                                                      |
|  | 46 | I throw things around when I'm angry.                                                                                                        |
|  | 47 | I feel enraged toward other people.                                                                                                          |
|  | 48 | I feel that I fit in with other people.                                                                                                      |
|  | 49 | I have a lot of anger built up inside of me that I need to let out.                                                                          |
|  | 50 | I feel lonely.                                                                                                                               |
|  | 51 | I try to do my best at everything.                                                                                                           |
|  | 52 | I like doing something exciting or soothing to avoid my feelings (e.g. working, gambling, eating, shopping, sexual activities, watching TV). |
|  | 53 | Equality doesn't exist, so it's better to be superior to other people.                                                                       |
|  | 54 | When I'm angry, I often lose control and threaten other people.                                                                              |
|  | 55 | I let other people get their own way instead of expressing my own needs.                                                                     |
|  | 56 | If someone is not with me, he or she is against me.                                                                                          |
|  | 57 | In order to be bothered less by my annoying thoughts or feelings, I make sure that I'm always busy.                                          |
|  | 58 | I'm a bad person if I get angry at other people.                                                                                             |
|  | 59 | I don't want to get involved with people.                                                                                                    |
|  | 60 | I have been so angry that I have hurt someone or killed someone.                                                                             |
|  | 61 | I feel that I have plenty of stability and security in my life.                                                                              |
|  | 62 | I know when to express my emotions and when not to.                                                                                          |

|  |     |                                                                                                |
|--|-----|------------------------------------------------------------------------------------------------|
|  | 63  | I'm angry with someone for leaving me alone or abandoning me.                                  |
|  | 64  | I don't feel connected to other people.                                                        |
|  | 65  | I can't bring myself to do things that I find unpleasant, even if I know it's for my own good. |
|  | 66  | I break rules and regret it later.                                                             |
|  | 67  | I feel humiliated.                                                                             |
|  | 68  | I trust most other people.                                                                     |
|  | 69  | I act first and think later.                                                                   |
|  | 70  | I get bored easily and lose interest in things.                                                |
|  | 71  | Even if there are people around me, I feel lonely.                                             |
|  | 72  | I don't allow myself to do pleasurable things that other people do because I'm bad.            |
|  | 73  | I assert what I need without going overboard.                                                  |
|  | 74  | I feel special and better than most other people.                                              |
|  | 75  | I don't care about anything; nothing matters to me.                                            |
|  | 76  | It makes me angry when someone tells me how I should feel or behave.                           |
|  | 77  | If you don't dominate other people, they will dominate you.                                    |
|  | 78  | I say what I feel, or do things impulsively, without thinking of the consequences.             |
|  | 79  | I feel like telling people off for the way they have treated me.                               |
|  | 80  | I'm capable of taking care of myself.                                                          |
|  | 81  | I'm quite critical of other people.                                                            |
|  | 82  | I'm under constant pressure to achieve and get things done.                                    |
|  | 83  | I'm trying not to make mistakes; otherwise, I'll get down on myself.                           |
|  | 84  | I deserve to be punished.                                                                      |
|  | 85  | I can learn, grow, and change.                                                                 |
|  | 86  | I want to distract myself from upsetting thoughts and feelings.                                |
|  | 87  | I'm angry at myself.                                                                           |
|  | 88  | I feel flat.                                                                                   |
|  | 89  | I have to be the best in whatever I do.                                                        |
|  | 90  | I sacrifice pleasure, health, or happiness to meet my own standards.                           |
|  | 91  | I'm demanding of other people.                                                                 |
|  | 92  | If I get angry, I can get so out of control that I injure other people.                        |
|  | 93  | I am invulnerable.                                                                             |
|  | 94  | I'm a bad person.                                                                              |
|  | 95  | I feel safe.                                                                                   |
|  | 96  | I feel listened to, understood, and validated.                                                 |
|  | 97  | It is impossible for me to control my impulses.                                                |
|  | 98  | I destroy things when I'm angry.                                                               |
|  | 99  | By dominating other people, nothing can happen to you.                                         |
|  | 100 | I act in a passive way, even when I don't like the way things are.                             |
|  | 101 | My anger gets out of control.                                                                  |
|  | 102 | I mock or bully other people.                                                                  |

|  |     |                                                                                                                                           |
|--|-----|-------------------------------------------------------------------------------------------------------------------------------------------|
|  | 103 | I feel like lashing out or hurting someone for what he/she did to me.                                                                     |
|  | 104 | I know that there is a “right” and a “wrong” way to do things; I try hard to do things the right way, or else I start criticizing myself. |
|  | 105 | I often feel alone in the world.                                                                                                          |
|  | 106 | I feel weak and helpless.                                                                                                                 |
|  | 107 | I’m lazy.                                                                                                                                 |
|  | 108 | I can put up with anything from people who are important to me.                                                                           |
|  | 109 | I’ve been cheated or treated unfairly.                                                                                                    |
|  | 110 | If I feel the urge to do something, I just do it.                                                                                         |
|  | 111 | I feel left out or excluded.                                                                                                              |
|  | 112 | I belittle others                                                                                                                         |
|  | 113 | I feel optimistic.                                                                                                                        |
|  | 114 | I feel I shouldn’t have to follow the same rules that other people do.                                                                    |
|  | 115 | My life right now revolves around getting things done and doing them ‘right’.                                                             |
|  | 116 | I’m pushing myself to be more responsible than most other people.                                                                         |
|  | 117 | I can stand up for myself when I feel unfairly criticized, abused, or taken advantage of.                                                 |
|  | 118 | I don’t deserve sympathy when something bad happens to me.                                                                                |
|  | 119 | I feel that nobody loves me.                                                                                                              |
|  | 120 | I feel that I’m basically a good person.                                                                                                  |
|  | 121 | When necessary, I complete boring and routine tasks in order to accomplish things I value.                                                |
|  | 122 | I feel spontaneous and playful.                                                                                                           |
|  | 123 | I can become so angry that I feel capable of killing someone.                                                                             |
|  | 124 | I have a good sense of who I am and what I need to make myself happy.                                                                     |

## **Appendix F: Community Assessment of Psychic Experiences**

**1. Do you ever feel sad?**

Never Sometimes Often Nearly Always

**2. Do you ever feel as if people seem to drop hints about you or say things with a double meaning?**

Never Sometimes Often Nearly Always

**3. Do you ever feel that you are not a very animated person?**

Never Sometimes Often Nearly Always

**4. Do you ever feel that you are not much of a talker when you are conversing with other people?**

Never Sometimes Often Nearly Always

**5. Do you ever feel as if things in magazines or on TV were written especially for you?**

Never Sometimes Often Nearly Always

**6. Do you ever feel as if some people are not what they seem to be?**

Never Sometimes Often Nearly Always

**7. Do you ever feel as if you are being persecuted in some way?**

Never Sometimes Often Nearly Always

**8. Do you ever feel that you experience few or no emotions at important events?**

Never Sometimes Often Nearly Always

**9. Do you ever feel pessimistic about everything?**

Never Sometimes Often Nearly Always

**10. Do you ever feel as if there is a conspiracy against you?**

Never Sometimes Often Nearly Always

**11. Do you ever feel as if you are destined to be someone very important?**

Never Sometimes Often Nearly Always

**12. Do you ever feel as if there is no future for you?**

Never Sometimes Often Nearly Always

**13. Do you ever feel that you are a very special or unusual person?**

Never Sometimes Often Nearly Always

**14. Do you ever feel as if you do not want to live anymore?**

Never Sometimes Often Nearly Always

**15. Do you ever think that people can communicate telepathically?**

Never Sometimes Often Nearly Always

**16. Do you ever feel that you have no interest to be with other people?**

Never Sometimes Often Nearly Always

**17. Do you ever feel as if electrical devices such as computers can influence the way you think?**

Never Sometimes Often Nearly Always

**18. Do you ever feel that you are lacking in motivation to do things?**

Never Sometimes Often Nearly Always

**19. Do you ever cry about nothing?**

Never Sometimes Often Nearly Always

**20. Do you believe in the power of witchcraft, voodoo or the occult?**

Never Sometimes Often Nearly Always

**21. Do you ever feel that you are lacking in energy?**

Never Sometimes Often Nearly Always

**22. Do you ever feel that people look at you oddly because of your appearance?**

Never Sometimes Often Nearly Always

**23. Do you ever feel that your mind is empty?**

Never Sometimes Often Nearly Always

**24. Do you ever feel as if the thoughts in your head are being taken away from you?**

Never Sometimes Often Nearly Always

**25. Do you ever feel that you are spending all your days doing nothing?**

Never Sometimes Often Nearly Always

**26. Do you ever feel as if the thoughts in your head are not your own?**

Never Sometimes Often Nearly Always

**27. Do you ever feel that your feelings are lacking in intensity?**

Never Sometimes Often Nearly Always

**28. Have your thoughts ever been so vivid that you were worried other people would hear them?**

Never Sometimes Often Nearly Always

**29. Do you ever feel that you are lacking in spontaneity?**

Never Sometimes Often Nearly Always

**30. Do you ever hear your own thoughts being echoed back to you?**

Never Sometimes Often Nearly Always

**31. Do you ever feel as if you are under the control of some force or power other than yourself?**

Never Sometimes Often Nearly Always

**32. Do you ever feel that your emotions are blunted?**

Never Sometimes Often Nearly Always

**33. Do you ever hear voices when you are alone?**

Never Sometimes Often Nearly Always

**34. Do you ever hear voices talking to each other when you are alone?**

Never Sometimes Often Nearly Always

**35. Do you ever feel that you are neglecting your appearance or personal hygiene?**

Never Sometimes Often Nearly Always

**36. Do you ever feel that you can never get things done?**

Never Sometimes Often Nearly Always

**37. Do you ever feel that you have only few hobbies or interests?**

Never Sometimes Often Nearly Always

**38. Do you ever feel guilty?**

Never Sometimes Often Nearly Always

**39. Do you ever feel like a failure?**

Never Sometimes Often Nearly Always

**40. Do you ever feel tense?**

Never Sometimes Often Nearly Always

**41. Do you ever feel as if a double has taken the place of a family member, friend or acquaintance?**

Never Sometimes Often Nearly Always

**42. Do you ever see objects, people or animals that other people cannot see?**

Never Sometimes Often Nearly Always

*(Stefanis NC, Hanssen M, Smirnis NK, Avramopoulos DA, Evdokimidis IK, Stefanis CN, Verdoux H, Van Os J., 2002)*

## **Appendix G: Consent form for psychosis sample**

### **CONSENT FORM**

By signing this consent form you, the participant, are confirming that you have read and understood the information sheet.

You understand that you have been asked to give your consent for the information from the questionnaire to be included in a Doctorate level dissertation carried out by Lucy Burke, Psychologist in Clinical Training at University College Cork.

You understand that no identifying information will be used in the write up of the thesis, and that all of the information that you provide will be confidential and anonymous.

You are confirming that you have the right to withdraw from the study up until 1<sup>st</sup> February 2019 and have the right to refuse to answer any question without explanation.

You are also confirming that you have been given the chance to ask questions and have received answers to these questions.

**I have read and understood the above and give my consent to participate:**

**Participant's signature:**

**Date:**

**I have explained the above and answered all questions asked by the participant:**

**Researcher's signature:**

**Date:**

## Appendix H: Demographic questionnaire

|                                                                                                                                             |                                                                             |
|---------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| <b>Please circle an appropriate response:</b><br><br><b>Gender:</b>                                                                         | Male      Female      Prefer not to say                                     |
| <b>Age Category:</b>                                                                                                                        | 18-25<br>26-35<br>36-45<br>46-55<br>55+                                     |
| <b>What country are you from?</b>                                                                                                           |                                                                             |
| <b>Do you currently live in Ireland?</b>                                                                                                    | Yes      No                                                                 |
| <b>How many years have you spent living in Ireland? (Please circle one)</b>                                                                 | I grew up in Ireland<br>Less than 1 year<br>1-2<br>2-3<br>3-4<br>4-5<br>5 + |
| <b>Have you ever been diagnosed with a mental health disorder (e.g. psychosis, schizophrenia etc.)?</b>                                     | Yes      No                                                                 |
| <b>If yes, what diagnosis have you received? (please write out the diagnosis)</b>                                                           |                                                                             |
| <b>Have you ever received/attended a psychological intervention for the treatment of a mental health concern?</b>                           | Yes      No                                                                 |
| <b>If yes, what type of psychological intervention (s) did you complete? (e.g. cognitive behaviour therapy, compassion focused therapy)</b> |                                                                             |
| <b>Are you currently taking any psychiatric medication?</b>                                                                                 | Yes      No                                                                 |
| <b>If yes, what psychiatric medication have you currently been prescribed?</b>                                                              |                                                                             |

## **Appendix I: Information sheet for psychosis sample**

### **INFORMATION SHEET**

#### **‘Exploring schema modes in psychotic illness using the schema mode inventory’**

You are being invited to take part in a research study being conducted with University College Cork. Thank you for taking the time to read this information sheet.

#### **PURPOSE OF THE RESEARCH STUDY**

Schema therapy is a therapy developed by psychologists to help support people experiencing complex psychological difficulties. Schemas are important beliefs and feelings we have about ourselves and our environment. A negative schema can be developed during childhood and can influence our ways of thinking and behaving as adults. Schema therapy often involves working with our ‘schema modes’. A schema mode is the group of schemas that are triggered for a person. Currently there are a large number of research studies showing that schema therapy is an effective treatment for people experiencing a number of different mental health issues such as depression and personality disorders. However, there are no studies to show how effective it is for people with psychosis. This study aims to understand what schema modes people with psychosis have, so that schema therapy might be developed for people with psychosis in the future. It is hoped that this research will gain a further understanding of psychosis and will contribute to the growing body of literature of effective treatment options for people experiencing psychosis.

#### **WHAT WILL IT INVOLVE?**

Your participation in the study will consist of filling out a questionnaire. Completing the questionnaire will take approximately 30 – 40 minutes. The statements on the questionnaire are in relation to your feelings, behaviours and ways of thinking (e.g. *I feel that I have plenty of stability and security in my life*).

#### **VOLUNTARY PARTICIPATION**

Should you agree to take part in this study a consent form will be provided, to be read and signed before completing the questionnaire. Your participation is entirely voluntary. The questionnaires will involve answering 166 questions in total. You do

not have to answer a question if you are uncomfortable doing so. If you initially decide to take part you can subsequently change your mind and withdraw from the study without providing an explanation at any time, up until 1<sup>st</sup> February 2019. Withdrawing from the study will not affect your mental health care in any way.

### **CONFIDENTIALITY/ANONYMITY**

The data collected from this interview will be used in a Doctorate Dissertation which is to be submitted through University College Cork in May 2019. In order to ensure complete anonymity, ID numbers will be used in replace of names on the questionnaire. All identifying information will be removed. The data collected may be published in scholarly journals and presented locally and nationally but no individual participant will be identified.

### **DATA STORAGE**

The questionnaires will be inputted to a computer and saved in a password protected file. The primary researcher and her two supervisors will have access to these files. All hard copies of the questionnaires will be shredded. The digital copies of the questionnaires will be stored for 10 years after the completion of a research project, in line with the University's Code of Research Conduct.

### **RESULTS**

Individual results of the questionnaires will not be provided. However, if requested, participants who complete the research will be provided with a summary and explanation of the overall results once the study is complete.

### **CONTACT DETAILS**

If you are interested in taking part or you have any further questions about the research you can contact me by:

**Email:** lucy.burke1@hse.ie

**Phone:** 0868223342

## **Appendix J: Debriefing form for psychosis sample**

### **‘Exploring schema modes in psychotic illness using the schema mode inventory’**

#### **Debriefing From**

Thank you for your participation and contribution to this study. Your participation today is greatly appreciated and will hopefully help mental health professionals further their understanding into mental health difficulties and possible treatment interventions. The answers you have provided today will be anonymous and no names or identifying information will be used at any stage of the study. Your participation in this study will not affect your care in anyway.

It is my hope that completing this questionnaire has not caused you any unnecessary emotional distress. If your participation has caused you concerns, anxiety or any distress, I encourage you to contact your key worker. If you are unsure about how to contact your key worker, the researcher can support you in doing this.

Thanks again for your time and contribution,

Lucy Burke  
Researcher

## Appendix K: Letter of ethical approval



# UCC

Coláiste na hOllscoile Corcaigh, Éire  
University College Cork, Ireland

Coláiste na nEalaíon, an Léinn Cheiltigh  
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04/12/2017

Dear Lucy

Thank you for presenting your work to the D.Clin. Research Ethics committee and I am sorry for the rather tardy response.

The committee is happy to approve your research study but we would like to ask that you consider the points below and make some minor amendments to your protocol. You do not need to resubmit these changes for approval but we would ask that you do send us an electronic copy of your protocol with any such changes in place.

Good luck with your research.

Sean Hammond

## Appendix L: Oblique factor pattern

Oblique Factor Pattern

|      | VC          | AC          | EC          | IC          | UC          | HC          | CS          | DP          | DSS         | SA    | BA    | PP    | DmP   | HA    | Simple |
|------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------|-------|-------|-------|-------|--------|
| Q4   | <b>0.29</b> | -0.04       | -0.03       | -0.00       | 0.06        | -0.03       | -0.00       | -0.04       | 0.00        | 0.00  | -0.03 | 0.11  | 0.02  | 0.01  | 0.75   |
| Q6   | <b>0.32</b> | -0.02       | 0.00        | 0.01        | 0.05        | -0.02       | -0.04       | 0.00        | 0.08        | 0.01  | -0.07 | -0.00 | 0.01  | 0.03  | 0.82   |
| Q36  | <b>0.30</b> | 0.01        | -0.00       | 0.04        | -0.03       | 0.02        | 0.02        | 0.01        | 0.01        | 0.00  | -0.03 | 0.04  | -0.00 | 0.00  | 0.91   |
| Q50  | <b>0.43</b> | -0.00       | 0.00        | -0.05       | -0.00       | -0.03       | -0.04       | -0.00       | 0.06        | 0.01  | -0.03 | -0.05 | -0.05 | 0.05  | 0.90   |
| Q67  | <b>0.30</b> | 0.04        | -0.01       | -0.00       | 0.01        | 0.10        | 0.04        | -0.06       | 0.00        | -0.03 | 0.06  | 0.07  | 0.01  | -0.10 | 0.67   |
| Q71  | <b>0.40</b> | -0.00       | 0.02        | -0.02       | -0.00       | 0.01        | 0.00        | 0.05        | -0.01       | 0.01  | -0.02 | -0.09 | 0.01  | -0.00 | 0.91   |
| Q105 | <b>0.42</b> | -0.01       | -0.00       | -0.02       | -0.04       | -0.01       | -0.03       | 0.05        | -0.00       | 0.00  | 0.01  | -0.06 | -0.01 | 0.03  | 0.93   |
| Q106 | <b>0.32</b> | -0.01       | 0.03        | 0.03        | -0.02       | 0.04        | 0.02        | 0.01        | -0.04       | -0.03 | 0.01  | 0.02  | 0.06  | -0.07 | 0.84   |
| Q111 | <b>0.35</b> | 0.03        | -0.02       | 0.01        | 0.01        | -0.05       | 0.06        | -0.02       | -0.04       | 0.01  | 0.02  | -0.09 | -0.00 | 0.01  | 0.85   |
| Q119 | <b>0.33</b> | 0.01        | 0.01        | 0.00        | -0.04       | -0.03       | -0.04       | -0.00       | -0.07       | 0.00  | 0.08  | 0.04  | -0.05 | 0.02  | 0.83   |
| Q22  | 0.03        | <b>0.29</b> | -0.03       | 0.00        | 0.00        | -0.08       | 0.04        | -0.04       | -0.06       | -0.03 | 0.16  | -0.06 | 0.00  | 0.03  | 0.61   |
| Q42  | 0.02        | <b>0.37</b> | -0.05       | -0.02       | 0.02        | 0.04        | -0.04       | 0.05        | 0.06        | -0.03 | 0.04  | -0.01 | 0.06  | 0.00  | 0.86   |
| Q47  | 0.09        | <b>0.33</b> | 0.18        | -0.01       | -0.02       | 0.01        | -0.01       | 0.11        | -0.03       | 0.08  | -0.10 | 0.04  | -0.01 | -0.00 | 0.59   |
| Q49  | -0.01       | <b>0.33</b> | 0.08        | 0.03        | -0.07       | -0.00       | -0.01       | 0.03        | 0.04        | -0.00 | -0.10 | 0.08  | -0.02 | -0.01 | 0.76   |
| Q56  | 0.02        | <b>0.30</b> | -0.01       | -0.00       | -0.03       | 0.06        | 0.06        | -0.00       | -0.04       | 0.02  | 0.08  | 0.01  | -0.00 | -0.09 | 0.76   |
| Q63  | 0.06        | <b>0.38</b> | -0.06       | -0.03       | 0.02        | -0.00       | 0.02        | -0.09       | 0.04        | 0.00  | -0.03 | -0.00 | 0.00  | -0.02 | 0.86   |
| Q76  | -0.01       | <b>0.37</b> | -0.07       | 0.01        | 0.11        | -0.02       | -0.03       | 0.00        | 0.02        | -0.01 | -0.02 | -0.02 | 0.01  | 0.08  | 0.82   |
| Q79  | -0.02       | <b>0.49</b> | -0.07       | 0.05        | 0.01        | -0.02       | -0.02       | -0.01       | -0.03       | 0.03  | -0.04 | -0.02 | 0.00  | 0.03  | 0.93   |
| Q103 | -0.04       | <b>0.40</b> | 0.11        | 0.01        | -0.03       | 0.05        | -0.00       | 0.02        | -0.02       | 0.00  | -0.00 | 0.01  | -0.03 | -0.05 | 0.86   |
| Q109 | 0.08        | <b>0.41</b> | -0.06       | -0.04       | -0.02       | -0.03       | 0.00        | -0.07       | 0.02        | -0.06 | 0.00  | -0.01 | -0.01 | 0.03  | 0.86   |
| Q14  | -0.00       | 0.07        | <b>0.36</b> | 0.11        | 0.05        | -0.06       | -0.03       | -0.02       | -0.03       | 0.06  | -0.14 | -0.01 | 0.05  | -0.01 | 0.70   |
| Q25  | -0.01       | -0.06       | <b>0.48</b> | -0.02       | 0.01        | 0.01        | -0.01       | 0.00        | 0.04        | 0.00  | 0.02  | -0.02 | 0.00  | 0.00  | 0.96   |
| Q26  | -0.00       | 0.07        | <b>0.36</b> | 0.14        | 0.01        | -0.05       | 0.00        | -0.03       | -0.04       | 0.03  | -0.11 | -0.00 | 0.01  | 0.02  | 0.73   |
| Q46  | -0.02       | 0.07        | <b>0.47</b> | -0.07       | 0.05        | 0.01        | 0.01        | -0.04       | 0.04        | 0.02  | -0.05 | -0.02 | 0.04  | -0.07 | 0.88   |
| Q54  | -0.03       | -0.00       | <b>0.54</b> | 0.02        | 0.00        | 0.01        | 0.00        | 0.05        | -0.03       | -0.02 | 0.03  | -0.02 | 0.01  | -0.01 | 0.96   |
| Q60  | 0.05        | -0.10       | <b>0.51</b> | -0.03       | -0.01       | 0.01        | 0.02        | -0.00       | 0.02        | -0.02 | 0.05  | -0.00 | -0.03 | 0.05  | 0.91   |
| Q92  | 0.07        | -0.09       | <b>0.53</b> | -0.04       | -0.05       | 0.06        | 0.00        | 0.00        | 0.01        | -0.01 | 0.08  | -0.00 | -0.04 | 0.01  | 0.89   |
| Q98  | 0.01        | -0.01       | <b>0.55</b> | -0.06       | -0.01       | 0.02        | 0.00        | -0.02       | -0.00       | -0.04 | 0.07  | 0.01  | -0.00 | -0.02 | 0.95   |
| Q101 | 0.02        | 0.01        | <b>0.48</b> | 0.04        | -0.05       | -0.02       | 0.00        | -0.03       | 0.00        | -0.02 | 0.02  | 0.02  | -0.02 | 0.01  | 0.96   |
| Q123 | -0.07       | 0.03        | <b>0.37</b> | -0.08       | -0.00       | -0.00       | -0.01       | 0.09        | -0.02       | 0.00  | 0.02  | 0.07  | -0.01 | 0.02  | 0.81   |
| Q12  | -0.01       | -0.03       | 0.04        | <b>0.41</b> | 0.08        | -0.04       | 0.01        | -0.00       | 0.02        | 0.09  | -0.11 | 0.04  | -0.03 | 0.04  | 0.80   |
| Q15  | 0.02        | 0.06        | 0.11        | <b>0.38</b> | -0.04       | -0.03       | -0.03       | -0.03       | -0.03       | 0.08  | -0.09 | 0.07  | -0.04 | 0.03  | 0.74   |
| Q35  | 0.07        | 0.05        | 0.00        | <b>0.38</b> | -0.03       | 0.02        | 0.04        | 0.01        | -0.02       | -0.02 | -0.05 | -0.07 | 0.02  | -0.01 | 0.86   |
| Q40  | 0.02        | 0.01        | -0.03       | <b>0.43</b> | -0.08       | -0.02       | 0.00        | 0.03        | -0.03       | 0.03  | 0.02  | -0.00 | -0.02 | -0.02 | 0.93   |
| Q66  | 0.00        | -0.00       | -0.08       | <b>0.40</b> | 0.04        | 0.02        | -0.00       | -0.01       | 0.00        | -0.04 | 0.07  | 0.05  | -0.03 | -0.02 | 0.88   |
| Q69  | -0.00       | -0.02       | -0.04       | <b>0.53</b> | 0.01        | 0.05        | -0.00       | -0.02       | 0.01        | -0.03 | 0.00  | -0.00 | -0.01 | -0.05 | 0.96   |
| Q78  | -0.00       | 0.00        | -0.03       | <b>0.53</b> | -0.03       | -0.00       | -0.00       | 0.00        | 0.00        | 0.01  | 0.03  | -0.00 | -0.06 | 0.02  | 0.97   |
| Q97  | -0.06       | -0.03       | 0.08        | <b>0.39</b> | 0.03        | -0.01       | -0.00       | 0.01        | -0.01       | -0.10 | 0.07  | 0.01  | 0.09  | -0.02 | 0.79   |
| Q110 | -0.04       | -0.03       | -0.06       | <b>0.45</b> | 0.01        | 0.01        | -0.01       | 0.01        | 0.05        | -0.01 | 0.04  | -0.10 | 0.10  | 0.03  | 0.85   |
| Q13  | 0.06        | 0.00        | 0.04        | -0.00       | <b>0.49</b> | -0.07       | 0.00        | -0.06       | -0.03       | 0.00  | -0.04 | 0.00  | 0.01  | -0.03 | 0.92   |
| Q21  | -0.02       | 0.01        | -0.02       | -0.03       | <b>0.54</b> | -0.07       | -0.02       | 0.00        | 0.00        | 0.00  | 0.01  | -0.01 | -0.08 | 0.03  | 0.94   |
| Q30  | -0.03       | -0.05       | 0.01        | 0.08        | <b>0.30</b> | -0.01       | -0.03       | 0.01        | 0.03        | -0.06 | 0.05  | -0.01 | 0.01  | 0.02  | 0.80   |
| Q65  | 0.05        | 0.01        | -0.01       | -0.02       | <b>0.50</b> | -0.01       | 0.02        | -0.03       | -0.01       | -0.00 | 0.03  | 0.01  | 0.01  | -0.02 | 0.97   |
| Q70  | -0.01       | 0.00        | -0.04       | 0.06        | <b>0.46</b> | -0.11       | 0.04        | 0.04        | 0.05        | 0.07  | -0.05 | -0.04 | -0.03 | 0.06  | 0.84   |
| Q107 | 0.06        | -0.00       | -0.03       | -0.01       | <b>0.45</b> | -0.05       | 0.05        | 0.01        | -0.04       | 0.03  | -0.01 | 0.04  | -0.04 | 0.00  | 0.91   |
| Q2   | -0.10       | 0.00        | 0.05        | -0.07       | 0.14        | <b>0.34</b> | -0.06       | 0.01        | -0.00       | -0.04 | 0.00  | 0.01  | 0.11  | -0.06 | 0.76   |
| Q17  | -0.02       | 0.02        | -0.04       | -0.04       | -0.01       | <b>0.30</b> | 0.01        | 0.03        | -0.06       | 0.04  | 0.03  | -0.03 | -0.06 | 0.02  | 0.81   |
| Q19  | -0.00       | 0.07        | 0.02        | -0.01       | 0.01        | <b>0.40</b> | -0.02       | -0.10       | 0.03        | -0.01 | -0.04 | 0.05  | 0.02  | -0.08 | 0.83   |
| Q48  | -0.07       | 0.03        | 0.00        | 0.02        | -0.01       | <b>0.29</b> | 0.00        | -0.06       | 0.05        | -0.02 | -0.00 | 0.03  | -0.01 | 0.00  | 0.84   |
| Q61  | -0.02       | -0.01       | 0.02        | -0.03       | 0.00        | <b>0.34</b> | 0.03        | 0.09        | -0.07       | 0.03  | -0.03 | -0.03 | 0.02  | 0.01  | 0.83   |
| Q68  | 0.11        | -0.14       | 0.02        | 0.03        | 0.01        | <b>0.39</b> | 0.07        | -0.01       | 0.04        | -0.00 | -0.03 | -0.00 | 0.00  | -0.03 | 0.77   |
| Q95  | 0.00        | -0.04       | -0.02       | -0.02       | 0.02        | <b>0.35</b> | 0.02        | 0.07        | 0.00        | 0.00  | -0.01 | -0.04 | -0.00 | 0.01  | 0.91   |
| Q96  | -0.04       | -0.01       | -0.02       | -0.00       | 0.00        | <b>0.38</b> | -0.04       | 0.02        | -0.03       | -0.03 | 0.02  | 0.03  | 0.04  | -0.02 | 0.92   |
| Q113 | 0.03        | 0.03        | -0.03       | 0.04        | -0.09       | <b>0.37</b> | 0.03        | 0.01        | 0.00        | 0.00  | 0.04  | -0.04 | -0.03 | 0.04  | 0.85   |
| Q122 | 0.11        | 0.04        | -0.00       | 0.10        | -0.07       | <b>0.31</b> | -0.04       | -0.06       | 0.03        | 0.03  | 0.02  | 0.02  | -0.10 | 0.09  | 0.62   |
| Q8   | 0.07        | -0.01       | 0.03        | -0.02       | 0.00        | 0.00        | <b>0.46</b> | -0.13       | 0.05        | 0.00  | -0.05 | -0.03 | 0.10  | -0.03 | 0.83   |
| Q18  | -0.00       | -0.04       | -0.04       | -0.00       | -0.01       | -0.02       | <b>0.39</b> | 0.05        | 0.01        | 0.19  | 0.00  | -0.00 | -0.07 | -0.03 | 0.75   |
| Q37  | 0.02        | 0.04        | 0.05        | -0.00       | -0.02       | 0.01        | <b>0.44</b> | -0.02       | -0.05       | 0.00  | -0.05 | 0.06  | -0.00 | -0.06 | 0.90   |
| Q38  | -0.05       | -0.00       | 0.03        | 0.02        | -0.02       | -0.05       | <b>0.53</b> | 0.00        | -0.00       | 0.03  | -0.04 | 0.03  | -0.08 | 0.05  | 0.92   |
| Q55  | -0.00       | 0.06        | -0.04       | -0.03       | 0.02        | 0.00        | <b>0.49</b> | 0.02        | 0.01        | -0.09 | 0.03  | -0.01 | 0.02  | -0.01 | 0.92   |
| Q100 | -0.00       | 0.00        | -0.02       | -0.04       | 0.01        | 0.01        | <b>0.53</b> | 0.09        | -0.01       | -0.08 | 0.06  | -0.04 | -0.01 | 0.01  | 0.91   |
| Q108 | -0.02       | -0.04       | -0.01       | 0.08        | 0.03        | 0.04        | <b>0.43</b> | -0.02       | -0.01       | -0.05 | 0.05  | -0.00 | 0.04  | 0.08  | 0.86   |
| Q28  | -0.13       | -0.02       | 0.00        | 0.03        | 0.12        | -0.00       | 0.07        | <b>0.49</b> | -0.09       | -0.03 | -0.02 | -0.05 | 0.01  | -0.00 | 0.82   |
| Q33  | -0.12       | 0.04        | -0.05       | 0.01        | -0.00       | -0.01       | -0.01       | <b>0.43</b> | -0.08       | 0.10  | 0.10  | 0.03  | -0.03 | 0.00  | 0.78   |
| Q34  | -0.01       | 0.01        | -0.03       | -0.01       | -0.03       | 0.01        | 0.02        | <b>0.46</b> | -0.05       | -0.01 | 0.06  | 0.02  | -0.01 | 0.02  | 0.94   |
| Q39  | 0.13        | -0.01       | -0.04       | -0.00       | -0.00       | -0.05       | 0.04        | <b>0.31</b> | -0.01       | 0.01  | -0.02 | -0.02 | -0.02 | 0.04  | 0.76   |
| Q43  | 0.07        | -0.03       | 0.04        | -0.02       | -0.02       | 0.06        | -0.02       | <b>0.45</b> | -0.04       | -0.01 | -0.01 | -0.02 | -0.00 | -0.02 | 0.92   |
| Q59  | -0.08       | 0.10        | -0.02       | 0.03        | 0.04        | -0.05       | -0.02       | <b>0.38</b> | -0.10       | -0.01 | -0.04 | 0.00  | 0.07  | 0.01  | 0.75   |
| Q64  | 0.13        | -0.01       | -0.04       | -0.01       | 0.01        | -0.09       | 0.00        | <b>0.29</b> | -0.06       | 0.03  | -0.01 | -0.01 | -0.01 | 0.05  | 0.69   |
| Q75  | 0.00        | -0.04       | 0.08        | -0.00       | 0.02        | 0.03        | -0.04       | <b>0.41</b> | -0.05       | -0.01 | -0.00 | 0.05  | -0.03 | -0.00 | 0.89   |
| Q88  | 0.11        | -0.02       | 0.00        | 0.01        | 0.02        | 0.02        | -0.03       | <b>0.27</b> | 0.02        | -0.00 | -0.04 | 0.03  | 0.01  | -0.03 | 0.77   |
| Q41  | -0.09       | -0.02       | 0.05        | -0.02       | -0.17       | 0.09        | -0.00       | 0.22        | <b>0.48</b> | -0.06 | 0.02  | -0.03 | 0.02  | -0.06 | 0.81   |

|      |       |       |       |       |       |       |       |       |             |             |             |             |             |             |      |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------------|-------------|-------------|-------------|-------------|-------------|------|
| Q52  | 0.02  | 0.01  | -0.02 | -0.01 | 0.13  | -0.04 | -0.04 | -0.02 | <b>0.48</b> | -0.08       | 0.04        | -0.01       | 0.05        | 0.01        | 0.87 |
| Q57  | -0.04 | 0.03  | -0.01 | 0.01  | -0.02 | -0.02 | 0.02  | 0.00  | <b>0.54</b> | -0.08       | -0.04       | 0.02        | 0.10        | 0.00        | 0.92 |
| Q86  | 0.09  | 0.01  | -0.02 | 0.00  | 0.07  | -0.07 | -0.02 | -0.07 | <b>0.50</b> | -0.12       | -0.00       | -0.00       | 0.00        | 0.04        | 0.85 |
| Q10  | 0.02  | -0.02 | 0.01  | 0.03  | -0.00 | 0.04  | 0.04  | -0.13 | 0.31        | <b>0.36</b> | -0.01       | 0.02        | -0.18       | -0.00       | 0.79 |
| Q11  | 0.02  | 0.12  | 0.02  | 0.02  | 0.04  | -0.02 | 0.02  | -0.04 | -0.05       | <b>0.42</b> | -0.10       | -0.05       | 0.00        | 0.01        | 0.81 |
| Q27  | 0.04  | -0.02 | 0.05  | -0.08 | -0.04 | 0.01  | 0.00  | -0.02 | 0.03        | <b>0.48</b> | -0.00       | -0.01       | 0.01        | -0.03       | 0.92 |
| Q31  | -0.02 | -0.05 | 0.00  | -0.01 | -0.07 | 0.01  | -0.06 | 0.07  | -0.04       | <b>0.40</b> | -0.02       | -0.00       | 0.13        | 0.03        | 0.79 |
| Q44  | -0.09 | -0.02 | 0.00  | 0.13  | 0.02  | 0.00  | 0.00  | 0.15  | -0.02       | <b>0.25</b> | 0.02        | 0.01        | -0.09       | 0.00        | 0.51 |
| Q74  | -0.00 | -0.04 | -0.00 | -0.03 | -0.04 | 0.09  | 0.02  | 0.04  | -0.02       | <b>0.42</b> | 0.07        | 0.00        | -0.10       | 0.01        | 0.84 |
| Q81  | 0.00  | 0.01  | -0.07 | -0.02 | 0.09  | -0.11 | 0.05  | -0.01 | -0.09       | <b>0.41</b> | 0.01        | 0.03        | -0.00       | 0.04        | 0.79 |
| Q89  | 0.00  | -0.04 | -0.03 | -0.05 | -0.04 | -0.00 | -0.02 | -0.00 | -0.04       | <b>0.37</b> | 0.00        | 0.00        | 0.25        | -0.03       | 0.63 |
| Q91  | 0.04  | 0.04  | 0.01  | 0.01  | 0.00  | -0.06 | -0.02 | -0.09 | -0.03       | <b>0.45</b> | -0.00       | -0.03       | -0.00       | 0.00        | 0.91 |
| Q114 | -0.03 | 0.02  | 0.01  | 0.01  | 0.04  | 0.03  | -0.03 | 0.03  | -0.01       | <b>0.26</b> | 0.03        | 0.02        | -0.01       | -0.04       | 0.86 |
| Q1   | 0.02  | 0.00  | -0.07 | 0.04  | 0.02  | -0.00 | -0.22 | -0.03 | 0.00        | 0.01        | <b>0.26</b> | -0.01       | 0.02        | 0.14        | 0.46 |
| Q24  | -0.02 | 0.06  | -0.01 | -0.06 | 0.02  | -0.06 | 0.09  | -0.03 | 0.04        | -0.02       | <b>0.34</b> | 0.01        | 0.00        | 0.05        | 0.79 |
| Q32  | -0.03 | 0.03  | 0.04  | 0.04  | -0.00 | -0.04 | 0.02  | 0.04  | -0.02       | 0.03        | <b>0.30</b> | -0.07       | -0.00       | 0.02        | 0.83 |
| Q53  | -0.04 | -0.04 | -0.01 | -0.04 | -0.01 | -0.00 | -0.01 | 0.05  | 0.05        | 0.10        | <b>0.38</b> | 0.03        | -0.01       | -0.04       | 0.84 |
| Q77  | 0.01  | 0.07  | -0.07 | 0.03  | 0.00  | -0.03 | 0.06  | -0.01 | -0.02       | 0.01        | <b>0.40</b> | -0.04       | 0.05        | -0.02       | 0.86 |
| Q93  | -0.02 | 0.00  | -0.04 | -0.00 | 0.00  | 0.06  | -0.00 | 0.02  | -0.01       | -0.12       | <b>0.37</b> | 0.02        | 0.05        | 0.00        | 0.83 |
| Q99  | 0.05  | -0.00 | 0.06  | -0.05 | -0.04 | 0.05  | -0.01 | -0.03 | -0.01       | -0.05       | <b>0.50</b> | -0.01       | 0.01        | -0.07       | 0.90 |
| Q102 | 0.00  | -0.09 | 0.06  | 0.00  | 0.01  | 0.01  | 0.05  | 0.00  | 0.00        | -0.01       | <b>0.41</b> | 0.02        | -0.06       | -0.03       | 0.88 |
| Q112 | 0.03  | -0.04 | 0.05  | 0.03  | -0.00 | 0.01  | 0.02  | -0.01 | -0.02       | 0.05        | <b>0.36</b> | 0.05        | -0.07       | -0.05       | 0.85 |
| Q3   | -0.06 | -0.01 | -0.04 | -0.03 | -0.05 | -0.02 | 0.01  | 0.07  | 0.01        | -0.00       | -0.00       | <b>0.39</b> | 0.05        | -0.02       | 0.89 |
| Q5   | 0.02  | 0.04  | 0.00  | -0.01 | 0.00  | 0.00  | -0.08 | 0.04  | 0.00        | 0.03        | -0.07       | <b>0.34</b> | -0.04       | 0.05        | 0.83 |
| Q9   | 0.01  | 0.01  | -0.03 | -0.00 | 0.00  | -0.04 | -0.01 | -0.08 | 0.05        | -0.00       | -0.01       | <b>0.38</b> | 0.06        | 0.01        | 0.88 |
| Q16  | -0.01 | 0.00  | 0.01  | 0.09  | 0.02  | -0.00 | 0.04  | -0.02 | -0.03       | -0.02       | -0.06       | <b>0.37</b> | 0.03        | 0.00        | 0.87 |
| Q58  | -0.04 | 0.03  | 0.03  | -0.04 | 0.03  | -0.03 | 0.12  | -0.05 | 0.00        | 0.00        | -0.04       | <b>0.36</b> | -0.00       | 0.10        | 0.77 |
| Q72  | 0.05  | -0.05 | 0.04  | -0.05 | -0.04 | 0.05  | 0.02  | -0.00 | -0.04       | -0.02       | 0.07        | <b>0.39</b> | -0.00       | -0.05       | 0.85 |
| Q84  | 0.02  | -0.01 | -0.01 | 0.00  | -0.05 | 0.06  | -0.03 | 0.02  | -0.02       | 0.00        | 0.06        | <b>0.44</b> | -0.02       | -0.07       | 0.90 |
| Q87  | 0.11  | 0.06  | 0.01  | 0.00  | 0.04  | -0.03 | -0.03 | -0.05 | 0.06        | 0.01        | -0.06       | <b>0.26</b> | 0.00        | 0.00        | 0.67 |
| Q94  | 0.01  | -0.02 | 0.02  | 0.00  | 0.00  | 0.02  | 0.00  | 0.03  | -0.05       | 0.02        | 0.06        | <b>0.41</b> | -0.08       | -0.02       | 0.89 |
| Q118 | -0.11 | -0.04 | -0.03 | 0.01  | 0.02  | -0.01 | -0.03 | 0.07  | 0.01        | -0.03       | 0.07        | <b>0.42</b> | 0.01        | 0.02        | 0.84 |
| Q7   | 0.09  | -0.00 | 0.04  | 0.00  | 0.01  | -0.04 | -0.03 | -0.07 | -0.00       | 0.01        | -0.07       | 0.08        | <b>0.34</b> | -0.03       | 0.77 |
| Q23  | 0.02  | 0.08  | 0.03  | 0.04  | 0.07  | 0.01  | 0.02  | -0.07 | 0.02        | -0.11       | -0.00       | -0.10       | <b>0.31</b> | 0.06        | 0.65 |
| Q45  | -0.04 | -0.01 | 0.06  | -0.03 | -0.17 | 0.06  | 0.02  | 0.10  | -0.00       | -0.04       | 0.03        | -0.01       | <b>0.42</b> | -0.04       | 0.76 |
| Q51  | 0.02  | -0.00 | 0.01  | -0.03 | -0.16 | 0.12  | -0.02 | 0.01  | -0.04       | 0.03        | -0.02       | -0.03       | <b>0.39</b> | 0.04        | 0.75 |
| Q82  | 0.03  | 0.00  | -0.00 | -0.00 | 0.04  | -0.00 | -0.00 | -0.03 | 0.00        | 0.09        | -0.04       | -0.00       | <b>0.47</b> | -0.03       | 0.92 |
| Q83  | -0.01 | 0.00  | -0.01 | -0.02 | 0.12  | -0.08 | -0.02 | -0.02 | 0.05        | 0.01        | -0.04       | 0.05        | <b>0.44</b> | -0.04       | 0.85 |
| Q90  | -0.05 | -0.04 | -0.01 | 0.01  | -0.02 | -0.02 | -0.00 | 0.11  | 0.01        | 0.09        | 0.02        | 0.06        | <b>0.39</b> | -0.05       | 0.81 |
| Q104 | 0.03  | -0.00 | -0.08 | 0.01  | 0.06  | 0.00  | 0.04  | -0.03 | 0.03        | -0.09       | 0.07        | 0.02        | <b>0.42</b> | -0.00       | 0.84 |
| Q115 | -0.04 | -0.02 | -0.00 | 0.04  | 0.02  | 0.01  | 0.01  | 0.02  | -0.05       | 0.00        | -0.00       | -0.03       | <b>0.54</b> | 0.02        | 0.96 |
| Q116 | -0.03 | 0.01  | -0.01 | -0.03 | 0.01  | -0.07 | -0.00 | -0.00 | -0.02       | 0.00        | 0.06        | -0.04       | <b>0.46</b> | 0.07        | 0.91 |
| Q20  | 0.01  | 0.00  | -0.02 | -0.02 | -0.01 | -0.08 | 0.04  | 0.02  | -0.02       | -0.02       | 0.02        | 0.05        | 0.05        | <b>0.44</b> | 0.90 |
| Q29  | -0.04 | -0.00 | -0.05 | -0.07 | -0.03 | -0.01 | 0.03  | 0.15  | -0.02       | 0.01        | 0.06        | 0.02        | -0.11       | <b>0.37</b> | 0.71 |
| Q62  | 0.01  | -0.02 | 0.02  | -0.09 | 0.09  | 0.09  | 0.01  | -0.03 | -0.06       | -0.01       | -0.04       | 0.02        | 0.06        | <b>0.26</b> | 0.64 |
| Q73  | 0.05  | -0.03 | 0.05  | 0.00  | 0.01  | -0.00 | -0.02 | -0.02 | -0.01       | 0.01        | 0.04        | 0.06        | -0.08       | <b>0.43</b> | 0.89 |
| Q80  | -0.07 | 0.01  | -0.03 | 0.00  | -0.00 | -0.07 | 0.01  | 0.04  | 0.01        | -0.01       | -0.01       | 0.01        | 0.00        | <b>0.43</b> | 0.92 |
| Q85  | 0.01  | -0.03 | 0.00  | 0.03  | -0.01 | -0.01 | 0.06  | -0.10 | 0.08        | -0.01       | -0.01       | -0.04       | 0.01        | <b>0.37</b> | 0.83 |
| Q117 | -0.03 | 0.03  | -0.00 | 0.11  | 0.06  | -0.07 | -0.26 | -0.04 | -0.01       | 0.00        | 0.04        | 0.06        | -0.00       | <b>0.41</b> | 0.62 |
| Q120 | 0.03  | 0.04  | 0.00  | 0.00  | 0.01  | 0.05  | 0.06  | -0.03 | 0.02        | 0.00        | -0.06       | -0.14       | -0.00       | <b>0.32</b> | 0.72 |
| Q121 | 0.06  | 0.00  | 0.02  | 0.01  | -0.10 | 0.00  | 0.03  | 0.00  | 0.03        | -0.02       | -0.03       | -0.01       | 0.10        | <b>0.37</b> | 0.81 |
| Q124 | -0.05 | -0.00 | 0.00  | 0.01  | -0.00 | 0.10  | 0.02  | 0.00  | -0.01       | 0.04        | 0.00        | -0.03       | -0.03       | <b>0.29</b> | 0.81 |

Factor Correlation Matrix

Factor Fit

|    |       |       |       |       |       |       |       |       |       |      |       |       |      |      |  |      |
|----|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|-------|------|------|--|------|
| 1  | 1.00  |       |       |       |       |       |       |       |       |      |       |       |      |      |  | 0.77 |
| 2  | 0.63  | 1.00  |       |       |       |       |       |       |       |      |       |       |      |      |  | 0.87 |
| 3  | 0.36  | 0.59  | 1.00  |       |       |       |       |       |       |      |       |       |      |      |  | 0.90 |
| 4  | 0.40  | 0.58  | 0.59  | 1.00  |       |       |       |       |       |      |       |       |      |      |  | 0.88 |
| 5  | 0.35  | 0.35  | 0.28  | 0.49  | 1.00  |       |       |       |       |      |       |       |      |      |  | 0.81 |
| 6  | -0.77 | -0.51 | -0.30 | -0.27 | -0.21 | 1.00  |       |       |       |      |       |       |      |      |  | 0.82 |
| 7  | 0.59  | 0.43  | 0.23  | 0.32  | 0.37  | -0.38 | 1.00  |       |       |      |       |       |      |      |  | 0.85 |
| 8  | 0.76  | 0.60  | 0.42  | 0.42  | 0.35  | -0.71 | 0.49  | 1.00  |       |      |       |       |      |      |  | 0.82 |
| 9  | 0.55  | 0.54  | 0.31  | 0.43  | 0.27  | -0.36 | 0.43  | 0.53  | 1.00  |      |       |       |      |      |  | 0.85 |
| 10 | 0.14  | 0.42  | 0.37  | 0.45  | 0.18  | -0.04 | 0.13  | 0.26  | 0.45  | 1.00 |       |       |      |      |  | 0.85 |
| 11 | 0.25  | 0.52  | 0.57  | 0.49  | 0.27  | -0.23 | 0.18  | 0.46  | 0.34  | 0.61 | 1.00  |       |      |      |  | 0.79 |
| 12 | 0.78  | 0.62  | 0.48  | 0.45  | 0.36  | -0.64 | 0.57  | 0.70  | 0.53  | 0.22 | 0.35  | 1.00  |      |      |  | 0.87 |
| 13 | 0.33  | 0.36  | 0.14  | 0.10  | -0.06 | -0.18 | 0.35  | 0.27  | 0.47  | 0.38 | 0.18  | 0.37  | 1.00 |      |  | 0.83 |
| 14 | -0.55 | -0.32 | -0.31 | -0.31 | -0.33 | 0.69  | -0.37 | -0.45 | -0.23 | 0.02 | -0.14 | -0.52 | 0.12 | 1.00 |  | 0.86 |

## **Appendix M: Further papers arising from this study**

The present study was undertaken to explore the Schema Modes Inventory (SMI) with a particular focus on its viability for use with patients presenting with psychosis. This reflects an interest in examining the potential usefulness of schema focused therapy for people with psychosis as well as operationally defining the Schema Mode Domain. The study that was carried out is substantially broader than the study reported and has involved a wide range of analyses that, for brevity, were excluded. In this appendix we briefly outline analyses carried out that we envisage will result in a further three publications in peer-reviewed journals.

### **1.      *Development of a short screening form of SMI to screen patients***

The 124-item version of the SMI is rather long for a screening device. This is particularly true when assessing patients with attention deficits. A short 70-item form of the SMI based upon the current Irish sample has been developed in which each mode score is based upon the summation of 5 indicative items. A random split sample procedure was utilised in order to validate the new measures. Psychometric properties were acceptable and the construct validity of the short-form was clearly established.

*Target Journal – Behavioural and Cognitive Psychotherapy*

### **2.      *An Investigation of the Bi-Factor model of the CAPE***

The construct validity of the CAPE is examined using a Structural Equation Modeling approach. The hierarchical relationship of the three primary factors is explored by testing a Bi-Factor model. The general *g* factor is clearly demonstrated which validates the use of a total score in addition to the three primaries. *Target Journal – European Journal of Psychological Assessment.*

### **3.      *Development of a hierarchical model of schema modes***

The SMI identifies 14 independent schema modes, but it is apparent that these are all differentially associated. The mapping domain revealed in the current study using Proxscal analysis suggests a higher order structure. Using a structural equation model informed by the two-dimensional MDS solution, a higher order model of schema modality is identified. A two-factor model explains a significant amount of the common variance and suggests potential utility for the SMI as a diagnostic tool in a clinical forensic context. *Target Journal – Journal of Forensic Psychiatry and Psychology.*

## **Appendix N: Prologue – Motivation behind the research**

A review of the literature took place while developing the research questions for this study. The literature reviewed helped the researchers formulate hypotheses concerning the different likely modes which could be present for people with psychosis.

### **Development of Modes**

The literature pertaining to the prevalence of trauma during childhood demonstrates certain commonalities between the aetiology of BPD and psychosis. Thus, it is possible that EMS and modes exist in both presentations. Additionally, EMS are formed when a child's core emotional needs are not met. According to Gilbert (1987) as cited by Rhodes and Jakes (2000), psychological distress is a result of unmet fundamental human needs. Based on their qualitative research Rhodes and Jakes (2000) hypothesised that persecutory delusions, common with psychosis, stem from the unmet need for connection. They further explained that delusions may therefore be an expression of feeling like an outsider due to this unmet fundamental need. It is akin to the EMS social isolation which when triggered results in the person feeling different and like they do not belong (Young et al. 2003).

### Child Modes

#### *Vulnerable Child Mode*

People with psychosis have reported experiencing fear and isolation. Boevink and Corstens (2013) in their personal reflection of experiencing psychosis refer to the “damaged child inside” experiencing fear, shame and grief. In ST, the Vulnerable Child Mode is characterised by feelings of fear, loneliness and emptiness (Young et al. 2003). When core emotional needs such as love, safety, nurturance, and validation are obstructed, often through neglect or abuse, the vulnerable child mode develops. It is possible that individuals with psychosis develop similar concepts when experiencing an obstruction of needs in childhood. Given this, it is predicted that vulnerable child mode will be present in the mode model for psychosis.

#### *Angry Child Mode*

Angry Child is characterised by intense feelings of anger and frustration due to core needs going unmet (Arntz & Jacob, 2017). In this way, the EMS associated with angry child are often the same as Vulnerable Child. According to Young et al. (2003) angry

child mode often develops in response to the unmet needs of the Vulnerable Child. Thus it is possible that Angry Child is secondary to the Vulnerable Child's distress due to feeling disempowered or controlled in situations. This concept is supported in the literature which suggests that disempowerment is a core experience of trauma (Herman, 2015; Van der Kolk, 2015). Based on the existing literature on the association between trauma and the development of psychosis, it is predicted that Angry Child will be present in the mode model for psychosis.

#### *Enraged Child Mode*

Enraged child, similar to angry child is characterised by intense experiences of anger and rage but which can result in uncontrolled aggression (Arntz & Jacob, 2017). The aim of the aggression is to destroy the perpetrator. The enraged child is angry because core emotional needs are not being met. According to Fazel, Wolf, Palm and Lichtenstein (2014) the rates of violence are higher in people experiencing psychosis when compared to the general population. Likewise, Arseneaul, Moffitt, Caspi, Taylor and Silva (2000) and Walsh et al. (2004) suggested rates of violence are also higher with psychosis when compared to other psychiatric disorders. Possible risk factors of increased violence included excessive perceptions of threat (Arseneaul et al. 2000), a history of violence and substance misuse (Walsh et al. 2004). Nolan, Shope, Citrome and Volavka (2009) explored staff and patient views of the reasons for aggressive behaviour on a psychiatric ward. They found that staff tended to attribute aggression to psychotic symptoms and increased tension. In contrast, patients tended to report interpersonal conflict (e.g. requests denied by staff, teased by other patients) as the main reason for aggression. It is possible that interpersonal conflict triggers a patient's enraged child as they perceive that their needs are not being met on the ward.

#### *Impulsive Child*

A person in Impulsive Child Mode may act on non-core desires impulsively without thinking of others or the potential consequences (van Genderen, Rijkeboer & Arntz, 2012). Others may perceive the person as selfish or uncontrolled (Arntz & Jacob, 2017). According to Young et al. (2003) this mode originates from having a lack of discipline or limit setting in childhood. It is possible that Impulsive Child Mode occurs in protest against the frustration of needs. Questions remain about the possible relationship between psychosis and impulsivity. Rubia et al. (2001) argued that

impaired inhibition is uncommon and found no difference in motor response inhibition in men with psychosis when compared to healthy controls. Enticott, Ogloff and Bradshaw (2008) explored response inhibition and impulsivity in psychosis. Participants completed a self-report measure on impulsivity and a stop task to assess reaction time and speed of inhibitory processes. They found that people with psychosis have slower inhibitory processes when compared to a control group, but that slower processes were not associated with self-reported impulsivity. This may suggest a looser coupling of these processes in psychosis, compared to others. While the literature is unclear regarding the relationship between impulsivity and psychosis, it is possible that Impulsive Child Mode could emerge in the mode profile for psychosis.

### Maladaptive Coping Modes

In ST coping modes are the child's attempts to survive in an environment where their emotional needs are either inadequately, not being met (Young et al., 2003). These coping modes are akin to the old survival strategies of Flight, Fight, and Freeze. The Detached Protector Mode will protect the individual's Vulnerable Child Mode by disconnecting and avoiding from emotional distress. Young et al. (2003) reported that the coping modes serve a protective function in childhood but later become maladaptive in adulthood. Research on subjective experiences of paranoia with psychosis indicated similar coping mechanisms. According to Campbell and Morrison (2007) paranoia could be a defence mechanism which aims to keep the person from harm (i.e. being hurt by others). Children who experienced abuse from an attachment figure may become distrustful of others (Hughes, 2012). Hypervigilance taking the form of paranoia may function as a defence mechanism by alerting the person to potential harmful others. While it may benefit the person in this regard, it becomes maladaptive as it fuels anxiety and reduces quality of life and functioning (Campbell & Morrison, 2007). According to Morrison, Renton, French and Bentall (2009) delusional beliefs are rarely arbitrary but are somehow relevant to the person's life experience. It is predicted that Maladaptive Coping Modes which account for psychotic symptoms such as paranoia and avoidance will be present in the mode model for psychosis.

### Dysfunctional Parent Modes

ST includes the presence of Dysfunctional Parent Modes. A Dysfunctional Parent Mode is characterised by feelings of self-loathing and guilt (Arntz & Jacob, 2017). The Demanding Parent Mode frequently places undue pressure on the person to achieve across different domains. The Punitive Parent Mode is a person's internal critical voice which typically takes on the voice of a parent or teacher who criticised them as a child (Arntz & Jacob, 2017). According to Turner, Bernard, Birchwood, Jackson and Jones (2013), a person living with psychosis can experience internal shame due to negative evaluations of the self. People experiencing psychosis can internalise perceived prejudice from others and stigma surrounding mental health disorders (Corrigan & Watson, 2002). This can result in negative self-talk or self-criticism. Furthermore, a family's distress and cognitive representations of psychosis is strongly associated with criticism and negative emotional attitudes towards the unwell family member (Domínguez-Martínez, Medina-Pradas, Kwapił, & Barrantes-Vidal, 2017). Adverse shaming experiences or hostile criticism from attachment figures appear to have a fundamental role in the development of paranoid ideation in adults and adolescents (Carvalho, Sousa, da Motta & Cabral, 2019; Hutton, Kelly, Lowens, Taylor & Tai, 2013). According to Carvalho et al. (2019), external shame and self-criticism are risk factors for paranoid ideation. They observed that youth who internalised feelings of inferiority and weakness were at increased risk of mistrusting others which exacerbated paranoid ideation. Furthermore, self-criticism and shame can have been linked to the development of voice hearing (Gilbert et al., 2001). Given the association between self-criticism and psychosis it is predicted that the Dysfunctional Parent Modes will be present in the findings of this study.

### Healthy Adult Mode

According to Gilbert (2009) feelings of shame and being flawed result in difficulties feeling safe or content. With that in mind it is predicted that people with psychosis may have an underdeveloped Healthy Adult. The Healthy Adult Mode performs and enjoys routine adult functions and pleasurable activities (Arntz & Jacob, 2017). Research suggests that people with psychosis have difficulty engaging in healthy activities. For example, Buhagiar, Parsonage and Osborn (2011) in their study of physical health behaviours demonstrated that people with severe mental health disorders such as psychosis appear to place less priority on their physical health.

Additionally, Stouten, Veling, Laan, van der Helm and van der Gaag (2017) noted the link between psychosis and impaired psychosocial functioning. A prerequisite to the development of a strong Healthy Adult Mode is the fulfilment of core emotional needs in childhood (Jacob, van Genderen & Seebauer, 2011). These opportunities may be limited in a barren, emotionally invalidating or abuse environment.

### **Current research findings**

There is a large body of evidence suggesting that ST is effective both in terms of cost and treatment outcomes for complex and long-standing disorders such as BPD (Bamelis, Arntz, Wetzelaer, Verdoorn & Evers, 2015; de Klerk, Abma, Bamelis & Arntz, 2016; Farrell, Shaw & Webber 2009; Giesen-Bloo et al. 2006; Nadort et al. 2009). In addition, a systematic review examining the effectiveness of ST on schema change and mental health symptoms found that ST demonstrated initial significant results in reducing EMS and improving symptoms for personality disorders (Taylor, Bee & Haddock, 2017). The authors stated that there is a lack of rigorous evidence for the effectiveness of ST for other mental health disorders. Bamelis, Evers, Spinhoven and Arntz (2014) found that ST was more effective than treatment as usual (TAU) among clients with paranoid, histrionic and narcissistic personality disorders. Additionally, Bamelis et al. (2015) found that due to lower costs and higher clinical effects ST was more cost-effective when compared to TAU for clients with narcissistic, histrionic, obsessive-compulsive, paranoid and avoidant dependent PDs.

Whilst there has not been a lot of rigorous research carried out looking at the effectiveness of ST for other mental health disorders there has been research looking at EMS in different disorders. EMS have been identified in the following populations: sexual offenders (Richardson, 2005), substance abusers (Shorey, Stuart & Anderson, 2014), post-traumatic stress disorder (Cockram, Drummond & Lee, 2010). Research has also demonstrated the existence of schema modes in patients presenting with obsessive compulsive disorder (Thiel et al., 2014) and eating disorders (Talbot, Smith, Tomkins, Brockman, & Simpson, 2015)

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## **Appendix O: Research challenges**

The recruitment process presented challenges to the researcher. This may have been a result of gatekeeping. A gatekeeper is any person who can grant or deny access to research participants (Berg & Lune, 2004). Gatekeeping is a widely acknowledged problem across health care settings as it obstructs the development of evidence-based knowledge (Patterson, Mairs & Borschmann, 2011; White, Gilshenan, & Hardy, 2008). According to McFadyen and Rankin (2017) the level of understanding about the research and likely outcomes, problems in communication, clinician anxiety, and the beliefs held by a clinician are factors which influence gatekeeper engagement. A reluctance of clinicians to share information sheets with their patients was observed across teams during the recruitment process of the present study. On one occasion a multidisciplinary team declined a request to inform their patients as it was perceived as a possible burden for patients. Gatekeeping can result in potential participants being denied a choice to opt in to the research due to a tendency of gatekeepers approaching those they deem suitable rather than those who meet the inclusion criteria (Bucci et al. 2015). Patel et al. (2016) conducted an analysis of the proportion of patients with psychosis who are willing to take part in research. They contacted 5,787 adults with a diagnosis of a psychotic disorder. The authors found that approximately two-thirds of patients are willing to be contacted about research opportunities. The authors also observed that the patients contacted by clinicians tended to have better clinical outcomes. This suggests that clinicians are less likely to contact patients they perceive as presenting as unwell (Patel et al. 2016).

When conducting future research in this area, it is advisable to take action towards ensuring positive gatekeeping outcomes. According to McFayden and Rankin (2017) researchers should involve gatekeepers early in the research process, maintain open lines of communication and clearly inform them of the purpose of the study.

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