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**THINKING ABOUT REFLECTION:
AN INVESTIGATION OF METACOGNITION IN INDIVIDUALS WITH BORDERLINE
PERSONALITY DISORDER AND PSYCHOSIS**

Major Research Project & Clinical Research Portfolio

Part One

(Part two bound separately)

Elizabeth S. Reilly

Academic Unit for Mental Health and Wellbeing

University of Glasgow

Partial fulfilment of the requirements for the degree of

Doctor of Clinical Psychology

July 2011



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of Glasgow**

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Note: This portfolio has been formatted in line with submission guidelines for the *Journal of Personality Disorders* (see Appendix A).

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Celtic Twilight

“We can make our own minds so like still water that beings gather about us, that they may see, it may be: their own images, and so live for a moment with a clearer perhaps even with a fiercer life because of our quiet.”

W. B. Yeats

SYSTEMATIC REVIEW

Title: Adult Attachment Interviews with Individuals with Borderline Personality

Disorder: A Systematic Review

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Abstract

Background – Attachment theory has aided a psychodevelopmental conceptualisation of borderline personality disorder (BPD) and has informed therapeutic work. Related to this is the theory of mentalization which has further extended our understanding of BPD. A systematic review of Adult Attachment Interviews (AAI) of individuals with BPD was proposed. Method – Relevant papers were identified by searching electronic databases, hand searching key journals and contacting researchers. Results – 13 journals were identified using the AAI with a BPD group, 4 journals used the additional Reflective Function (RF) coding system and 1 journal used the Hostile-Helpless (HH) framework. Three-way, four-way and five-way analysis of AAI data were explored and compared to normative and clinical controls. Most individuals with BPD had insecure attachment states of mind, ‘preoccupied’ and ‘unresolved’ states were highly represented and these AAI’s differed significantly from normative and clinical groups. Prevalence of the sub-category ‘fearfully preoccupied’ and individuals who were ‘unresolved’ were so in relation to trauma as opposed to loss was noted. Reflective Function results found RF was relatively low in the BPD population. Discussion – Results are interpreted in the context of attachment and mentalization theories. Limitations of the research base and current review are discussed and future recommendations and clinical implications are offered.

Introduction

Developmental Pathways

There is a growing evidence base that provides a developmental, attachment based perspective on psychopathology and specifically, Borderline Personality Disorder (BPD) (for example, Levy, 2005; Fonagy et al., 1996). Given the intrinsic interpersonal nature of BPD symptoms, such as chaotic interpersonal relationships and emotional lability, attachment theory is well placed to act as a theoretical base and explanatory model of these complex difficulties. Attachment theory (Bowlby, 1969, 1973, 1980) is an evolutionarily grounded lifespan model (Main, Hesse, & Kaplan, 2005) which emphasises the importance of early caregiving relationships in the development of affect regulation, interpersonal functioning and adaptation to stressful life events.

Previous Reviews

There have been various reviews in this area which note a high prevalence of attachment insecurity and disorganisation in BPD (Argawal, Gunderson, Holmes & Lyons-Ruth, 2004; Levy, 2005; Bakersman-Kranenburg & van IJvendoorn, 2009). Argawal et al. (2004) conducted a review of interview or narrative based and self-report data on attachment in individuals with BPD and found there was a strong association between this disorder and insecure attachment. Levy (2005) reviewed adult attachment interview (AAI) findings within this population when commenting on the implications of attachment theory in the understanding of BPD. He remarked

on the dominance of attachment preoccupation and disorganisation. In their analysis of all AAI data, Bakermans-Kranenburg and van IJvendoorn (2009) presented BPD participants' AAI data with other clinical groups within an 'internalising' category, again noting the frequency of attachment insecurity.

Attachment Theory

Attachment theory provides an explanation of how the self-concept and self-regulation develops, typically and atypically. It proposes the relationship between child and caregiver influences the child's emerging 'Internal Working Models' (IWMs); the affective-cognitive schema of how he or she views him or herself and the social world. These shape expectations of oneself, emotional regulation and IWMs act as heuristics for future relationships. How the caregiver responds to the child is important and attachment is conceptualized in terms of security (Bowlby, 1969, 1973, 1980). In secure attachment the caregiver acts as a safe base from which the child can explore and return to should he or she feel threatened, reinforcing the infant's positive emotional experiences and assuaging negative affect.

In their seminal research using the Strange Situation Experiment (SST), Ainsworth, Blehar, Waters and Wall (1978) categorised infant attachment organisation. The SST examines infant attachment behaviour during increasing levels of stress resulting from separation and reunion of infant and caregiver. Using this methodology, the majority of infants are categorised as securely attached (Fox, Kimmerly & Schafer, 1991).

Attachment insecurity is subdivided into avoidant and ambivalent attachment states. Avoidant attachment classification is characterised by the child deactivating attachment behaviours which often occurs in reaction to a dismissive or inaccessible caregiver. Approximately 25% of infants use this attachment strategy (Fox, et al., 1991). In ambivalent attachment states the child over-activates the attachment system, becoming preoccupied with the attachment relationship, displaying distress at the caregiver's departure, yet not experiencing their reunion as soothing. This pattern usually occurs because of inconsistent interactions and has been found in 10% of infants (Fox, et al., 1991).

Finally, disorganised attachment involves conflicting approach and avoidance behaviours, often mirroring the caregiver's disorientated / disorientating and frightened / frightening manner. van IJzendoorn, Schuengel and Bakermans-Kranenburg (1999) suggest approximately 15% of infants display this attachment pattern, often observed in infants whose caregivers have experienced high levels of loss or trauma (Main & Solomon, 1986). These categories map onto adult attachment representations using the Adult Attachment Interview (AAI) (George, Kaplan & Main, 1987), described in the methodology.

Regarding adults with BPD, attachment states tend to be insecure and disorganised. For instance, Patrick, Hobson, Castle, Howard and Maughan (1994) found 100% of their BPD sample was classified as preoccupied with attachment (adult equivalent to ambivalent states). Also over-represented and usually rare outside clinical groups are disorganised attachment states, (U; unresolved, equivalent to infant 'disorganised', or CC; 'cannot classify') (e.g. Barone, Fossati &

Guiducci, 2011; Riggs et al., 2007). However, it is suggested that attachment alone does not adequately explain how and who develops BPD because attachment insecurity is relatively common and more prevalent than BPD (Broussard, 1995; Bateman & Fonagy, 2004). This implies another variable is at work and Fonagy, Steele, Steele, Moran and Higgitt (1991) propose that 'reflective function' (RF) is relevant. Reflective Function is the ability to define and recognise mental states in the self and others and is the most powerful predictor of infant attachment security (Fonagy et al., 1991). Lower RF was linked to more fearful and disorientated behaviour and more errors in communication of emotion (Grienenberger, Kelly & Slade, 2005).

Meins (2003) suggests a related factor is maternal mind-mindedness (MM). MM occurs when the caregiver treats the infant as an individual with an autonomous mind, illustrated by the caregiver structuring interactions in terms of the child's mental processes, such as the meaning he/she might make of situations. Increased MM has been linked to secure attachment (assessed by the AAI) and higher RF (Arnott & Meins, 2007) and MM is associated with more sensitivity and less hostility during play (Lok & McMahon, 2006). The role of RF in the context of attachment will be described and in doing so a mentalization based approach will be explored.

Role of Mentalization

Fonagy (1991) suggests that BPD is characterised by difficulties in understanding mental states. The term mentalization is used – *“the mental process*

by which the individual implicitly and explicitly interprets the actions of himself or herself and others as meaningful on the basis of intentional mental states such as personal desires, needs, feelings, beliefs and reasons” (page 70, Bateman & Fonagy, 2004). The ability to conceive of the self develops in an interpersonal context, particularly within the attachment relationship, which is implicated in the development of mentalization and higher order social-cognitive functions. The mentalization approach suggests BPD is an absence of, or difficulty in emotional regulation, attentional control and mentalization (Fonagy & Bateman, 2004). For the purposes of this review a brief description of this approach will be described (for further details see Fonagy & Bateman, 2007; Fonagy & Luyten; 2009).

Failure to regulate affect is core to BPD. Understanding normative affect regulation may help us to recognise where and how these failures may occur. Emotional regulation develops during infancy when the child requires contingent mirroring of emotional experience from the caregiver (Bateman & Fonagy, 2004). In mirroring, the caregiver alters the experience, for example, in response to a distressed infant the caregiver frowns exaggeratedly and furrows her brow. In doing so, the child begins to conceive that the caregiver is reflecting his distress and not demonstrating her own (Fonagy, Gergely, Jurist & Target, 2002). This encourages the development of the child’s capacity to internalise representations of his experience (Gergely, Koós & Watson, 2002). This suggestion is supported by evidence that non-contingent mirroring is linked to attachment disorganisation, typified by difficulties with emotional regulation (Bateman & Fonagy, 2004). It is purported that this early attachment disorganisation can evolve into BPD type

clinical features such as dissociation (an example of emotional dysregulation) in adolescence (Lyons-Ruth, 2003).

Poorer attentional control is perhaps demonstrated in BPD by impulsivity, a key feature of the disorder (Fonagy & Bateman, 2006). Self-regulatory skills can be modelled or taught by caregivers. Kochanska, Coy and Murray (2001) found that mothers and children who are more responsive to each other leads to greater self-control and internalisation of rules in the child.

In relation to attachment and mentalization, some studies suggest a child's attachment state can predict their ability to think about thoughts and feelings (Fonagy & Target, 1997). A mentalization approach suggests that individuals with BPD are able to do this, but at times of stress, are likely to inhibit this mentalizing ability. This is because during childhood, experience of maltreatment meant that these abilities were not well established because of the pain of conceiving the thoughts of the caregiver who wishes to harm them (Fonagy & Bateman, 2007). The link between attachment trauma and poorer ability to think about mental states is well evidenced, for example, by higher levels of emotionally dysregulated behaviour in maltreated children and reduced use of mental state language (Maughan & Cicchetti, 2002). Fonagy and Bateman (2007) extend this, highlighting the importance of other aspects of family life which can undermine mentalization, possibly more so than trauma itself. They argue *"it is less the fact of maltreatment than a family environment that discourages coherent discourse concerning mental states that is likely to predispose a child to BPD"* (Fonagy & Bateman, 2007; Ruffman, Slade & Crowe, 2002).

Thus, BPD is suggested to be a consequence of inhibited mentalization in the context of attachment relationships, implying individuals with BPD can mentalize in other contexts. However, at times when mentalization fails individuals are less adept at understanding both their own and minds of others. A coherent self-narrative fails, emotional volatility and more concrete prementalizing modes emerge. Thinking about these developmentally less sophisticated prementalizing modes can help further explain BPD's clinical features. Bateman and Fonagy (2004) put forward 'psychic equivalence' and the 'teleological stance'. In 'psychic equivalence' (Target & Fonagy, 1996) thoughts are reality and the 'as if' is suspended (Fonagy & Luyten, 2009). In this state dissociation can occur resulting in unusual and lengthy discussion of experience, without this necessarily relating to genuine internal experience (Bateman & Fonagy, 2004). Another example is taking a 'teleological stance' where communication of internal experience can only be done through action. For instance, overcoming distress cannot be achieved through discourse but must be acted on physically (on the self) through self-harm (Yen et al., 2002).

Rationale for the Current Review

Although there are previous reviews of attachment findings in this population, some shortcomings in this literature exist. For instance Argawal et al. (2004) investigated self-report findings as well as narrative data. However, there are differences in theoretical background between self-report and narrative attachment methodologies and self-report and interview attachment data correlate

poorly (Crowell, Fraley & Shaver, 1999). Difficulties have been noted in self-report attachment measures particularly in complex clinical groups because they do not capture the complex and opposing elements of attachment states in these populations (Allen, Stein, Fonagy, Fultz, & Target, 2005). As such, self-report data will not be investigated in the current study. Bakermans-Kranenburg and van IJvendoorn's (2009) systematic review is recent. However, because they present BPD AAI data within other 'internalising' clinical problems it is difficult to conclude about BPD specific attachment patterns.

Researchers from both attachment and mentalization perspectives have delineated how attachment states of mind, RF and Hostile Helpless (HH) correlates can aid the understanding of BPD psychopathology and explain the development of this problem. Applying this knowledge to clinical work has helped develop treatments where attachment states are focused on and interpersonal interactions highlighted therapeutically.

It is proposed that profound disorganisation of the self structure, attachment and mentalization abilities are key mechanisms underpinning BPD. These constructs have been measured using narrative based tools such as the Adult Attachment Interview (AAI), Reflective Function (RF) scale and the Hostile-Helpless (HH) framework. Therefore, it would be interesting to investigate these further.

Aim

To this end, a comprehensive systematic review of the available AAI, RF and HH data of a BPD population follows.

Specifically, one question is addressed:

1. What has research on attachment states using the AAI, RF and HH in individuals with a diagnosis of borderline personality disorder found?

Method

Search Strategy

A preliminary search was carried out to ascertain whether a systematic review with the same aim had already been carried out. The Cochrane Database of Systematic Reviews was consulted and none were identified. Articles for review were identified by searching electronic bibliographies accessed through OVID. The databases used were:

1. OVID MEDLINE R (until May week 22 2011)
2. EMBASE (until week 22 2011)
3. PsychINFO (EBSCOhost, until week 22 2011)
4. CINAHL (until week 22 2011)
5. All EBM Reviews – Cochrane DSR, ACP Journal Club, DARE, CCTR, CMR, HTA and NHSEED.

The following terms were used to search journal titles:

1. 'Attachment' or 'Adult Attachment Interview' or 'AAI'

2. 'Borderline Personality Disorder' or 'BPD'
3. 'Mentalisation' or 'Mentalization' or 'Metacognition'
4. 'Reflective Functioning' or 'Reflective Functio*'
5. 'Hostile' AND 'Helpless'

Truncations (*) were used to increase the search sensitivity. The search terms were combined using 'AND'. The eligibility of each paper was ascertained by reading the abstract and applying the inclusion and exclusion criteria. The criteria detailed below were used to establish relevant papers for review:

Inclusion Criteria:

1. Journal articles published in English.
2. Articles which included participants with a diagnosis of BPD.
3. Studies of the attachment states of individuals with BPD.
4. Journals which measure attachment through narrative means, using the AAI and/or applying the RF and HH coding frameworks.

Exclusion Criteria:

1. Single case studies.
2. Conference presentations.
3. Book chapters.
4. Unpublished dissertations.
5. Studies adopting a qualitative methodology.

6. Studies using a self-report measurement of attachment.
5. Studies using a narrative measure of attachment other than the AAI.
6. Studies where specific AAI data on a BPD sub sample cannot be deducted.

Adult Attachment Interview

Adult attachment states of mind have been measured using the AAI developed by George et al. (1987). This semi-structured interview elicits thoughts, feelings and memories about early attachment experiences and assesses the person's state of mind in terms of early attachment relationships.

3-way AAI Analysis.

The AAI allocates one of three primary classifications: secure/autonomous (F), or insecure classifications, preoccupied (E) or dismissing (D). F individuals describe childhood attachment experiences, both positive and negative, in a coherent way, as they reflect on their thinking. D individuals downplay the significance of, or idealise attachment relationships, providing inconsistent evidence for their assertions. E individuals speak about attachment experiences in an incoherent manner, confusing past and present relationships suggesting a lack of perspective.

4-way AAI analysis.

Three-way AAI classification was extended by a fourth disorganised category, unresolved (U). This disorganisation is in respect of loss or trauma and is evident

by lapses in discourse monitoring when discussing trauma, these individuals can make improbable assertions about the cause and outcome of abusive experiences.

5-way AAI Analysis.

Where there is the presence of two or more contradictory attachment strategies (e.g., E and D), a fifth category can be used. 'Cannot classify' (CC) is assigned to these transcripts denoting a general breakdown in discourse and alternating use of attachment strategies.

Reflective Functioning

Fonagy, Steele, Steele and Target (1998) developed the Reflective Functioning (RF) scale. This 11-point scale evaluates mentalization quality in the context of attachment relationships and is applied to AAI transcripts. RF assesses the clarity of mental state representations of the self and others. Raters note the presence of reflective statements and frequency of these when scoring this construct. RF scores range from -1 (negative RF, e.g., overly concrete or completely absent RF) to 9 (exceptional RF, e.g. complex reasoning regarding mental states) with 5 representing ordinary or normative RF abilities.

Hostile Helplessness (HH)

The HH coding framework can be applied to AAI data and was developed to further understand the relatively rare, but clinically common, AAI sub-codings of 'dismissing derogating', 'fearfully preoccupied' and 'cannot classify' (Lyons-Ruth, Melnick, Patrick & Hobson, 2007). The HH measure addresses the extent to which a

person mentally represents attachment figures in opposing ways (hostile *and* helpless) and signs of the participant identifying with these characteristics in their caregivers (Lyons-Ruth et al., 2007). To be HH an individual scores 5 or more on a scale of 1 to 9, endorsing, for example, global devaluation of caregiver, controlling-punitive or controlling-caregiving behaviour towards their caregiver. HH representations are associated with parental histories of trauma, but not loss (Lyons-Ruth, Yellin, Melnick & Atwood, 2003).

Outcome of Search Process

The selection and exclusion process is illustrated in Figure 1. The initial electronic search identified 475 papers. Eligibility for study inclusion was decided by applying the exclusion and inclusion criteria to titles and abstracts. After this process and the removal of duplicates was completed, 7 potential papers were left. The reference sections of these papers were checked for relevant papers and this yielded a further 17 potential papers. Specialist journals in the field were hand searched (Journal of Personality Disorders, Attachment and Development) and did not result in further relevant journals. These 24 journals were screened using the inclusion and exclusion criteria which resulted in 14 being excluded, leaving 10 papers. An additional journal (Barone, Guiducci & Fossati, 2011) was identified through contact with a researcher in the field. The search was re-run at a later date which resulted in the inclusion of 2 more papers (Crittenden & Newman, 2011; Fischer-Kern et al., 2011) leading to a total of 13 papers. Contact with Dr Riggs

regarding her 2007 paper yielded more detailed AAI data which was not published in the original journal article.

INSERT FIGURE 1 ABOUT HERE

Quality Evaluation

A checklist comprising the methodological quality rating scale was developed by the author based on existing checklists and guidelines (CONSORT, Clinical Trials Assessment Measure) and can be found in Appendix B.

Reliability of Quality Rating

Quality rating of the studies was conducted by the author and an independent reviewer. Agreement on each of the individual item scores between the two raters reached 90%. Disagreement was resolved and 95% agreement was reached.

Characteristics of Excluded Studies

Of the 24 studies which were initially eligible for inclusion, 14 were excluded. Table 1 details the reasons why these were excluded.

INSERT TABLE 1 ABOUT HERE

Characteristics of Included Studies

Table 2 details information regarding the included journal articles such as N, gender, age, setting and AAI findings (3-way, 4-way and 5-way).

INSERT TABLE 2 ABOUT HERE

Results

Sample Characteristics

In total, data on 456 individuals with BPD were included and AAI data on 364 individuals were available. There were RF data for 198 individuals and HH data for 12 individuals. Of the studies which provided age ranges and means, the overall age range was from 13 to 66 years with a mean age of 30 years. One study investigated an adolescent sample (Rosenstein & Horowitz, 1996). Of the 456 participants, data on gender was available on 320 participants; 251 were female and 69 were male. Six of the 13 studies investigated women only.

AAI Findings

Table 3 details the attachment states of mind in the BPD participants and compares these with normative (non-clinical American mothers) and clinical samples (adapted from Bakermans-Kranenburg & van IJzendoorn, 2009).

Clinical Control Group

In their systematic review of all AAI data, Bakermans-Kranenburg and van IJzendoorn (2009) detail findings from clinical samples (total $n = 1956$), within which were data from five studies investigating BPD samples (total $n = 150$), four of which were included in this review. Therefore, in order to obtain a valid comparison group those data ($n = 122$) were subtracted, leaving a clinical group of $n = 1956 - 122 = 1834$. Unfortunately data for the remaining 28 individuals with BPD remained in the clinical comparison group. These were from Fonagy (1993) in a conference paper and it was not possible to obtain these AAI data in order to subtract them from the clinical comparison group data.

INSERT TABLE 3 ABOUT HERE

Three-way AAI Analysis

This includes organised states of mind: autonomous/secure (F), dismissing (D) and preoccupied (E). A total of 358 transcripts were available for this analysis. All included studies contributed to this analysis with the exception of Fischer-Kern et al. (2011). Table 3 shows that 38 participants (7%) had secure attachment organisation. Preoccupied attachment was the most prevalent, $n = 180$ (50%) followed by dismissing, $n = 140$ (39%). BPD attachment states of mind differed statistically significantly from those of the normative sample ($\chi^2 (2) = 231.23, p < 0.001$). BPD AAI data also differed significantly from the clinical sample ($\chi^2 (2) = 56.6, p < 0.001$).

Four-way AAI Analysis

This analysis includes organised states of mind: autonomous/secure (F), dismissing (D), preoccupied (E) and the disorganised state, unresolved (U). Table 3 shows AAI data on 210 individuals were available for four-way analysis. The rate of F was $n = 15$ (15%). There were 37 participants (18%) who were classified as D for attachment and 27 individuals (14 %) classed as E. The majority, 131 participants (62%), were classified as U. Four-way AAI analysis of individuals with BPD differed statistically significantly from the normative sample ($\chi^2 (3) = 200.46, p < 0.001$). BPD AAI data also differed significantly from the clinical sample ($\chi^2 (3) = 38.3, p < 0.001$). Barone, Fossati and Guiducci (2011) described U findings separate to 4-way analysis and found 40 (28 %) of the 140 participants were classified as such.

Five-way AAI Analysis

This analysis includes organised states of mind: autonomous/secure (F), dismissing (D), preoccupied (E) and disorganised; unresolved (U) and cannot classify (CC). Three of the 13 studies carried out 5-way analysis of AAI data (Diamond, Stovall-McClough, Clarkin & Levy, 2003; Levy et al., 2006; Riggs et al., 2007). Data were available for 86 individuals with BPD. Individuals with an F attachment classification totalled 8 (9%). Table 3 shows there were 22 participants (26%) who were classified as D and 14 individuals (16%) remained E. There were 24 participants (28%) who were classified as U and 18 became CC (21%). Barone, Fossati and Guiducci (2011) also described CC findings but separate to five-way analysis and found 17 individuals (12%) of a total of 140 participants were CC. Chi square analysis comparing BPD, normative and clinical five-way AAI data was not carried out because the comparison normative and clinical data collapsed U and CC data together.

Prevalence of E, E3 and U states

Preoccupied attachment states dominate in three-way AAI analysis. However, in four-way analysis the prevalence of E decreases from 180 (50%) to 27 (14%). Four studies cite rates of E3 – ‘fearfully preoccupied’, a preoccupied attachment sub-classification (Fonagy et al., 1996; Barone, 2003; Patrick et al., 1994; Levy et al., 2006). E3 transcripts usually state, or it can be inferred, that the individual has had fearful attachment experiences and these experiences currently

preoccupy or can even control mental processes. E3a is noted by confusion, with reference to traumatic experiences dominating in an incoherent and fearfully overwhelming manner. In E3b, what is more distressing is the apparent loss of memory regarding trauma, suggesting unconscious preoccupation (Main, Goldwyn & Hesse, 2002). The E3 n = 34 (47%) of the E total. Of these, 31 (94%) were reclassified as U in four-way analysis. U is the most endorsed attachment state within a BPD population within four-way and five-way analysis.

Regarding the 'U' classification, four studies reported whether this lack of resolution was regarding trauma or loss, or both, n = 71. Of these 71, 64 (90%) were U for trauma specifically. The overall U n = 131, therefore these 64 account for 49% of the unresolved total. Barone, Fossati and Guiducci (2011) also described U findings and found 24 of their 40 U participants were unresolved for trauma (60%).

Reflective Function Findings

Four articles (Fonagy et al., 1996; Diamond et al., 2003; Levy et al., 2006; Fischer-Kern et al., 2010) used the RF framework. The total RF n = 198 and the mean RF score was 2.9. This signifies that RF is of a low or questionable level meaning that mental state language is used in a rudimentary way by individuals with BPD. Typically this can be in a naïve, overly simplistic way where cliché is used or where statements can seem superficial. Or, this can mean RF is overly analytical or hyperactive, while appearing reflective the insights may not link to experience in a compelling way. Only one study cited a control group (Fonagy et al., 1996), they found individuals with BPD were significantly lower on RF than a clinical

comparison group and a non-clinical control group where RF scores were 4.3 and 5.2 respectively.

Hostile Helpless Data

Lyons-Ruth et al. (2007) was the only article to report HH data. They found that significantly more participants with BPD represented caregivers in globally devalued terms compared to a dysthymic group. BPD participants used significantly more controlling attachment behaviours than dysthymic participants (75% compared to 27%). Significantly more individuals with BPD did not have contact with a member of their family. Lyons-Ruth et al. (2007) suggest HH, U and E3 are moderately related. A sense of unworthiness on HH was associated with U. E3 attachment classification was significantly associated with caregiving behaviour (of participant towards the caregiver) on HH and more globally devalued references to the caregiver. HH was not significantly related to punitive caregiving behaviour (of the participant towards caregiver).

Discussion

Summary of Results

This systematic review has found the majority of participants with BPD had insecure attachment representations. A small number of individuals had secure attachment states of mind. In three-way analysis preoccupied was the most common attachment classification. However, in four-way analysis the unresolved

classification was most common. The addition of this category accounted for a substantial shift from preoccupied to unresolved attachment states of mind. In the studies which included five-way analysis there was a relative balancing out of numbers in each of the insecure categories, although unresolved remained the most prevalent. Across three and four-way analysis, attachment states for individuals with BPD differed statistically significantly from normative and clinical samples.

On further examination of the specific insecure attachment states, a number of studies remarked on the prevalence of the sub-classification, E3. Also, individuals who met the E3 classification were generally reclassified as U in four-way analysis, suggesting some similarities in the preoccupied and unresolved constructs. Some authors specifically noted the prevalence of unresolved attachment states in relation to trauma as opposed to loss.

The studies which included Reflective Function found individuals with BPD demonstrated low to questionable RF. The HH findings suggest individuals with BPD represent caregivers in more globally devalued terms and use more controlling attachment behaviours and HH relates to U and E3 attachment states. However, interpreting these HH findings should be done so with caution given the small sample.

Secure Attachment States

The review findings demonstrate that a small proportion of individuals with BPD have autonomous (F) attachment states of mind. That any individuals with BPD would be classified as F is perhaps surprising given the intrinsic interpersonal

relationship difficulties which characterise the diagnosis (e.g., Skodol et al., 2002).

There is no clear explanation given for these findings. Perhaps it relates to the heterogeneous and diverse clinical presentations that BPD can encapsulate.

Individuals who are autonomous for attachment could endorse other aspects of the diagnosis more strongly than the interpersonal criteria. If so, they could possibly represent a discrete subgroup whose difficulties may be better explained by an alternative theoretical basis.

Some of the studies noted that where attachment was secure this was not prototypic. Some noted 'F4' and 'F5' attachment states (Barone, 2003; Diamond et al., 2003). F4 is described as secure but manifests some preoccupation with past trauma. For example, these attachment narratives can be overly sentimental with some mild generalised preoccupation, or they are mildly preoccupied with unfortunate parenting or traumatic experiences. This suggests an 'earned' quality to these attachment states (Main, Goldwyn & Hesse, 2002). These individuals have been able to overcome negative attachment experiences and achieve a sense of attachment security, suggesting resilience. This is particularly pertinent when thinking of clinical practice with this population, where using and building on this resilience within the therapeutic alliance would be indicated.

Insecure and Disorganised Attachment States

This review found high rates of preoccupied (E), fearful preoccupied (E3) and unresolved (U) attachment states of mind. Preoccupied states suggest an individual is angrily preoccupied with or involved in attachment relationships.

Narratives can be vague and passive or become overwhelmed by reference to frightening or traumatic experiences. Specifically, E3 suggests the preoccupation is fearful; the individual has had fearful attachment experiences which are preoccupying, or can even direct mental processes. U signifies disorganisation and lack of resolution regarding attachment experiences, specifically in relation to loss or trauma. A number of the studies included in this review noted individuals were unresolved regarding trauma in particular, almost half of individuals who were U were unresolved for trauma, alone. However, this is perhaps conservative because most studies did not report whether lack of resolution was regarding trauma or loss.

As can be seen from the brief categorical descriptions, there are similarities between E, E3 and U. This perhaps helps to explain the shift in prevalence of E to U states of mind which this review found when U was introduced, suggesting some overlap in these constructs. Main et al. (2002) suggest the relationship between E3 and U is multifarious, acknowledging the theoretical likelihood of those who are E3 are also likely to be U. What is key in distinguishing these two attachment categories is, in the context of a traumatic event, if there is a lapse in monitoring with respect to reasoning and behaviour. If monitoring remains intact then the transcript is only E3 and not U (Main et al., 2002). Main (1991) has hypothesized that U and U/E3 states of mind are associated with more pervasive disorders and obvious difficulties in mentalizing, as evident in BPD.

It is difficult to draw conclusions regarding the role of the other disorganised attachment state, cannot classify, because of the small sample size which reported five-way analysis. This review found a substantial proportion of participants who

were dismissing or unresolved changed with the introduction of CC, therefore warranting further investigation. Indeed, perhaps CC represents a sub-spectrum of attachment states encompassing elements from other attachment states. There may also be a dynamic quality to the CC category. Perhaps this changes over time, for instance, in response to attachment experiences or indeed therapy, where an individual's attachment state can change from, for example, CC to D, or E to CC to F4.

Reflective Function Findings

The results of this review found that individuals with BPD had low or questionable levels of RF, markedly lower than ordinary levels of RF. Qualitatively, the reflective function seemed to be, on the one hand naïve and simplistic, or overly analytical and hyperactive. How these RF results relate to the wider attachment findings and theoretical understanding of attachment, attachment related trauma, mentalization and affect regulation will now be explored.

Interpretation of Findings

Given the prevalence of trauma in psychopathology generally, but specifically regarding BPD, it has been suggested that it is not the trauma per se, but how the attachment system mediates these experiences which can help explain BPD (Bateman & Fonagy, 2004). The review has found that a small minority of individuals have managed to 'earn' attachment security despite traumatic experiences. However, these findings suggest that for the vast majority of individuals with BPD, traumatic attachment experiences remain disorganised,

disorientating and unresolved because the individual's attachment system is itself disorganised. In an optimal attachment relationship, skills such as a coherent sense of self, affect regulation and the ability to mentalize develop, informing an Internal Working Model which mediates and moderates these traumatic experiences (Gumley, 2010). However, because of a lack of secure base experienced by this group, these skills do not tend to flourish, in turn leaving traumatic experiences unresolved.

Fonagy (1991) explains that this unresolved and disorganised quality of attachment status seen in BPD is because of a mechanism which in the first instance was defensive but can become maladaptive. The individual who responds to maltreatment during childhood by inhibiting mentalization, that is, purposefully not conceiving of the thoughts and mental processes of others or oneself, is less likely to resolve abuse and more likely to manifest BPD. This coping strategy initially served to protect the child from the emotional pain that would result from acknowledging their caregiver's wishes to harm them (Fonagy, 1989). This originally defensive disruption of mentalization can, if not rectified, potentially result in deficits in this skill which can explain many of the characteristics of BPD, such as labile affect and interpersonal difficulties. It also reduces the ability to address and resolve these traumatic experiences (Fonagy et al., 1994).

There could also be a compounding effect, as the exposure to abuse by the caregiver may not only inhibit the use of mentalization but impede its development. In the wider context these individuals are seemingly less likely to be exposed to circumstances which promote the use and further development of these skills.

Fonagy and Bateman (2007) argue the importance of talking about mental states generally, as not doing so can undermine mentalization which can possibly be more damaging to nascent mentalization than trauma itself. This possibly explains Fossati et al.'s (2003) meta-analytic finding of no connection between childhood sexual abuse and BPD. It is not the experience of loss or trauma in and of itself which leads to BPD psychopathology, but the skills deficits in mentalization, affect regulation and self knowledge which can lead to the attachment disorganisation (Read & Gumley, 2008) so prevalent in this disorder.

As a reflection of mentalization skills, this review found individuals with BPD had low or questionable reflective function skills. Fonagy et al. (1996) found a significant interaction between abuse, low RF and the presence of BPD, offering the interpretation that an individual who responds to abuse by inhibiting mentalization is less likely to resolve abuse and more likely to develop BPD. This theory of BPD is supported by Fischer-Kern et al.'s (2011) study which found that individuals with BPD who were able to mentalize and reflect on their caregivers' behaviour had higher levels of personality organisation. However, Levy et al.'s (2006) randomised control trial did not replicate Fonagy et al.'s interaction, suggesting more research into these mechanisms is warranted.

Limitations of Included Studies

A number of limitations of the included studies and the current review are discussed. There was limited use of five-way AAI analysis, so given the prevalence of attachment disorganisation this limits the ability to describe the quality of

attachment disorganisation. A related limitation is the sparse use of the RF and HH frameworks which could have further described the quality of the unresolved and fearfully preoccupied attachment states this review found to be so prevalent.

Increased RF data may help to test whether there is an association between trauma experience, resolution and mentalization abilities. Choi-Kain and Gunderson (2008) also suggest the validity of the RF scale is as yet under-developed and should be investigated. More HH data is needed in this population.

Regarding research design, most of the studies had small sample sizes. There is an absence of prospective, longitudinal studies and the convenience sampling method employed has led to the inclusion of only help seeking participants.

The AAI data included in this study were collected from different European countries, North America and Australia. Meta-level differences in how mental health care is provided and accessed may affect participation which could in turn effect results. This point about accessing help is an important one because a fundamental feature of BPD is instability. Accessing and engaging in treatment, and indeed research, requires some stability. Those able to do so may represent a certain cohort of the heterogeneous group of people who meet the BPD criteria.

The majority of these results were gathered in highly specialist therapeutic settings. The settings and eminence of the researchers may impact the generalisability of the findings. For instance, Fonagy et al. (1996) noted the Cassel Hospital often received “difficult-to-treat” patients, perhaps suggesting that these BPD participants are more disturbed than in other studies or BPD patients generally. This could impact AAI data, so for instance are disorganised attachments then more

probable? Additionally, the potential for improvement might be greater because of the specialised clinical setting, or therapeutic progress could be challenged by client complexity. This is perhaps more relevant to investigations of treatment outcomes, which is not the purpose of this systematic review. However, evidence for therapeutic interventions is based on results such as these.

The participants in these studies were overwhelmingly female. Many of the studies recruited specifically only women (e.g. Stalker & Davies, 1995). Although the BPD ratio is approximately 3:1, women to men (Skodol & Bender, 2003), the predominance of female participants may reduce the generalisability of findings to males with BPD. Perhaps more could be done to engage males with BPD in research. Another factor which limits the generalisability is the age range, given the studies' relatively young mean age. However, one cannot be conclusive because some studies did not present this data specific to BPD participants. Several of the papers presented demographic information, and again it is difficult to make interpretations of the role of these as not all studies reported this information, or did not present those specific to BPD participants. Related to the relative stability of disorganised attachment states and the minority of individuals with secure attachment states, information on current relationship status could be an interesting line of enquiry.

BPD as a diagnosis is renowned for its heterogeneity and comorbidity. Samples which predominantly have small age ranges, are exclusively female, and taken from highly specialised treatment settings may therefore increase the risk of bias. In addition, one study (Patrick et al., 1994) actively excluded participants who had experienced fostering or death of a parent(s). This seems unusual given loss

and trauma such as these are commonly reported in complex mental health problems and particularly in BPD. However, other studies noted comorbidity, for example, Fonagy et al. (1996), Stovall-McClough and Cloitre (2003), and Barone (2003) and Barone, Fossati and Guiducci (2011) specifically investigated attachment states of BPD individuals with discrete Axis I diagnoses.

Limitations of the Current Review

There are a number of limitations to the current review.

Firstly, the rating scale was devised to assess the quality of the included studies for this systematic review because no existing tool met the needs of this study. Therefore, ratings of the included articles could be at risk of bias.

Secondly, the generalisability of findings may be compromised by the exclusion and inclusion criteria which resulted in the exclusion of a large number of studies.

Thirdly, this study specifically addressed narrative based findings, however in doing so it excludes data garnered from self-report methodology which are more numerous. This study is limited by the measures included.

Fourthly, Choi-Kain and Gunderson (2008) suggest mentalization as a theory can be over inclusive and unwieldy. Perhaps studying the correlates from other measures of attachment and reflective abilities may assist in further elucidating the nature of attachment and mentalization skills, thus supporting the process of clarifying the theoretical background. In addition, incorporating measures of

correlates of affect regulation, symptom experience and interpersonal problems could further enrich understanding of attachment states of mind.

Recommendations

This study found that the majority of individuals with BPD were insecure and disorganised in relation to attachment states of mind. Perhaps then there is some value in the hypothesis that the more complex the mental health problem (e.g. presence of trauma, loss, labile affect and interpersonal problems) the more complex the attachment representation (disorganization, incoherence, use of contradictory strategies). In order to test this, further investigation of the nature of attachment disorganisation, the particular sequelae of attachment approach and avoidance behaviours and how these relate to trauma and loss would be helpful. Further investigation of the psychological mechanisms that underpin attachment representations such as affect regulation strategies and mentalization skills would provide more information on the nature of attachment insecurity and disorganisation. To this end, prospective studies and supplementary assessment of mentalization abilities as coded by RF would be useful to help clarify the relationship between RF and trauma resolution.

More on HH is also required to appreciate these constructs within the BPD presentation, thus generating greater understanding of the quality of attachment disorganisation and *how* attachment representations mediate experience of trauma and loss. This in turn could lead to more nuanced ways of how these can be worked with clinically, also informing prevention work. More exploration of the resilience

noted in some individuals, how this develops and how this could be promoted in clinical practice would be interesting.

Further understanding of attachment states would help inform whether the main purpose of clinical work should be trauma focused work as some studies suggest, or whether working to manage and reduce self-destructive behaviour is the clinical focus. Or alternatively, if therapy should concentrate on reflective function and addressing attachment states of mind through the therapeutic relationship as other studies put forward. Furthermore, detail on how different attachment states can impact upon the caregiver, therapeutic relationship, and interpersonal relationships more generally would help inform how to work with different clients who present with BPD in the optimum way.

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Figure 1. Flowchart of Search Strategy and Results.

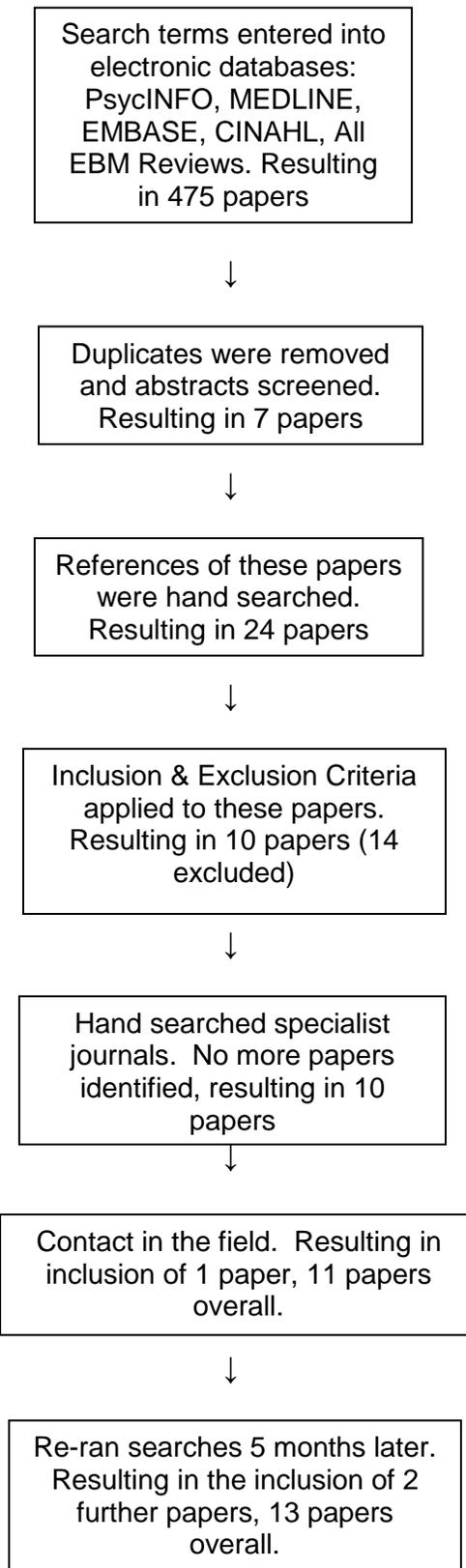


Table 1. Studies excluded from this systematic Review and reasons why.

1	Zweig-Frank & Paris (1991)	AAI was not utilised
2	Sack, Sperling, Fagen & Foelsch (1996)	Uses attachment self-report methodology
3	Fossati, Madeddu, Maffei (1999)	Meta analytic study
4	Fonagy (1993)	Unpublished manuscript
5	Diamond, Yeomans, Clarkin & Levy (2008)	Book chapter
6	Cloitre, Stovall-McClough, Zorbas & Charuvastra (2008)	AAI results of a discrete BPD diagnostic group were not detailed
7	van IJzendoorn, Feldbrugge, Derks, & de Ruiter, et al. (1997)	AAI results of a discrete BPD diagnostic group could not be read
8	Babock, Jacobson, Gottman & Yerington (2000)	AAI analysis not based on diagnostic groups
9	Melges & Swartz (1989)	AAI was not utilised
10	Frodi, Dervenik, Sepa, Philipson & Bragesjo (2001)	Study did not include a specific BPD diagnostic group
11	Allen, Hauser and Borman-Spurrell (1996)	Study did not include a specific BPD diagnostic group
12	Adam, Sheldon-Keller, West (1996)	Study did not include a specific BPD diagnostic group
13	Bateman & Fonagy (1999)	AAI not used in this study
14	Lyons-Ruth, Yellin, Melnick & Atwood (2005)	Does not include a specific BPD group

Table 2. Summary of Characteristics of the Studies Included in this Systematic Review.

Study	Sample & Design	N (overall) BPD	Gender	Age (years)	Setting	AAI Findings 3 Way	AAI Findings 4 Way	AAI Findings 5 Way
1. Patrick et al. (1994)	Dysthymic vs. BPD Cross-sectional	(24) BPD N = 12	Females only	Mean = 35 Range not stated	UK-In & Outpatient psychiatric setting	F= 0, D= 0, E= 12	F=0, D=0, E=3, U=9	Not reported
2. Stalker & Davies (1995)	Females experienced CSA Cross-sectional	(40) BPD N = 8	Females only	Mean = 34 Range = 19 – 50	Canada-In & Outpatient psychiatric setting	F= 0, D=3, E=5	F=0, D=1, E=0, U=7	Not reported
3. Fonagy et al. (1996)	Psychiatric vs. Non- psychiatric Cross-sectional	(85 vs. 82) BPD N = 36	60 Female, 15 Male in overall psychiatric group	Overall Mean = 29 Range not stated	UK-specialist psychiatric setting	F=3, D=6, E=27	F=2, D=1, E=1, U=32	Not reported
4. Barone (2003)	BPD vs. Non- clinical Cross-sectional	(80) BPD N = 40	25 Female, 15 Male	Mean = 29 Range not stated	Italy-specialist psychiatric setting	F=3, D=8, E=29.	F=3, D=8, E=9, U=20	Not reported
5. Diamond et al. (2003)	BPD Cross-sectional	(10) BPD N = 10	Not stated	Mean = 30.4 Range = 23-38	USA-specialist Outpatient treatment programme	F=1, D=5, E=4	F=1, D=2, E=1, U=6	F=1, D=2, E=1, U=5, CC=1
6. Riggs et al. (2007)	Psychiatric trauma survivors Cross-sectional	(80) BPD = 16	74 Female, 6 Male, in overall sample	Mean = 36.6 Range = 18-66	USA- Inpatient psychiatric setting	F=4, D=2, E=4 (Missing=6)	F=2, U= 14	F=4, D=2, E=4, CC=6
7. Stovall- McClough & Cloitre (2003)	Females experienced CSA Cross-sectional	(52) BPD = 13 (&PTSD)	Females only	Not stated	USA-Outpatient specialist treatment programme	F=4, D=4, E=5	F=4, D=0, E=0, U=9	Not reported
8. Levy et al. (2006)	BPD Randomised Control Trial	BPD N = 60	84 Female, 6 male in overall sample	Mean = not stated Range = 18-50	USA-Outpatient specialist treatment programme	F=3, D=28 E=29.	F=3, D=25, E=13, U= 19	F=3, D=18, E=9, U=19, CC=11
9. Lyons-Ruth et al. (2007)	<i>Same N as Patrick et al. (1994)</i>							
10. Rosenstein & Horowitz (1996)	Psychiatric adolescents Cross-sectional	(60) BPD N = 14	32 Male, 28 Female in overall sample	Mean =16.36 Range = 13 – 19.75	USA-Inpatient adolescent psychiatric setting	F=1, D=4, E=9.	Not reported	Not reported
11. Fischer- Kern et al. (2010)	BPD Cross-sectional	92	Females only	Mean = 27.7 Range = 18-51	Austria & Germany Outpatient psychotherapy	<i>Only reported RF data.</i>		
12. Crittenden & Newman (2010)	BPD Cross-sectional	15	Females only (mothers)	Not stated	Australia-Outpatient setting	F=0, D=8, E=7.	F=0, D=0, E=0, U=15	Not reported
13. Barone, Fossati & Guiducci (i2011)	BPD Cross-sectional	140	54 Male, 86 Female	Mean = 32.4 Range = 18 – 54	Italy- outpatient psychotherapy programme	F=19, D=72, E=49	F, D, E not reported. U= 40	U=40, CC=17

Total n = 456, Total AAI data n = 364, Total RF data n = 198

Table 3. 3-way, 4-way and 5-way Analysis of AAI Codings with Normative and Clinical Comparison Groups.

3-way AAI analysis	Attachment Type	BPD		° Normative Sample		§ Clinical Sample	
		N	%	N	%	N	%
	Secure	38	11%	434	58%	521	28%
	Dismissing	140	39%	172	23%	673	37%
	Preoccupied	180	50%	142	19%	640	35%
	Total	358*	100%	748	100%	1834	100%
* 6 transcripts from Riggs et al. (2007) were not forced into F, D or E categories. Total n = 364 – 6=358)							
4-way AAI analysis	Attachment Type	BPD		° Normative Sample		§ Clinical Sample	
		N	%	N	%	N	%
	Secure	15	7%	392	56%	382	22%
	Dismissing	37	18%	112	16%	392	23%
	Preoccupied	27	14%	63	9%	215	12%
	Unresolved	131	62%	126	18%	743	43%
	Total	210*	100%	700	100%	1732	100%
*Rosenstein and Horowitz (1996) and Barone, Fossati & Guiducci (2011) did not report full 4-way analysis, n = 364 – 154 = 210.							
5-way AAI analysis	Attachment Type	BPD		° Normative Sample		§ Clinical Sample	
		N	%	N	%	N	%
	Secure	8	9%	392	56%	382	22%
	Dismissing	22	26%	112	16%	392	23%
	Preoccupied	14	16%	63	9%	215	12%
	Unresolved	24	28%	126	18%	743	43%
	Cannot Classify	18	21%				
	Total	86*	100%	700	100%	1732	100%
* Only Diamond et al. (2003), Levy et al. (2006) and Riggs et al. (2007) provided 5-way AAI analysis.							
° Provided by Bakermans-Kranenburg and van IJzendoorn (2009).							
§ Adapted from Bakermans-Kranenburg and van IJzendoorn (2009) data.							

MAJOR RESEARCH PROJECT

Title: Thinking about Reflection – an Investigation of Metacognition in Individuals with Borderline Personality Disorder and Psychosis

Running Title: Thinking About Reflection

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Lay Abstract

This research project looked at individuals' with a diagnosis of borderline personality disorder or psychosis and their ability to reflect and think about their thoughts and feelings and how they cope, or 'metacognition'. It was also interested in whether and how these abilities linked to mental health symptoms (e.g., depression, anxiety), interpersonal style and interpersonal problems (e.g. not being assertive or being aggressive). It measured reflection in interviews and rated this ability using the Metacognitive Assessment Scale (MAS). The results showed that both groups had difficulties in reflecting on their thoughts and feelings, those of others' and coping. Individuals in both groups were better at thinking about their own thoughts and feelings compared to reflecting on other's thoughts and feelings and thinking about others' thoughts was in turn better than thinking about coping and overcoming problems. It found this ability was poorer when individuals experienced certain mental health symptoms and if they were anxious in relationships. However, better reflecting was associated with people who were avoidant of interpersonal relationships. These findings have been interpreted in relation to other research findings and theory. Drawbacks of the study have been outlined and thoughts about how the findings relate to working with patients are proposed.

Abstract

Introduction – Previous research suggests that individuals who experience complex mental health problems have difficulties in thinking about their own and others' mental processes and using this information to solve problems, or metacognition. This exploratory study investigated metacognition in individuals with a diagnosis of borderline personality disorder or psychosis. Measures of attachment, symptom experience and interpersonal problems were taken to explore possible correlations with metacognition.

Methods – Metacognition was measured through semi-structured interview rated using the Metacognitive Assessment Scale (MAS) which categorised metacognition into subscales: understanding own mind (UM), understanding others' mind (UOM) and mastery (M).

Results – Mann-Whitney analysis revealed both groups demonstrated metacognitive difficulties and no differences in metacognition were observed between groups. Friedman's ANOVA and post hoc Wilcoxon Signed Rank tests found statistically significant differences between MAS subscales, UM was better than UOM which was more developed than M. Nonparametric correlational analysis revealed poorer metacognition was associated with greater positive symptoms and attachment anxiety and greater metacognitive skills were associated with attachment avoidance.

Discussion – Metacognition was impaired in both groups suggesting it is a transdiagnostic construct and the pattern of metacognitive impairment suggests metacognition is organised hierarchically. These findings are discussed in the context of relevant theory, limitations highlighted and clinical implications proposed.

Introduction

Metacognition refers to the capacity *“to understand mental phenomena, to think about one’s own thinking and the thinking of others, and to use that understanding to problem solve and master mental states”* (page 386-7, Dimaggio et al., 2007). Related to this is ‘Theory of mind’ (TOM) which refers to the ability to ascribe mental states to others (Baron-Cohen, Lesley & Frith, 1985) and originates from a cognitive and developmental framework. Mentalization has been defined as *“the mental process by which the individual implicitly and explicitly interprets the actions of himself or herself and others as meaningful on the basis of intentional mental states such as personal desires, needs, feelings, beliefs and reasons”* (page 70, Bateman & Fonagy, 2004). Mentalization originates from the psychodynamic school informed by attachment theory, and research has focused on personality disorder, particularly borderline personality disorder (BPD) (e.g., Bateman & Fonagy, 2004). Assessment of mentalization skills has focused on narrative, for instance, in doing so, researchers have measured reflective function (RF, Fonagy, Target, Steele & Steele, 1998), which has been applied to transcripts of Adult Attachment Interviews (AAI) (George, Kaplan & Main, 1987).

Metacognition (Main, 1991; Semerari et al., 2003) as a construct overlaps with mentalization and also emphasises an individual’s general narrative, particularly discourses involving emotionally fused interpersonal situations as these give a clearer idea of metacognitive strengths and difficulties (Lysaker, 2010). Authors have applied the Metacognitive Assessment Scale (MAS) to therapeutic discourse, assessing and

evaluating patients' metacognitive progress in therapy or in exploring their stories of recovery (e.g., Dimaggio et al., 2009; Lysaker, et al., 2007b).

The overarching constructs of TOM, mentalization or metacognition appear to relate to common themes despite differences in conceptualisation. In schizophrenia literature, Frith (1992) from a neurodevelopmental tradition, hypothesised that metacognitive deficits are as a result of abnormal brain circuitry. Whereas, in borderline personality disorder, Fonagy (1991) proposed a psychodevelopmental model, suggesting that if traumatic experiences during development are responded to by inhibiting mentalization, and that inhibition of mentalization during stress, results in affect dysregulation. BPD is a clinical problem typified by difficulties in understanding mental states (Fonagy, 1991).

Psychosis and Schizophrenia

A burgeoning evidence base suggests that persons with schizophrenia have poorer metacognitive skills. Bell, Langdon, Seigbert and Ellis (2010) suggested that this is to the extent that the diagnostic criteria should include them. In a comprehensive review of the literature Brüne (2005) found that individuals with schizophrenia were impaired on TOM tasks, demonstrating less understanding of own and others' mental states and that these impairments were particularly linked to negative symptoms and disorganisation. However, lab based tests of TOM have been criticised on the basis of their ecological and clinical validity (Lysaker, 2010). Furthermore Lysaker (2010) has suggested that a truer representation of metacognition is achieved not through experimental vignettes but by studying personally meaningful narratives.

The Metacognition Assessment Scale (as adapted by Lysaker et al., 2005) has been used to explore the narratives of individuals with psychosis. The MAS provides a measure of different dimensions of metacognition: Understanding of One's Own Mind, Understanding Others' Minds, Decentration or the ability to see the world as existing with others having independent motives, and Mastery or the ability to use mental state information to solve problems. A series of studies have shown that amongst individuals with a diagnosis of schizophrenia, there are impairments in understanding one's own mind, understanding others' minds, decentration and mastery (Lysaker et al., 2005; Lysaker, Dimaggio, Buck, Carcione, & Nicolò 2007a; Lysaker et al., 2008a; Lysaker et al., 2010; Lysaker et al., 2011). These studies have shown that impaired metacognition was associated with poorer premorbid functioning and neuropsychological impairments particularly reduced processing speed (Lysaker et al., 2005), deficits in executive functioning as measured by the Wisconsin Card Sorting Test and the Delis Kaplan Executive Function System (Lysaker et al., 2007a; Lysaker et al., 2008a respectively) and to rehabilitation success over six months where lower levels of metacognition are linked to lower improvement in hours worked (Lysaker et al., 2010). In addition, Lysaker, Buck, Taylor and Roe (2008b) have found that higher levels of metacognition are associated with greater feelings of stigma. In addition, individuals who have difficulties understanding other's minds (but not their own) report greater rates of sexual abuse (Lysaker et al., 2011a). Schaub, Abdel-Hamid and Brüne (2010) link reduced metacognition to poorer interpersonal function. Keri and Keleman (2009) demonstrated people with schizophrenia with greater attention and memory problems experienced more unusual thoughts in critical interactions with relatives than those with increased

cognitive capacities. When therapeutically addressed with patients with schizophrenia metacognition can increase and be sustained (Lysaker & Gumley, 2009; Lysaker et al., 2007b).

In the only study to assess mentalization within a psychosis population, MacBeth et al. (2011) found this mentalization was at a low or questionable level in a sample of individuals recovering from a first episode of psychosis. Lower mentalization was associated with insecure/dismissing attachment. In addition higher mentalization was associated with lower self reported quality of life.

Borderline Personality Disorder (BPD)

In BPD metacognition research has been approached differently. Fonagy (1989) hypothesised that reduced mentalization and ultimately BPD results from a mechanism which was initially adaptive. Individuals who respond to maltreatment during childhood by inhibiting mentalization do so to protect from the emotional pain that would result from acknowledging their caregiver's wishes to harm them (Fonagy, 1989). If not rectified, this can lead to mentalization deficits, explaining characteristics of BPD such as labile affect and interpersonal difficulties. This inhibited or arrested mentalization can explain the use of prementalistic coping such as managing psychic pain physically through self-harm (Yen et al., 2002). Fonagy, Steele, Steele, Higgitt, and Target (1994) also suggested that metacognitive deficits reduce the ability of individuals to resolve these traumatic experiences through failed processing.

Studies using the Adult Attachment Interview in BPD have found narratives are long and unorganised, often demonstrating a preoccupation with attachment or marked

by a lack of resolution regarding trauma (e.g., Riggs et al., 2007; Levy et al., 2006; Fonagy et al., 1996; Barone, 2003). Some studies have noted 'fearfully preoccupied' attachment states (e.g. Crittenden & Newman, 2010) where the individual has had fearful attachment experiences that he or she is preoccupied with, to the extent that it can impact current mental processes. The RF scale has been applied to BPD AAI transcripts and all studies have noted poor RF abilities (e.g. Fischer-Kern et al., 2011; Fonagy et al., 1996; Levy et al., 2006).

Integrating this understanding of BPD into clinical practice, Prunetti et al. (2008) found therapeutic intervention could result in metacognitive failures as well as metacognitive improvements. They explored the impact of validation interventions as outlined by Linehan (1993) on metacognitive function before participants' attachment disorganisation had been addressed therapeutically. They hypothesised that before participants' attachment disorganisation had been improved through the therapeutic alliance, validation interventions which would likely activate participants' attachment system would temporarily reduce metacognitive function. Their results supported this, suggesting that this metacognitive dysfunction was because participants experienced therapeutic warmth and empathy as threatening as a result of disorganised early attachment experiences. This activation of a disorganised attachment system may bring to consciousness dissociative experience and disassembled aspects of the self and others which compromise metacognition (Prunetti et al., 2008).

The Metacognitive Assessment Scale (Semerari et al., 2003) provides a measure of Understanding Own Mind, Understanding Others' Minds and Mastery. Unlike the Lysaker et al. (2005) adaptation it does not contain a Decentration Scale. In the context

of BPD, the MAS has only been applied to single case studies. Semerari et al. (2003) reported that a patient with BPD could monitor and relate between mental states, but differentiating and integrating mental states of others was difficult. Similarly, in the therapy transcripts of four patients with BPD studied by Semerari et al. (2005), only one had difficulty with monitoring, however in all cases differentiation and integration of mental states was reduced. Regarding understanding others' minds, Dimaggio et al. (2009) addressed decentration, that is, the ability to think about another person's point of view without considering one's own opinion or role in that relationship. All BPD participants had difficulties decentring (Dimaggio et al., 2009).

These findings suggest this clinical group has difficulties with metacognition and particularly more complex and sophisticated metacognitive skills, for example, integrating, differentiating, and holding others' perspectives in mind. Similar to the findings in relation to schizophrenia, these metacognitive capabilities can improve over the course of therapy (e.g. Levy et al., 2006).

Rationale

The literature concerning metacognition in people with a diagnosis of schizophrenia and people with a diagnosis of BPD is complex. These two literatures have their own epistemological histories, theoretical underpinnings, definitions, and approaches to measurement. Despite these differences there is evidence to argue that both diagnostic groups have impairments in metacognitive functioning however to date there has not been a comparative study evaluating metacognition in these groups.

Gumley (2010) has argued that despite diagnostic differences between BPD and psychosis, there are common developmental pathways and metacognition is implicated in their pathogenesis. For example, psychologically harmful experiences such as sexual and physical abuse, loss and separation (Read, van Os, Morrison & Ross, 2005; Read & Gumley, 2008; Fosati, Maddedu & Maffei, 1999) during development are common in both BPD and psychosis. Therefore, given both groups have common experiences during childhood there may be shared developmental pathways into psychosis and personality disorders associated with compromised metacognition.

One measure, which has been used in both diagnostic groups is the Metacognitive Assessment Scale (Semerari et al., 2003; Lysaker et al., 2005). Therefore the current study was a comparative group study investigating the metacognition of people with BPD and psychosis.

Research Aims

This study aims to explore, compare and contrast metacognition through narrative means of people with a diagnosis of BPD or psychosis. It aims to describe and analyse any associations between metacognition and secondary constructs of attachment anxiety, attachment avoidance, symptom experience and interpersonal difficulties.

Hypotheses

The primary hypothesis is that both individuals with BPD and psychosis will show metacognitive difficulties.

Secondly, it was hypothesised that lower metacognitive functioning would be associated with various other factors:

Hypothesis 2.1 – Due to previous correlations between interpersonal function (Schaub et al., 2010; Lysaker et al., 2010) it was hypothesised that greater interpersonal problems would be associated with poorer metacognition. As a result of the distinct nature of the interpersonal problems as defined by the self-report questionnaire used to measure these, the correlations between metacognition and the subscales will also be investigated.

Hypothesis – 2.2 Given previous findings that negative symptom experience (Brüne, 2005) was associated with poorer metacognitive abilities, it was hypothesised that greater symptom experience would be associated with lower metacognition.

Hypothesis – 2.3 Research outlined in the introduction suggests that greater attachment anxiety and attachment avoidance was associated with lesser metacognitive abilities (e.g., Prunetti et al., 2008, Fonagy et al., 1996), as such it was hypothesised that greater attachment anxiety and avoidance would be associated with poorer metacognition.

Method

Design

A cross-sectional within and between subjects design will be used to evaluate the aims.

Participants

Participants met the DSM IV criteria (American Psychiatric Association, 1994) for BPD in the BPD group and affective and non-affective psychotic disorder in the psychosis group. Participants were included if they were aged between 18 and 64 years.

Participants were excluded if they had comorbid psychosis and BPD diagnoses, a learning disability, a primary diagnosis associated with psycho-active substance use, an organic disorder, or had difficulties with the English language that precluded interview.

Procedure

Mental health professionals in secondary level specialist and generic services were approached and facilitated recruitment by giving clients who met the inclusion criteria information on the research project (see Appendix C for participant information sheet). Following written, informed consent (see Appendix D for the consent form) participants in the BPD group engaged in the SCID-II to verify BPD diagnosis (see Appendices E and F for ethical approval, reference: 10/S0703/67 and NHS Research & Design approval REFERENCE: GN10CP237). If BPD was verified the participant met with the researcher to complete the Narrative Interview for Compassion and Recovery (NICR, see appendix G), self-report measures and PANSS interview. If required, the questionnaires were completed on a third session. Participants in the psychosis group were recruited by another researcher (AM). Following written and informed consent, these participants engaged in the NICR with AM. The PANSS interview and self-report measures were also completed, or during another meeting if required.

The NICRs were transcribed and then the content of these interviews was rated for metacognition using the MAS-R rating scale (see Appendix I for the MAS-R scoring sheet). The transcribing and MAS-R rating of the BPD group NICRs was undertaken by the author. The MAS-R rating of the psychosis group NICR transcripts was shared between the author and another researcher (LM).

Measures

Narrative Interview for Compassion and Recovery (NICR).

This semi-structured, narrative interview, designed by MacBeth and Gumley (2011) gives the participant opportunities to demonstrate metacognitive skills and lasts approximately an hour. The NICR first built rapport by engaging the participant in an adaptive social support network task (see Thorup et al., 2006). The participant was then asked to describe how he or she copes with stress. Finally, the participant discussed a stressful event which happened in the past month.

To avoid the participant choosing a distressing experience which could potentially derail metacognitive abilities, the participant was told he or she did not have to discuss past trauma. It was emphasised that a recent occasion of current relevance was of interest. During discussion of this experience the participant was asked about his or her own thoughts and feelings during the event, the mental processes of others and how he or she coped with the event. If the participant did not spontaneously engage in metacognition, probe questions were asked. The interview finished with an opportunity for reflection on the interview experience and the participant's hopes for the future.

Structured Clinical Interview II (SCID-II).

The SCID-II (First, Gibbon, Spitzer, Williams & Benjamin, 1997) is a diagnostic assessment tool for DSM-IV (American Psychiatric Association, 1994) psychiatric diagnosis of BPD which is valid and reliable (Bateman & Fonagy, 1999). This tool was used diagnostically, the researcher was SCID trained and there was total agreement between the expert (KD) and author on BPD diagnosis.

Metacognitive Assessment Scale Revised (MAS-R).

The MAS (Carcione et al., 2010), revised from Semerari et al.'s (2003) version was used and measures metacognitive abilities, using three subscales: Understanding one's Own Mental states (UM), Understanding Others' Mental states (UOM) and Mastery (M); the capacity to use mental state information and implement specific strategies, regulate affect and overcome difficulties. UM has four categories increasing in sophistication; 'basic requirements' denotes recognition that personal mental functions are independent. 'Monitoring' is the ability to define and differentiate between cognitive and emotional states, relate between these, and the ability to come to conclusions about the cause and effect of thoughts and actions. 'Differentiation' means recognising the subjectivity of mental functions, the hypothetical nature of opinion and distinguishing between reality and fantasy. 'Integration' refers to engaging in a coherent narrative, exploring different aspects of experience, sophisticatedly hypothesising about cause and effect and integrating the multiplicity of experience.

UOM has three categories; 'basic requirements', the same as UM. 'Monitoring'; describing thoughts and feelings of others and hypothesises about links between others'

mental states and behaviour. 'Decentration' is hypothesising about minds of others', independent of subjective perspective and relationship with that person.

M contains four categories; 'basic requirements' denotes the individual takes a problem solving stance regarding mental processes and potential difficulties. 'First level strategies' involve problem solving by changing bodily state, avoiding problematic situations and using the interpersonal relationship as support. 'Second level strategies' imply coping with difficulties through imposing or inhibiting behaviours, or regulating mental states. 'Third level strategies' involve addressing underlying beliefs, UM knowledge or facing the interpersonal dimension of a problem. Also included are; potentially using UOM knowledge, facing a problem maturely, accepting personal limits in changing internal states or influencing situations.

The scoring system used in this study differs from that used by Lysaker (e.g., Lysaker et al., 2011a). MAS items are rated as 'engaged' or 'not engaged', the latter are scored '0'. If engaged, items are rated on a 1 to 5 scale, from 'scarce', 'minimal', 'moderate', 'good' to 'sophisticated' and are not hierarchical in nature (e.g., an individual can engage in third level mastery strategies without engaging in first level strategies). The MAS authors consented to using the MAS with NICR data. The Chief Investigator (AG) provided MAS training, reliability was established through secondary coding with another trained researcher ($\kappa = 0.93$, $p < 0.001$, classified as 'outstanding'). See Appendix I for the MAS-R scoring sheet. (MAS Manual 4.0 is bound separately in volume II of the portfolio).

Brief Symptom Inventory (BSI-53).

Derogatis and Spencer's (1983) BSI-53 screens psychological symptoms using nine dimensions (somatisation, obsessive-compulsive, depression, anxiety, hostility, interpersonal sensitivity, psychoticism, phobic anxiety and paranoid ideation) and three indices (global severity, positive symptom distress and positive symptom experience). Participants rate symptom distress on a 0 to 4 scale, from 'not at all' to 'extremely'. Derogatis and Melisaratos (1983) reported test re-test reliability, internal consistency and convergent validity as very good. The measure has been used with BPD and psychosis groups (e.g., Davidson et al., 2006; Gumley, O'Grady, Power & Schwanneuer, 2004).

Positive and Negative Syndrome Scale (PANSS).

This 30-item scale measures positive, negative and general psychopathology symptoms on a 7-point Likert scale (Kay, Fiszbein & Opler, 1987) and is observer rated. Kay, Opler and Lindenmayer (1987) report the inter-rater reliability as $\alpha = 0.80$ and significant correlations between the PANSS and similar criterion measures.

Inventory of Interpersonal Problems (IIP-32).

The IIP-32 (Barkham, Hardy & Startup, 1996) measures interpersonal problems. It contains eight subscales consisting of 18 items preceded by the phrase 'it is hard for me to...' (e.g. '... say "no" to other people') and 14 items describing interpersonal behaviours a person may do too much (e.g. 'I open up to people too much'). These are rated on a 0 to 4 scale, from 'not at all' to 'extremely'. Test-retest reliability is acceptable

(Horowitz, Alden, Wiggins, & Pincus, 2000). Criterion validity studies indicate IIP-32 scores are related to subjective distress and there are moderate to strong correlations between IIP-32 and interpersonal functioning (Vanheule, Desmet & Rosseel, 2006).

Relationship Style Questionnaire (RSQ).

This 30-item measure of attachment style investigates feelings about close relationships, measuring closeness, dependence and anxiety on a 5-point scale (Griffin & Bartholomew, 1994). Using the factor structure outlined in MacBeth, Schwannauer and Gumley (2008), attachment anxiety (items 11, 18, 23 & 25 totalled) and attachment avoidance (10, 12, 13, 20, 24, 29 & 30 totalled) subscales were calculated.

Data Analysis

An effect size could not be calculated because no previous studies comparing BPD and psychosis groups on metacognition exist. Therefore, no reliable data on which to estimate power was available for this study. This study sought to identify the effect size for any apparent differences between BPD and psychosis groups and any associations with clinical measures as a basis for future studies using the MAS in these groups.

Whether the data met parametric assumptions was investigated prior to formal statistical analysis. A priori analysis proposed that, firstly, the demographic and clinical characteristics of the data would be explored, assessing any differences between groups. This was also to discount the potential need to include covariates in correlational analysis. Secondly, between and within group differences on the MAS total and subscale data would be explored. Finally, correlational analysis of MAS, BSI, PANSS, IIP and RSQ

would be explored. If necessary, any total or subscale data which were statistically significantly different between groups were also significant in the correlational analysis, these would be controlled for in an analysis of covariance (ANCOVA).

Results

INSERT TABLE 1 ABOUT HERE

Between Group Differences

Participants were 25 adults with SCID-II (First et al., 1997) confirmed diagnosis of BPD (n = 14); or ICD-10 (World Health Organization, 2007) diagnosed schizophrenia, schizoaffective disorder, unspecified non-organic psychosis or persistent delusional disorder (n=11). They were recruited from various mental health services such as psychotherapy and outpatients clinical psychology departments, inpatient psychiatric services and specialist trauma teams. For the BPD group 19 potential participants were approached and 14 consented, met diagnosis and completed the project. For the psychosis group 21 were invited to participate, 11 consented and completed the interviews and questionnaires.

Chi square analyses corrected with Fischer's Exact test and a Mann-Whitney test were carried out to assess any demographic differences between the two groups, Table 1 details these results. Of note is the statistically significant between group gender

differences. There were more women in the BPD group and more men in the psychosis group. There were no other statistically significant between group differences on demographic variables.

INSERT TABLE 2 ABOUT HERE

A Kolmogorov-Smirnov test of normality and Levene's test of homogeneity were carried out, revealing some of the data violated parametric assumptions. Therefore, Mann-Whitney analyses were carried out to assess the differences between groups on clinical measures. Table 2 details these results and relevant effect sizes. On the PANSS the two groups' scores were similar except regarding the PANSS negative subscale where the psychosis group were significantly higher than the BPD group ($U = 24$, $p < 0.05$, $r = -0.26$). On the IIP scale, the BPD group had significantly higher scores for the 'domineering/controlling' ($U = 34.5$, $p < 0.05$, $r = -0.47$) and 'overly accommodating' ($U = 40$, $p < 0.05$, $r = -0.41$) subscales. Table 2 shows that the two groups differed significantly on the BSI and most of its subscales. The BPD group were overall significantly more distressed and showed higher levels of negative affect than the psychosis group. Specifically, the BPD group scored significantly higher on the 'Obsessive Compulsive', 'Interpersonal Sensitivity', 'Depression', 'Hostility', 'Paranoid Ideation' and 'Psychoticism' subscales. This resulted in significantly higher 'Global Severity Index', 'Positive Symptom Distress Index' and 'Positive Symptom Total' scores

than the psychosis group. All these BSI significant statistical differences achieved large effect sizes.

INSERT TABLE 3 ABOUT HERE

Table 3 details the MAS data showing there were no significant differences on the UM, UOM, M and overall total MAS score between the BPD and psychosis groups. It also details the median scores for the subscales suggesting that both groups' UM abilities were within the scare category. As were the UOM, however, these were lower scores. The M median was within the scare category for both diagnostic groups. The median for MAS total scores for both groups fall between the scarce to minimal range and would be rounded up to minimal.

Within Group MAS Differences

In order to further explore the metacognitive abilities the two groups were combined and a non-parametric Friedman ANOVA was carried out to test for within group differences on the MAS item means. It found significant differences between MAS subscales ($X^2(2) = 42.56, p < 0.001$).

To ascertain where these differences lay, Wilcoxon Signed Rank Test post-hoc comparisons were carried out. These found that UM was of a significantly higher level than UOM ($z = -3.92, p < 0.001, r = -0.78$). UM was of a significantly higher level than M

($z = -4.38, p < 0.001, r = -0.88$). In addition, UOM abilities were significantly higher than M ($z = -4.04, p < 0.001, r = -0.81$).

INSERT TABLE 4 ABOUT HERE

Kendall's tau correlations were carried out between MAS subscales (UM, UOM and M), BSI, PANSS, IIP and RSQ to investigate the secondary hypotheses. Regarding hypothesis 2.1, lower MAS scores did not correlate with greater interpersonal problems. Table four reveals PANSS positive and UM and UOM correlated significantly, $\tau = -0.35, p < 0.05$ and $\tau = -0.33, p < 0.05$ respectively providing some support for hypothesis 2.2. RSQ attachment anxiety correlated with UM ($\tau = -0.34, p < 0.05$), UOM ($\tau = -0.34, p < 0.05$) and M ($\tau = -0.33, p < 0.05$) supporting hypothesis 2.3. RSQ attachment avoidance correlated with UM ($\tau = 0.3, p < 0.05$) and UOM ($\tau = 0.35, p < 0.05$) scores, contrary to hypothesis 2.3.

Discussion

Summary of Results

The study successfully recruited 14 participants with BPD and 11 participants with psychosis. The BPD group reported significantly higher distress levels on BSI subscales (except somatization, anxiety and phobic anxiety) and indices compared to the

psychosis group. The psychosis group reported significantly higher levels of negative symptoms on the PANSS. The groups did not differ on measures of attachment or on interpersonal problems, with the exception that the BPD group employed more domineering and overly accommodating interpersonal strategies.

Regarding the primary aim to explore metacognition no differences were found between the two groups. Median scores were of a low metacognitive level and these findings were consistent with previous research (e.g., Lysaker, et al., 2005; Dimaggio et al., 2007). The secondary hypothesis was partially supported, poorer MAS Understanding Own and Others' Minds subscales were associated with more positive symptoms as measured by the PANSS positive scale. Greater problems in Understanding Own and Others' Minds and Mastery were linked to greater attachment anxiety, whereas, better Understanding of Own and Others' Minds were associated with greater attachment avoidance. However, the secondary hypothesis was not completely supported because measures of symptom experience and interpersonal problems did not correlate with metacognition.

Interpretation of Findings

The principal study aim was to explore metacognition in people with BPD and psychosis. Both groups displayed similar levels of metacognitive problems. This finding is in accordance with the suggestion that metacognition may be a transdiagnostic construct and this is supported by evidence that metacognitive difficulties exist in schizophrenia (e.g., Lysaker et al., 2010), obsessive compulsive disorder (Dimaggio et al., 2011) and personality disorders (Dimaggio et al., 2009). Another interesting finding was

the hierarchical organisation of metacognitive abilities observed across groups.

Participants demonstrated significantly better Understanding of Own Mind compared to Others' Mind which in turn was significantly higher than Mastery, the ability to use mental state information to cope with distressing experiences.

The hierarchical organisation of metacognition is in accordance with the developmental model of metacognition (e.g., Meins, 2003; Fonagy et al., 1991). During development the self-concept, self-understanding and affect regulation emerges, most optimally, in the context of a secure attachment relationship between infant and caregiver (Fonagy, Gergely, Jurist & Target, 2002). Through the caregiver's contingent mirroring (Fonagy et al., 2002) and treating the child as an individual with independent mental functions and orientating interactions in terms that the child can understand. This 'maternal mind mindedness' (Meins, 2003) allows the child to internalize, understand and regulate internal experience (Gergely, Koós & Watson, 2002). On this basis, more sophisticated mentalization skills can develop allowing capabilities such as empathy, affect consciousness and mindfulness to grow (Choi-Kain & Gunderson, 2008). However, the development of these potential skills can be inhibited by insecure or disorganised attachment relationships, traumatic experiences, or simply exposure to a home life that does not promote the discussion of mental states (Fonagy et al., 1996). Bateman and Fonagy (2004) suggest the latter can be potentially more psychologically damaging than traumatic experiences themselves. Often these are the experiences of individuals who go on to develop complex mental health problems such as psychosis or borderline personality disorder (Read et al., 2005; Fossati et al., 1999). Therefore, difficulty with more metacognitively sophisticated tasks such as integration,

decentration and mastery, as demonstrated by this study's findings is in accordance with this model.

There was some support for the secondary hypotheses that poorer metacognitive abilities would correlate with; firstly, more interpersonal problems; secondly, higher levels of symptom experience; and thirdly, greater attachment anxiety and attachment avoidance. Greater attachment anxiety was associated with poorer understanding of own mind, that of others' and mastery. This supports previous findings using the Reflective Functioning scale (RF, Fonagy et al., 1996) where individuals with insecure attachment states, demonstrated poorer mentalizing skills. Liotti and Gilbert (2011) suggest that not just in the attachment context, but in other interpersonal circumstances perceived as threatening, metacognition can be inhibited.

In contrast, attachment avoidance was associated with greater Understanding of Own and Others' Mind, which was not hypothesised and appears to be counterintuitive, given attachment should promote metacognition. However, if attachment relationships are conceived of as threatening, avoiding these may enable metacognitive function, therefore, serving a protective function, preserving (an already weakened) metacognitive system and attesting to the psychodevelopmental account (Fonagy, 1991; Bateman & Fonagy, 2004). Furthermore, some have suggested the protective value that more avoidant attachment behaviours can have in, for example, managing distressing affect and interpersonal relationships (Tyrrell, Dozier, Teague & Falot, 1999). It may be that in this study, using the interview employed, a more avoidant interpersonal relating style may allow an individual to maintain the ability to engage in metacognitive processes, even when talking about a stressful and affect laden event which the NICR

required. The measurement of attachment used may have a role to play in this finding as well. Self-report attachment methodology correlates poorly with narrative based findings (e.g. Riggs et al., 2007) which this hypothesis was based upon. In narrative paradigms (e.g. AAI) the attachment states are categorised not just by what the participant reports but the coherence of the narrative. However, because of the conscious nature of self-report methodology it is difficult to assess attachment in populations noted for disorganization and insecurity, as these clinical groups are. Self-reports do not capture the complexity and opposing elements of their attachment states of mind (Allen, Stein, Fonagy, Fultz & Target, 2005).

Greater experience of positive symptoms as measured by the PANSS positive subscale was linked to poorer Understanding of Own Mind and Others' Mind, suggesting that poorer metacognitive functioning was associated with increased positive symptoms. This resonates with previous TOM findings that poorer TOM performance was associated with more paranoid symptoms (e.g. Corcoran et al., 1995; Corcoran, Cahill & Frith, 1997). An association was not observed with negative symptoms as one might have predicted based on Brüne (2005). The reason for this is unclear but the sampling in this study (inclusion of BPD) differs significantly from previous studies of metacognition and negative symptoms.

The secondary hypothesis was not fully supported because greater interpersonal problems and symptom experience were not associated with poorer metacognitive problems. This was unexpected since others have shown significant associations between metacognition and social functioning (Brüne, 2005) and work functioning (Lysaker et al., 2010). This was the first study to use the Inventory of Interpersonal

Problems (IIP), which is different to previous studies that have relied on observer based measures of interpersonal functioning. Therefore the IIP may assess interpersonal problems that are unrelated to metacognition. Further research would be required to explore potentially direct or indirect relationships between metacognition and interpersonal problems.

As expected there were higher levels of negative affect in the BPD group and higher levels of negative symptoms in the psychosis group and similar levels of metacognition are observed. Whilst metacognition appears to be reduced, the lack of association with negative affect suggests another variable linked to affect regulation and symptom experience is at work. It would be reasonable to propose that measures such as attachment and coping are potential factors which might explain how affective symptoms are expressed between both groups. In that sense, what could enhance these findings is further narrative measurement of attachment, for example, using the AAI and more detailed investigation of coping and affect regulation.

Liotti and Gilbert (2011) extend this developmental, attachment-based view, suggesting a complementary, evolutionary basis to metacognition. Key to this is the contention that attachment does not necessarily facilitate metacognition, the interpersonal context can actually serve to shut metacognition down. This implies the importance of the quality of the social context. Liotti and Gilbert (2011) suggest a sense of 'social safeness' facilitates metacognition whereas feelings of threat can inhibit it. Indeed, Prunetti et al. (2008) found patients whose internal working models (IWMs) perceived others as threatening, found therapeutic interventions threatening when they

activated their IWMs. With this sense of threat came a reduction in metacognitive function, until their IWMs were addressed through the therapeutic alliance.

Liotti and Gilbert (2011) widen the idea of attachment, suggesting human beings can have different 'social mentalities' depending on whether an interpersonal situation is perceived as affiliative, caring or competitive. Comfort and ability or anxiety at engaging metacognitively in these different situations can be relatively separate depending on whether they are viewed as threatening or safe. Liotti and Gilbert (2011) suggest another key interpersonal process is shame as this can be a powerful inhibitor of metacognitive ability. Therefore, perhaps opening up the conceptualization of metacognition that has been put forward in this study, and in turn, taking account for a wider view of interpersonal attachment contexts, and variables such as shame and coping could help to clarify how they promote or inhibit metacognition.

Limitations

When interpreting these findings a number of limitations should be considered. Firstly, this study was carried out with a small sample. Effort was made to maximize participation, though the challenge of recruiting individuals with complex mental health problems and time limitations meant that participant numbers remained low. However, this is an exploratory study and as such may encourage investigation with larger samples.

There are limitations of using a diagnostic framework to group participants. The recruitment process ensured BPD group participants did not have psychosis and vice versa. However, the nature of these complex clinical presentations is that, for instance individuals with BPD can have dissociative experiences which can be qualitatively

similar to psychotic phenomena (Moskowitz, Schäfer & Dorahy, 2008). As such, two of the BPD participants were prescribed anti-psychotic medication. Also, the clinical team of a participant with psychosis had previously wondered whether BPD diagnosis was relevant to this individual. These examples can be interpreted in the context of a diagnostic system which does not perhaps best encapsulate and explain clinically complex problems.

Regarding psychotic symptoms, the psychosis group experienced significantly higher levels of negative symptoms but it was the BPD group who were significantly higher for psychoticism, hostility and paranoid ideation on the BSI. Impression management (Leary, 1995) and possibly inadvertent metacognition could be at work. Individuals in the psychosis group are perhaps more aware of the negative repercussions (e.g. hospitalization, increased medication, greater monitoring) of endorsing these types of symptoms than the BPD group.

This study was not able to control for the psychotherapy participants may have received. Participants in both groups had varied experience of type and length of psychotherapeutic intervention. These experiences may well have impacted on metacognitive abilities. As Liotti and Gilbert (2011) rightly point out, intrinsic to many types of psychotherapy is exploration of mental states and often developing these skills. In addition, there is no normative data for the MAS, limiting the ability to assess levels of metacognition in clinically complex groups in comparison to capabilities of normative or different clinical groups. Therefore, a clear limitation of this study was the absence of a healthy control group.

Caution should be exercised regarding the correlational findings because intrinsic to this analysis is its limitations in delineating cause. Therefore, the significant correlations between MAS and attachment anxiety and attachment avoidance and positive symptoms cannot be interpreted as metacognitive difficulties resulting in more positive symptoms, attachment anxiety and attachment avoidance or these variables causing poorer metacognition. Indeed, there are complex associations between these factors which cannot be fully explained by this small exploratory study.

The study did not measure neuropsychological correlates such as memory, executive function or processing speed which would be interesting to consider. Also, these investigations could be extended to a BPD group, to explore whether the correlations between metacognition and other neuropsychological skills are replicated in this diagnosis. This would be interesting because there is some evidence for neuropsychological deficits in BPD, Minzenberg, Poole and Vinogradov (2008) found that executive dysfunction was associated with abuse histories and poorer recall correlated with attachment anxiety in this group.

Research Implications

Given the clinical utility of metacognition, turning attention towards how these findings might relate to future research and clinical practice seems appropriate. Future investigation of how symptom experience, attachment, coping and shame interact with metacognition could prove useful. Connected to this is Liotti and Gilbert's (2011) suggestion that the context, or 'social mentality', within which metacognition is engaged in is relevant. Further investigation of whether this is perceived as competitive,

affiliative or caring, and whether promoting or inhibiting metacognition through a sense of safeness or threat could be measured empirically. This could be incorporated in semi-structured interview such as the NICR. Investigating metacognitive norms so that comparisons can be made with clinical groups' abilities within these different social mentalities could be useful in general terms, and also useful for the psychotherapeutic context in particular.

Clinical Implications

Research has shown that metacognition as measured by RF and MAS is not only amenable to treatment, but it can be improved and these improvements sustained (Levy et al., 2006; Lysaker et al., 2005; Lysaker et al., 2007b). However, Prunetti et al.'s (2008) findings suggest the importance of thinking about patients' attachment states of mind because engaging patients in a therapeutic, interpersonal context can potentially be perceived as threatening, impairing metacognition. Indeed, Fonagy, Bateman and Bateman (2011) also comment on the iatrogenic harm which can be done if a client is expected to engage at a metacognitive level which is too difficult.

Further, Fonagy et al. (2011) suggest metacognition is both core to psychotherapeutic treatment and can be conceptualised as a therapeutic technique. Metacognition is implied as a fundamental component of many therapies because of emphasis on exploring personal perception of internal experience, holding others' minds in mind and standing back from immediate reactions (Liotti & Gilbert, 2011). Technically, this could involve assessing metacognitive skills more explicitly which might garner a more detailed understanding of clients' abilities to understand own and others'

minds, mastery and coping. Following from this, adapting intervention to the individual's metacognitive skills and difficulties could perhaps be useful in supporting meaningful client progress and recovery. One possibility could be initially focusing on adapting and building on aspects of understanding own mind and followed by understanding of others' rather than initially aiming to help the client to 'problem solve'. This study's findings supports others in suggesting that mastery, problem solving and using mental state information to cope with distress is a more sophisticated endeavour (Lysaker et al., 2011b). Lysaker et al. (2011b) have begun this process in their proposed model of self-reflectivity in psychotherapy for schizophrenia. Ultimately, working with metacognition could improve self-understanding, understanding others' minds and coping with distress and promote sustainable therapeutic progress.

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Tables and Figures Captions

Table 1. Demographics Characteristics of BPD and Psychosis Groups.

Table 2. Clinical Characteristics of the BPD and Psychosis Groups.

Table 3. MAS Total and Subscale Data.

Table 4. Correlations of MAS, BSI, PANSS, IIP and RSQ Data.

Table 1. Demographics Characteristics of BPD and Psychosis Groups.

	BPD Group N = 14 Median (IQR)	Psychosis Group N = 11 Median (IQR)	Comparison Median (IQ)
Gender	-	-	$\chi^2 (1) = 6.51^*$, $p = 0.02$
Female	12	4	-
Male	2	7	-
Age	-	-	U = 53, ns
Median (Interquartile Range)	35 (22.5)	40 (18)	-
Range	21 – 52 years	30 – 54 years	-
Education	-	-	$\chi^2 (4) = 1.73$, ns
No qualifications	3	2	-
Standard grades/ GCSEs	4	2	-
College or equivalent	4	4	-
University	3	2	-
No Information	0	1	-
Marital Status	-	-	$\chi^2 (3) = 4.57$, ns
Single	9	8	-
Married	4	1	-
Widowed	1	0	-
Divorced	0	2	-
Employment	-	-	$\chi^2 (2) = 0.91$, ns
Employed	3	2	-
Unemployed	10	9	-
Student	1	0	-
Ethnicity	-	-	$\chi^2 (2) = 2.06$, ns
White Scots	13	10	-
Asian Pakistani	0	1	-
Mixed Race	1	0	-

* = $p < 0.05$

Table 2. Clinical Characteristics of the BPD and Psychosis Groups.

	BPD Group N = 14 Median (IQR)	Psychosis Group N = 11 Median (IQR)	Comparison Median (IQ) U value and effect size
BSI Total	136 (56)	63 (54)	U = 14.5***, r = - 0.39
BSI subscales	-	-	-
Somatization	1.29 (1.18)	0.57 (1)	U = 41.5
Obsessive Compulsive	3.08 (1.21)	1.67 (1.67)	U = 25.5**, r = - 0.57
Interpersonal Sensitivity	3.13 (1.94)	1.75 (1.5)	U = 26.5**, r = - 0.56
Depression	2.92 (1.42)	1.67 (1.33)	U = 21**, r = - 0.62
Anxiety	2.25 (2)	1.67 (1.83)	U = 46
Hostility	2.9 (1.7)	0.6 (0.8)	U = 6***, r = - 0.78
Phobic Anxiety	2.4 (2.3)	1.2 (2)	U = 45.5
Paranoid Ideation	2.4 (1.4)	1.8 (1.8)	U = 40*, r = - 0.41
Psychoticism	3.1 (1.5)	1.6 (1.4)	U = 21.5*, r = - 0.61
	-	-	-
Global Severity Index	2.36 (0.94)	1.19 (1.02)	U = 23**, r = - 0.59
Positive Symptom Distress Index	3.06 (1.04)	2.27 (0.9)	U = 27.5**, r = - 0.54
Positive Symptom Total	44 (12.25)	35 (10)	U = 20.5**, r = - 0.62
PANSS Total	55 (6.5)	66 (23)	U = 51
PANSS subscales	-	-	-
PANSS positive	11.5 (2.75)	15 (6)	U = 53
PANSS negative	9 (3.5)	15 (8)	U = 24*, r = - 0.26
PANSS general	34.5 (8.25)	35 (13)	U = 76
IIP Total	44.5 (23)	47 (18)	U = 75.5
IIP subscales	-	-	-
Domineering/Controlling	8.5 (8.5)	4 (3)	U = 34.5*, r = - 0.47
Vindictive/self-centred	4 (11.25)	5 (7)	U = 67.5
Cold/Distant	8 (6.5)	8 (7)	U = 74.5
Social Inhibition	10 (10)	12 (4)	U = 60.5
Non-assertive	11.5 (7.5)	10 (2)	U = 64.5
Overly accommodating	12.5 (5.5)	9 (4)	U = 40*, r = - 0.41
Self-sacrificing	12 (7.5)	9 (3)	U = 51.5
Intrusive/Needy	7 (12.5)	8 (5)	U = 71
Submissive Dimension	46.5 (7.75)	40 (8)	U = 44
Dominance Dimension	28.5 (27.25)	25 (11)	U = 63.5
RSQ	-	-	-
Attachment anxiety	13.5 (6)	13 (4)	U = 73.5
Attachment avoidance	29 (9)	25 (6)	U = 49.5

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

Table 3. MAS Total and Subscale Data.

	MAS scoring range	BPD, N = 14 Median (IQR)	Psychosis, N = 11 Median (IQR)	Comparison
UM	-	-	-	
[§] BRs	0 – 5	3 (2)	3 (1)	-
Monitoring	0 – 15	9 (3.25)	9 (3)	-
Differentiation	0 – 10	5 (2.75)	5 (3)	-
Integration	0 – 10	3 (3)	1 (3)	-
	-	-	-	U = 56.5, z = - 1.12,
Median UM score	-	2.44	2.25	r = - 0.22
UOM	-	-	-	
Monitoring	0 – 15	6 (2.5)	6 (4)	-
Decentration	0 – 5	1 (1.25)	1 (0)	-
	-	-	-	U = 59.5, z = - 0.97,
Median UOM Score	-	2.1	2	r = - 0.19
M	-	-	-	
BRs	0 – 5	3 (1.25)	3 (0)	-
1st Level Strategies	0 – 10	5 (2.75)	4 (2)	-
2nd Level Strategies	0 – 10	2 (3)	2 (2)	-
3rd Level Strategies	0 – 15	0 (1)	0 (1)	-
	-	-	-	U = 73.5, z = - 0.2,
Median M score	-	1.25	1.38	r = - 0.04
Total MAS score	0 – 100	37 (21.5)	35 (17)	-
	-	-	-	U = 61, z = - 0.88,
Median Total score	-	1.85	1.75	r = 0.18

* = p < 0.05, ** = p < 0.01

[§] (BR) - Basic Requirements for UM and UOM are the same score and are included in both the UM and UOM subtotals.

UM score range = 0 – 40, UOM score range = 0 – 20, M score range = 0 – 40.

MAS Median Scores 1 = Minimal, 2 = Scarce, 3 = Moderate, 4 = Good, 5 = Sophisticated.

Table 4. Correlations of MAS, BSI, PANSS, IIP and RSQ Data.

	Understanding Own Mind	Understanding Other's Mind	Mastery
BSI total	$\tau = -0.14$	$\tau = -0.13$	$\tau = -0.01$
Global Severity Index	$\tau = 0.17$	$\tau = 0.16$	$\tau = 0.06$
Positive Symptom Distress Index	$\tau = 0.11$	$\tau = 0.12$	$\tau = -0.02$
Positive Symptom Total	$\tau = -0.17$	$\tau = -0.2$	$\tau = 0.12$
PANSS total	$\tau = -0.21$	$\tau = -0.19$	$\tau = -0.05$
PANSS positive	$\tau = -0.35^*$	$\tau = -0.33^*$	$\tau = -0.19$
PANSS negative	$\tau = -0.17$	$\tau = -0.16$	$\tau = -0.02$
PANSS psychopathology	$\tau = -0.03$	$\tau = 0.06$	$\tau = 0.01$
IIP total	$\tau = 0.05$	$\tau = 0.13$	$\tau = 0.05$
Submissive Dimension	$\tau = -0.04, ns$	$\tau = 0.01$	$\tau = -0.09$
Dominance Dimension	$\tau = 0.03, ns$	$\tau = 0.07$	$\tau = -0.01$
RSQ	-	-	-
RSQ Attachment anxiety	$\tau = -0.34^*$	$\tau = -0.34^*$	$\tau = -0.33^*$
RSQ Attachment avoidance	$\tau = 0.3^*$	$\tau = 0.35^*$	$\tau = 0.17$

* = $p < 0.05$

Appendix A. Requirements for submission to the Journal of Personality Disorders.

Journal of Personality Disorders

Official Journal of the International Society for the Study of Personality Disorders

Edited by Paul S. Links, MD, MSc, FRCPC

University of Toronto

Instructions To Authors

Types of Articles

Regular Articles: Reports of original work should not exceed 20 pages (typed, double lined spaces and with standard margins, including tables, figures, and references).

Invited Essays and Special Articles: These articles provide an overview of broad ranging areas of research and conceptual formulations dealing with substantive theoretical issues. Reports of large scale definitive empirical studies may also be submitted. Articles should not exceed 30 pages including tables, figures, and references. Authors contemplating such an article are advised to contact the editor in advance to see whether the topic is appropriate and whether other articles in this topic are planned.

Brief Reports: Short descriptions of empirical studies not exceeding 10 pages in length including tables, figures, and references.

Manuscript Preparation and Submission: Manuscripts must be typewritten, double spaced, prepared for blind review, and submitted along with a cover letter to the Journal's Editor via email to the Editorial Office at ezardd@smh.toronto.on.ca. All articles should be prepared in accordance with the Publication Manual of the American Psychological Association (5th. Ed.), (e.g., they must be preceded by an abstract of 100-150 words and adhere to APA referencing format).

Email enquiries may be directed to Debbie Ezard at: ezardd@smh.toronto.on.ca.

Appendix B Systematic Review Quality Rating Scale

Objectives

1. Are the aims/question/hypotheses clearly stated or described?

Sampling

2. Baseline demographic and characteristics of the participants are specified to allow appropriate comparisons (e.g. age, gender, SES, comorbidity)
3. Type of sample group: convenience, highly selective; geographic cohort; convenience; highly selective
4. How many participants are included in the study? Is the sample size based on adequate power calculations?
5. Was diagnosis verified?
6. Was comorbidity discussed?

Blinding

7. Were AAI raters blind to the participant's diagnosis?
8. Were AAI raters trained and registered?

Measures

9. Was interrater reliability for AAI ratings detailed?
10. Was reliability and validity of measures used reported?

Design

11. Is the study design appropriate to test the hypotheses?

Analysis

12. Were the analysis is appropriate to aims, design and type of outcome measure?
13. Is there adequate reporting of summary statistics?
14. Have effect sizes (incl. correlations) and confidence intervals been reported?
15. Was there sufficient statistical power to warrant specific analyses?
16. Were 3, 4, and 5 way analyses completed on the AAI data?
17. Were subscales of the AAI detailed?
18. If U, was it detailed whether this was for trauma or loss?
19. Were the Reflective Functioning codings reported?
20. Were HH coding reported?

Results and Discussion

21. Do the findings relate to the aims/questions/hypotheses
22. Are these discussed in reference to theory and previous findings?
23. Are recommendations for clinical practice/ future research discussed in relation to the findings?
24. Are limitations of the study clearly expressed?

Note: Points were awarded according to the design and methodology. Questions could be answered 'adequately' (1 point), 'partially' (0.5 point), 'inadequately' (0 point) or 'not applicable', in which case this point was subtracted from the total and would not affect the overall rating. Ratings were calculated by converting the total points awarded into a % score. These ranged from 65 to 91%. Percentages of 90-100 were considered 'excellent', 75-89: 'good', 60-74: 'moderate' and 40-59: 'poor'.

Appendix C Participant Information Sheet



**THINKING ABOUT RECOVERY
PARTICIPANT INFORMATION SHEET**



Invitation to Participate in a Research Project

Title of the Project – Thinking about Recovery: The Importance of Reflection and Compassion in Understanding Individuals' Recovery from Complex Mental Health Problems.

What is the research about?

This study is designed to investigate compassion and psychological reflection in people who have experienced complex mental health problems. This kind of research will help mental health services to understand the needs of people who have experienced complex mental health problems, and to develop new psychological therapies that aim to help people recover. The study is being undertaken as part of the fulfillment for an academic qualification (Doctorate in Clinical Psychology).

Who is being asked to take part?

We are asking people who have experienced complex mental health problems in the past to take part in the study.

Why have I been asked to take part?

A member of the mental health team responsible for your care (e.g. Consultant Psychiatrist, Clinical Psychologist or CPN) has suggested that you might be interested in participating in this study. I am meeting with you to tell you a little more about what participating in the study would involve.

What do you mean by the term 'compassion'?

By 'compassion', we mean a feeling of warmth, sympathy and caring that we can have about ourselves and others.

What are you asking me to consent to?

Consenting to participate in this study means that you will meet with a researcher in a community NHS venue convenient to you three times and complete an interview and some questionnaires.

What will I be asked to do if I agree to take part?

You will be asked to meet with the researcher up to three times. The first meeting is an opportunity for you to ask questions about the study and discuss taking part. If you decide to participate, we will talk about how you would describe yourself.

You may be asked to meet again, if so, on the final visit you will be interviewed and asked to fill in some questionnaires. During the interview, you will be asked about important relationships in your life and how you cope with stressful situations. You will be asked to give a specific example of coping with a challenging time in your life. This does not have to be something which has been very distressing for

you and it is up to you which experiences you choose to discuss. We would then like you to complete some short questionnaires. This meeting will last approximately 1 hour, although may take longer depending upon the time taken to complete the questionnaires. The interview will be recorded.

Will my information be confidential?

All the information you provide will be treated confidentially. All recordings, transcriptions and other data will be stored in a password protected computer. The interview will be fully-anonymised when it is transcribed by the researcher who interviews you. This means that it will not include your name, the names of people, schools or jobs you may mention or any other information which could identify you. Only the researcher who interviews you will hear the original transcript. Once the interview is transcribed, the recorded audio copy will be destroyed. The transcribed and anonymised interview and questionnaires will then be analysed by the research team. If you agree we may use quotations from conversations in reports about this research.

If you share information that makes the research team concerned for your safety or the safety of other people, we may be required to tell others involved in your care (e.g. your key-worker or psychiatrist). We will always notify you beforehand if we are going to do this, and explain why.

What happens to the consent form?

To ensure anonymity and confidentiality, the consent form will be kept separately from the transcribed interview in a locked filing cabinet within the Section of Psychological Medicine.

What are the benefits of taking part?

In general, research improves our knowledge of what people's difficulties are and what can do to help overcome these and improve people's lives, so your participation will help increase our knowledge of areas and potentially improve treatment for others in the future.

Is there a downside to taking part?

As stated above, in the interview you will be asked to discuss how you coped with a challenging time in your life. We do not expect you to be worried or distressed by your participation in the study. However, if you have any concerns about what we discussed, you can contact the researcher for more information or indeed discuss this further with your key-worker or member of your clinical team. Although we do not anticipate that participating in this study will cause you any distress, if this did happen we will help you to access appropriate support if needed.

What happens if I decide not to take part?

Nothing. Taking part is entirely up to you. If you do not wish to take part it will not affect any treatment that you currently receive. Also, if you do decide to take part, you are able to change your mind and withdraw from the study at any time without it affecting your care either now or in the future.

After this meeting, the research team will give you at least 48 hours to decide whether you want to take part in the study. If you still want to participate, then we will make arrangements to meet again.

Can I change my mind?

Yes. You can change your mind at any time and do not need to give a reason. Your care will not be affected in any way.

What will happen to the results of the study?

The results will be published in a medical journal and through other routes to ensure that the general public are also aware of the findings. You will not be identified in any report/publication arising from this study.

Who is organising and funding the research?

The University of Glasgow.

Who has reviewed the study?

The study has been reviewed by the University of Glasgow to ensure that it meets standards of scientific conduct. It has also been reviewed by NHS Greater Glasgow & Clyde Mental Health Ethics Committee to ensure that it meets standards of ethical conduct.

Contact for Further Information

If you have any questions you would like to ask, please do not hesitate to get in contact.

Researcher

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Gartnavel Royal Hospital

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G12 0XH

Telephone Number: 0141 211 0607

Thank you for taking time to read this

This has been approved by the NHS GG&C Ethics Committee

Appendix D Participant Consent Form



Invitation to Participate in a Research Project



UNIVERSITY of GLASGOW

THINKING ABOUT RECOVERY

CONSENT FORM

Name of Participant:

Name of Researcher:

Please Tick in the appropriate column: YES NO

Have you read the information sheet? [] []

Have you had opportunity to ask questions and to discuss the project? [] []

Have you received satisfactory answers to the questions? [] []

Have you received enough information? [] []

Do you understand that you are free to withdraw your consent:
at any time? [] []

without having to give a reason? [] []

and without affecting your future care? [] []

Do you consent to take part in this research project? [] []

Can we quote remarks you may make in reports about this research
(we would not use your name)? [] []

Participant signature: Date:

Name in Block Letters:

Researcher signature: Date:

Name in Block Letters:

This research project has been approved by NHS GG&C Ethics Committee

Appendix E Ethical Approval

Appendix G Narrative Interview for Compassion and Recovery

Narrative Interview for Exploring Compassion Version 1.4

1) - Introduction

Today I would like to give you an opportunity to talk about how you respond at times when you are feeling stressed or upset.

For example, I'm thinking here of things like moving house, money worries, or social occasions. However, I'm most interested in examples that are relevant to your current circumstances. I would also like to hear about your sources of support at such times, how you feel when you are upset, and how you cope with such situations.

To help me get a picture of your own circumstances I would first like to spend some time getting an idea of the people and relationships that are important to you. Then we would like you to tell us about some specific experiences you have had where you have felt stressed or upset.

I understand that some of the experiences that I asking you about may be difficult for you to discuss. Therefore you do not have to tell me about the *most* distressing experience you have had, but I would like to hear an experience that you feel has been stressful, upsetting or challenging.

Before we start, are there any questions you have about today?

2) - Social support network

First of all, I would like to know a little more about who the important people in your life are at the moment. I'm going to write these down as you say them.

{After completing list}

- 2.1) To help keep me understand how much these people are involved in your life I am going to map what you've told me out on this piece of paper *{Introduce Social Network Diagram}*. First I'm going to write your name in the centre of the page, then I would like to take each of the people we have talked about and write their name on the page, with an arrow pointing to you, the shorter the length of the arrow from them to you the closer you feel your relationship. Lets start with Person 1...
- 2.2) Out of the people we've just talked about who would you say you have the closest relationship with?
- 2.3) Why would you say that you are closest to that person?

3) Everyone copes with stress in different ways. What do you do when you feel stressed or upset?

- 3.1) Does anything in particular help when you are feeling stressed?

- 3.2) What do you do if your solution to the problem does not work?
- 3.3) Does anyone else ever help you when you have difficulties?
- 3.4) Would you ask anyone else for help if you needed it?
- 3.5) Sometimes things can just be so hard that we avoid them – have you ever done that?]
- 3.6) Thinking of the people on the diagram, would you go to any of them for support?

4) - Recent stressor/compassion frame

Thank you for explaining that to me. Now, I'm going to ask you about how you cope with stress. I would like you to tell me about a specific experience or thing that happened to you in the last month or so. Just something that sticks out in your mind.

I would like you to tell me about a time when you had to use your coping skills. There are a few questions I would like to ask you about this, but first I would like you, in your own words, to give me an idea of what happened:

If general response given - That's a good general description, but I'm wondering if there was a particular time that happened?

If no example offered - The experiences I am thinking about are things like moving house, financial worries, or concerns about going out. Does anything come to mind from those examples?

4.1) Follow-up probes to establish context of autobiographical memory:

- 4.1.1) What happened next?
- 4.1.2) What did you do?
- 4.1.3) Who was involved?
- 4.1.4) What were you thinking at the time?
- 4.1.5) How did you feel at the time?
- 4.1.6) Did you look to any of the people on the diagram for support?

4.2a - If social support figure mentioned

- 4.2.1) You said Person X was involved, How did Person X respond to you during the experience we've talked about?
- 4.2.2) At the time, did you feel supported by them?
In what way?

- 4.2.3) How did you respond to them doing/saying that?
- 4.2.4) What do you think was going through Person X's mind at that time?
How do you think **they** might have been feeling?
- 4.2.5) Do you have any ideas about what made them feel that way?
...Or what made them behave in that way?
- 4.2.6) Reflecting on this now, do you feel they were supportive of you?
- 4.2.7) Do you think they realised the effect that response had on you?
- 4.2.8) Looking back, is there a different way Person X could have approached or supported you during this situation?
- 4.2.9) Is there anything that you would have liked them to do to help?
- 4.2.10) Thinking about the support you got from person X. Is that the same for all situations?
If not, why?
- 4.2.11) Would there be anyone else that you looked to for support?
What did they do?
- 4.2.11) I'm just wondering, how do you think someone else would deal with the situation you've just described...?
- 4.2.12) What sort of things would you say to a friend, if they went through a similar experience but acted differently to you?
- 4.2.13) How do you think this experience has influenced your life?

4.2.b - If no support figures mentioned

I'm just curious, did you talk to any of the people we've talked about on your diagram about this experience?

Then as for (4.2.1)

{If none offered}

Thinking about that experience, is there anyone whom you would have liked to have been supported by?

Then as for (4.2.1)

5 - Summing up

We've talked about quite a lot today, but is there anything you feel you have learned from the experiences we've talked about?

5.1 What are your hopes for the future?

-----END-----

(Throughout Interview) General Prompts:

I'm interested to know more about that, can you tell me a bit more?

Could you give me an example of feeling/doing/thinking that?

I'm wondering what makes you say that?

Appendix H Metacognitive Assessment Scale Scoring Sheet Revised

	MAS – R 2009	Not engaged	Scarce	Minimal	Moderate	Good	Sophisti- cated
Basic req.	RB The person recognizes to possess mental functions and represents her/himself as an individual who thinks and feels in an independent manner.	N.E. <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
monitoring	UM1 COGNITIVE IDENTIFICATION the person is able to distinguish and differentiate his/her own cognitive operations (e.g. remembering, imagining, having fantasies, dreaming, desiring, deciding, foreseeing and thinking).	N.E. <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
	UM2 EMOTIONAL IDENTIFICATION the person is able to define, distinguish and name his/her own emotional states.	N.E. <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
	UM3 RELATING VARIABLES the person identifies and describes the relations among the aspects of subjective experience: i.e. causes for his own thought or emotion or behaviour, the effects of a thought or an emotion, the inner or social factors influencing own actions.	N.E. <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
differentiation	UM4 the person recognises his/her thought as subjective, his/her opinions and forecasts as hypotheses, considering the possibility they change as contexts change and time passes (including the ability to take a critical distance from own beliefs). Thoughts are not considered reality per se and ideas or wishes cannot influence directly events or change reality.	N.E. <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
	UM5 the person distinguishes among belief, fantasy, dreams, memories and forecasts. Reality judgement is intact and the person is aware of when and where a scene is taking place.	N.E. <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
integration	UM6 the person is able to describe in a coherent narrative the cognitive and emotional aspects of his/her own states of mind and how they were changing during time, grasping links and causal relations that promoted changes.	N.E. <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
	UM7 the person describes the cognitive and emotional aspects of his/her own different states of mind integrating the multiplicity – and possible contradictions – of representations in a consistent narrative.	N.E. <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
monitoring	UOM1 COGNITIVE IDENTIFICATION the person is able to define and distinguish the others' cognitive operations (e.g. remembering, imagining, having fantasies, dreaming, desiring, deciding, foreseeing and thinking).	N.E. <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
	UOM2 EMOTIONAL IDENTIFICATION the person is able to define and distinguish the others' emotional states.	N.E. <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
	UOM3 RELATING VARIABLES the person is able to make hypotheses about the links explaining the relationships among other's thoughts, emotions and overt behaviour, e.g. the causes behind a thought, emotion or type of behaviour	N.E. <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
Decen- tration	D The person is able to describe the other's mental state forming hypothesis which are independent from his/her own perspective and from his/her own involvement in the relationship.	N.E. <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
Basic req.	M1 The person discusses his own behaviour and psychological processes and states not as simple matter-of-fact data but as tasks to be done and problems to be solved, defining the terms of the problem in a plausible way and adopting an active problem-solving stance	N.E. <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
1st level strat.	M2 the person tries to act on problematic states modifying the bodily state.	N.E. <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
	M3 the person tries to avoid the eliciting conditions of a problematic state and/or uses the relational context as a support.	N.E. <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

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2nd level strat.	M4 the person deals with the problem voluntarily imposing or inhibiting a behaviour on him/herself.	N.E. <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
	M5 the person deals with the problem through the regulation and management of his/her mental states, distracting her/himself from ideas and emotions causing suffering.	N.E. <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
3rd level strat.	M6 the person deals with the problem operating on underpinning beliefs and evaluations and/or by using his/her general knowledge on his/her own mental functioning.	N.E. <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
	M7 The person faces the interpersonal dimension of the problem using his/her own knowledge of other people' s mental functioning.	N.E. <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
	M8 The person faces the problem accepting in a mature way his/her own limits in changing his/her own inner states and influencing events.	N.E. <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

Appendix I Major Research Project Proposal

MRP Proposal

**Research Project - Thinking about Recovery: The Importance of Understanding the
Role of Reflection and Compassion in Complex Mental Health Problems**

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Introduction

Constructs and definitions

Metacognition is the capacity *‘to understand mental phenomena, to think about one’s own thinking and the thinking of others, and to use that understanding to problem solve and master mental states’* (page 386-7, Dimaggio, Procacci, Nicolò, Popolo, Semerari, Carcione & Lysaker, 2007). Various schools of psychology have studied this area which has led to some confusion in concepts (Semerari, Carcione, Dimaggio, Nicolò & Procacci, 2007). ‘Theory of mind’ (TOM) refers to the ability to ascribe mental states and abilities to others (Baron-Cohen, Lesley & Frith, 1985) within a cognitive developmental framework and measurement of TOM is often experimental and laboratory based.

In contrast, clinically based work refers to ‘metacognition’ or ‘mentalization’. The latter originates from a more psychoanalytic and developmentally based school and is used in connection with personality disorder literature (Fonagy & Target, 1996; Target & Fonagy, 1996) and schizophrenia (for example, Lysaker & Lysaker, 2002). Mentalization skills have been measured by focusing on narrative, for example, through the use of the Adult Attachment Interview (AAI) and have addressed a person’s reflective functioning abilities in particular (for example, Fonagy, Steele, Steele, Moran, & Higgitt, 1991). Metacognition (Main, 1991; Semerari, Carcione, Dimaggio, Falcone, Nicolò, Procacci & Alleva, 2003) as a term seems to overlap with mentalization in that it draws on findings from clinical casework and more overtly psychodynamic theory, but consolidates this with research from the distinctively cognitive school. In doing so, emphasis is put on an individual’s daily narrative, particularly discourse involving emotionally fused interpersonal situations (Lysaker, 2010). Semerari et al., (2007) and Lysaker (2010), and others have applied the Metacognitive Assessment Scale to therapeutic dialogue in assessing and evaluating metacognition and the progress of patients with personality disorders and schizophrenia.

Developmental pathways

There has been much research underlining the importance of early interpersonal relationships, particularly between caregiver and infant in the development of metacognition. This caregiver – infant attachment relationship has been conceptualised in terms of security (Bowlby, 1969, 1973, 1980). A secure attachment is one where the caregiver acts as a secure base from which the child can explore and return to should he or she feels threatened. In contrast, insecure attachments, which have been further subdivided into ambivalent or avoidant styles by Ainsworth, Blehar, Waters and Wall (1978),

are characterised by the infant over-amplifying or downplaying attempts to obtain the caregiver's attention. In ambivalent attachment styles the child over-activates their attachment system becoming preoccupied with the attachment relationship usually because of inconsistent interactions with their caregiver. An avoidant attachment style is characterised by the child deactivating attachment behaviours which often occurs in reaction to a dismissing caregiver. A further category of disorganised attachment is demonstrated by strange and changeable behaviour often observed in infants who have experienced high levels of loss or trauma (Main, 1991). These attachment experiences influence the child's Internal Working Models of 'self', 'others' and the 'world'. IWM are drawn upon in other interpersonal contexts (Bowlby, 1997) which allows the development of a self-concept, awareness of others' mental states and this knowledge can then be harnessed to solve problems and regulate affect (Fonagy et al., 1991). Fraley (2002) found that attachment style was moderately stable from infancy to adulthood and has an influential role across the life span.

The attachment style of the mother strongly predicted the future attachment style she would have with her child (Fonagy, Steele & Steele, 1991). However this is not perfectly concordant, Fonagy et al. (1991) suggest 'reflective functioning' (RF) to be the most powerful predictor of infant attachment security. RF evolves within a self and interpersonal framework where the child develops the ability to distinguish inner from outer reality, pretend from real modes of functioning and learns to discriminate between intrapersonal mental states from interpersonal information (Fonagy et al., 1996). In tandem with this is Meins' (2003) maternal mind-mindedness (MM) concept. MM occurs when caregivers treat infants as individuals with minds of their own, illustrated by caregivers structuring interactions with infants in terms of the child's mental processes, such as emotions and the meaning they take from situations. Increased MM was linked to secure attachment (assessed by the AAI) and higher RF (Arnott & Meins, 2007) and MM has been associated with more sensitivity and less hostility during play (Lok & McMahon, 2006). In contrast, Grienberger, Kelly & Slade (2005) found lower RF was linked to more fearful and disorientated behaviour and more errors in communication of emotion.

There is evidence of higher incidence of abuse in people with Borderline Personality Disorder (BPD) (Bateman & Fonagy, 2004). Likewise, regarding those with schizophrenia, Read, van Os, Morrison and Ross (2005) found half of participants had suffered Childhood Sexual Abuse (CSA) and half had suffered Childhood Physical Abuse (CPA). Janssen, Krabbendam, Bak, Hanssen et al. (2004) noted a dose effect in their population study of CSA, finding the greater the experience of CSA, the higher the likelihood of experiencing psychotic symptoms. Parental loss and trauma is also noted in these populations, for example, Liotti (2000) suggested if a mother was in mourning when her child is an

infant or if many traumatic events occur during childhood there is a higher risk of developing BPD. Read and Gumley (2008) reported elevated rates of parental separation and loss in those with schizophrenia. Taken together, these findings suggest that people who later go on to develop complex mental health problems are not exposed to environments conducive to developing secure attachment style or exposure to MM which impacts negatively on their ability to regulate affect, impeding RF and metacognition.

Deficits in metacognition

The overarching concepts of mentalization or metacognition appear to relate to common themes, despite differences in measurement. In addition, there appear to be commonalities in pathways to BPD and schizophrenia such as insecure attachment style, relational trauma and loss during childhood (Gumley, 2010). However, these similarities belie differences in the underlying metacognitive models of specific disorders; and the differences in the distinct metacognitive deficits found in these disorders themselves (Gumley, 2010).

Schizophrenia

In persons with schizophrenia poor metacognition is related to poorer interpersonal function (Schaub, Abdel-Hamid & Brüne, 2010). Frith (1992) conceptualised these difficulties as symptoms representing abnormalities in brain circuitry. Yet evidence set out above regarding the developmental pathways of mentalization contradict this view. Indeed, metacognitive problems have been found in people with schizophrenia when in remission (Bell, Langdon, Seigbert & Ellis, 2010). Bell et al. (2010) extend this by suggesting these deficits should be incorporated into the diagnostic criteria.

The ecological validity of TOM tests has been questioned; Lysaker (2010) suggests a truer representation of metacognitive skills is achieved by studying narrative. Supporting this are Keri and Keleman (2009) findings which demonstrate people with schizophrenia with more attention and memory problems experienced more unusual thoughts in critical interactions with relatives than people with reduced cognitive capacities. This suggests affective interactions impact on psychotic experience and that metacognition has a regulatory role (Gumley, 2010).

Common themes in metacognitive deficits found in schizophrenia are recognising internal states and understanding the cause of events. Semerari et al. (2007) suggest poor awareness of one's own intentions, may lead to difficulties in understanding one's actions as one's own, therefore, there may be difficulty in distinguishing between real and fantasy phenomena. People with personality disorders

with schizoid traits are impaired at identifying internal states and delineating cause (Dimaggio et al., 2007). Overall, Lysaker and Lysaker (2002) found metacognitive deficits in people with schizophrenia, where a person's ability to narrate their own life and experiences was reduced. Gallagher (2003) suggested that this is because of difficulties in creating the structures needed to achieve coherent assembly of one's experiences.

There is limited use of the AAI in this population, however, Dozier, Stevenson, Lee and Velligan (1992) found that people with schizophrenia compared to those with affective disorders used more repressive attachment strategies. Dozier and Tyrell (1997) compared people with bipolar disorder to those with schizophrenia and schizo-affective disorder and found that with a three-way classification of attachment most had a dismissing style however with a four-way classification 50% with schizophrenia had a disorganised style. This deactivation or disorganisation of attachment behaviours and the accompanied over-regulation of affect resonates with the data on specific deficits where people have reduced awareness of their own mental states and intentions of others. The predominance for shutting affect down and impaired metacognitive abilities can result in negative symptoms and higher relapse rates (Gumley, 2010).

Borderline Personality Disorder (BPD)

There have been more studies using the AAI with a BPD population (e.g. Bateman & Fonagy, 2004; Dozier, Stovall & Albus, 1999). Bateman & Fonagy (2004) found these narratives are long and confusing demonstrating a preoccupation with attachment, often marked by unresolved loss. Furthermore, in comparison to those with Axis I disorders, Fonagy, Leigh, Steele, Steele et al. (1996) found that impoverished RF in people with BPD was related to early abuse. The complex and interpersonal nature of the trauma experienced by those with BPD and reduced RF and other metacognitive abilities, means that affect is under-regulated. The intensity of fear and pain that results, coupled with the dissociative or disorganised nature of response, means that people with BPD engage in coping strategies such as self-harm (Gumley, 2010).

Using transcriptions of therapy sessions Semerari, Carcione, Dimaggio, Falcone et al. (2003) reported a BPD patient was able to monitor and relate between mental states, however, had difficulties with differentiating and integrating mental states into a coherent description of other people's mental processes and states. Similarly Semerari, Carcione, Dimaggio, Nicolo et al. (2005) studied therapy transcripts of four BPD cases and only one had difficulty with monitoring, however in all cases differentiation and integration of mental states were impaired to differing degrees. These changed over

the course of therapy, giving hope that these skills can be increased within a secure therapeutic relationship.

Rationale

These findings suggest that metacognitive deficits are transdiagnostically evident and may emerge via similar developmental pathways but there are differences in the way these deficits are manifested in clinical groups. To this end a comparative group study investigating metacognition of people with BPD and psychosis, is proposed which is particularly useful given much of the evidence thus far has been generated by single case design. Further, comparing and contrasting these groups may aid the understanding of the development and possible inter and intra personal maintaining structures of these complex mental health difficulties. This could not only add to the growing literature base and help clarify the nature of metacognition further, but this data could be harnessed to inform how psychotherapeutic treatment may be best tailored to improve metacognition during treatment.

Research Aims

By looking at narrative, this study aims to explore, compare and contrast metacognition of people with a diagnosis of BPD or psychosis. It hopes to describe and analyse any associations between the metacognition data and that of attachment anxiety and avoidance, symptom experience and interpersonal difficulties.

Hypotheses

The primary hypothesis is that, in line with previous research, both people with BPD and psychosis will show metacognitive deficits. Secondly, it is thought that those who have high scores on self-report measures of interpersonal distress, attachment anxiety and avoidance and symptom experience will show poorer metacognitive skills.

Method

Participants

Participants will be required to meet the DSM IV criteria (A.P.A, 1994) for BPD or affective and non-affective psychotic disorder. This will be verified via the staff involved in their care and if necessary confirmed by their psychiatrist. Participants will be recruited from the Greater Glasgow and Clyde

Health Board and will be aged between 18 and 65 years. Secondary level mental health care professionals in specialist teams, Community Mental Health Teams and Outpatients Psychology involved in participants' care will be approached for recruitment purposes. Participants will be excluded by the presence of; a learning disability, a primary diagnosis associated with psycho-active substance use, the presence of an organic disorder, or language difficulties that preclude assessment.

Sample Size

As no previous studies have been carried out it is not possible to determine power and effect size. However, within the available resources (the interview, transcription, analysis and scoring of data will take approximately 12 hours per participant) recruiting 15 participants per diagnostic group is feasible. Using the statistical programme G*Power, where $\alpha = 0.05$, $n = 15$ and effect size is small, medium and large, statistical power was calculated. For graphical illustration of this see Appendix 1.

Effect Size (Cohen's d)	Power for Non-parametric Analysis	Power for Parametric Analysis
0.2	0.13	0.13
0.5	0.23	0.37
0.8	0.43	0.67

Table 1. *Illustration of post-hoc power calculation for parametric and non-parametric analysis.*

Design

The project has a two group between and within participants design. The independent variable is group allocation and the dependent variable is metacognition.

Procedure

Once the key-worker has ascertained the participant's interest in participation, the researcher will meet with the participant to present the information sheet and obtain informed consent on an occasion where the participant is meeting with their key-worker. During this meeting, the two further sessions will be arranged. If the participant has not contacted the researcher to withdraw consent within two weeks of the final contact, it will be assumed that the original consent is valid and the data will be used.

During the second session the participant will engage in a semi-structured interview which will last approximately one hour and they will complete a number of self-report measures – the Inventory of Interpersonal Problems (IIP-32), Brief Symptom Inventory (BSI-18) and Relationship Style

Questionnaire (RSQ). At the end of this interview there will be time for the participant to reflect on how they found the experience. On the third occasion the SCID and PANSS will be carried out to verify diagnosis. After both of these sessions and if necessary and consented to, the participant can be given information on accessing support or the interviewer could contact mental health staff involved in the participant's care. Interviews will be transcribed and anonymised by the researcher and coded using the MAS. However, Dr Angus MacBeth, a fellow researcher, will interview and transcribe the interviews with the participants with psychosis.

Measures

Metacognitive Assessment Scale (MAS)

The metacognitive content of the cognitive interview will be assessed using the MAS (Carcione, Dimaggio, Conti, Donatella, Nicolo& Semerari, in press). This measure subdivides metacognitive function into firstly, the ability to recognise one's own mental states and secondly (OM), understanding others mental states (UOM). Thirdly, the measure assesses mastery (M) which relates to being able to regulate this information and implement specific strategies to do tasks and overcome difficulties. Once trained on the MAS, the authors calculated Kendall's W coefficient for reliability of scores (Semerari et al., 2003). Three independent judges scores 2 sample sessions, repeating the scoring six months later. For the first patient W = 0.935 was reported and W = 0.931 for the second patient. On repeat scoring the first patient W = 0.929 and the scoring for second patient's MAS results was W = 0.898. This suggests judges were using the same evaluation criteria. The research supervisor will train the researcher in the MAS. To ensure reliability, the research supervisor will ensure reliability by verifying the transcript coding.

Structured Clinical Interview (SCID)

The SCID is a diagnostic assessment for DSM-IV psychiatric diagnosis of personality disorder or psychosis which will be used to ensure diagnosis. The SCID is a valid and reliable means of assessing psychiatric diagnosis for BPD (see, Bateman & Fonagy, 1999) and psychosis (Fogelman et al., 1991).

Inventory of Interpersonal Problems (IIP-32)

The IIP-32 (Barkham, Hardy & Startup, 1996) is a short form of the self-report measure assessing interpersonal problems. The IIP-32 has eight subscales which are the IIP-64 items that had the highest item-total correlations of a stratified community sample from (Horowitz, Alden, Wiggins, & Pincus,

2000). Test–retest reliability of the IIP-32 has proved to be acceptable (Horowitz et al., 2000). Criterion validity studies have indicated that IIP-64 and IIP-32 scores are related to symptoms of subjective distress and that correlations with measures of interpersonal and social functioning are moderate to strong (Vanheule, Desmet & Rosseel, 2006).

Brief Symptom Inventory (BSI-18)

This is short form screening tool of psychological symptoms containing 18 items (Derogatis, 2000). It has three symptom dimension of somatisation, depression and anxiety. Internal consistency was found to be 0.74 for somatisation, 0.84 for depression and 0.79 for anxiety with a total of 0.89 (Derogatis, 2000). Zabora et al. (2001) reported the BSI-18's sensitivity to be 0.91 and specificity to be 0.96.

Relationship Style Questionnaire (RSQ)

The RSQ is a 30 item measure of attachment style, measuring closeness, dependence and anxiety on a 5-point Likert scale (Griffin & Bartholomew, 1994). Average alpha coefficients were 0.75 for the closeness scale, 0.75 for the dependence scale, and 0.79 for the anxiety scale (Scharfe & Bartholomew, 1994).

Positive and Negative Syndrome Scale (PANSS)

This 30 item scale measures positive and negative symptoms on a 7 point Likert scale (Kay, Fiszbein & Opler, 1987). Kay, Opler and Lindenmayer (1987) report the inter-rater reliability to be 0.80 and significant correlation between similar criterion measures.

Interview

This is currently being devised, however the aim of this semi-structured interview will be to give the participant the opportunity to show evidence of metacognitive skills. In order to do this, the interview will firstly build rapport by engaging in an adaptive social support network task (see Thorup et al., 2006). Secondly, the participant will be asked to discuss a memory of a stressful, challenging or upsetting event. If the participant does not spontaneously display all facets of metacognition probe questions will be asked. The interview will then wind down with opportunity for reflection and accessing support if necessary.

Data Analysis

Data will be assessed for their parametric characteristics. If these are met, for the main hypothesis, independent samples t-test will be calculated. If non-parametric testing is more appropriate a Mann-

Whitney will be calculated. For the second hypothesis, correlational analysis may be used. Within group effects will be investigated using a paired samples t-test or Wilcoxon Paired Samples test depending on whether parametric characteristics are met.

Ethics

The main issues regarding the ethical viability of this study relate to recruitment, ensuring informed consent and the impact of the interview.

1. The involvement of clinicians in the recruitment is necessary to ensure diagnosis and effectively invite participants to partake, however, they may feel obliged to participate. Researchers will do their utmost to avoid individuals feeling they have been coerced into participating. It will be emphasised that participation is voluntary.
2. In obtaining informed consent the participants will be told the following: the research aims and how they will be investigated. That participants are under no obligation to participate, they can withdraw from the study at any time and their involvement is separate to any psychological or psychiatric care. That the interview data will be transcribed and anonymised, therefore the other researchers involved in the study will access only anonymised data. That information discussed is confidential and only the researchers involved in the study have access to it. The information will be held for the purposes of this study and will be destroyed subsequently.
3. Given the sensitive and potentially distressing nature of what will be discussed, two practices will be implemented. Firstly, the written consent form will be explicit about the potentially distressing nature of the study. Secondly, the end part of the interview will be dedicated to debriefing the participant, reflecting on how the participant found the interview and assessing the participant's mental state. To guard against risk and if appropriate, information on accessing support will be available to the participants. Additionally, if pertinent and consented to by the participant, the researcher could contact mental health staff on behalf of the participant for support.
4. Regarding health and safety, it is proposed that the interviews for this study will take place in community health venues local to the participants such as Resource Centres or GP surgeries. Reserving rooms for the purpose of the study will be organised with administrative staff at

these centres. To ensure safety interviews will only take place during building opening hours when other members of staff are present. Additionally, concerns about risk will be routinely inquired about with staff involved in recruiting participants.

Financial Costs

Please see the MRP Proposal Costs Form attached.

Potential benefits of research:

1. As well as adding to the knowledge base regarding the metacognitive capacity of people with BPD and psychosis in a comparative group context, it will be useful for future research in calculating power effect size and statistical power. These will perhaps provide theoretical and therapeutic implications.
2. Findings could perhaps inform service delivery, as they may result in more detailed knowledge of the difficulties faced by people with complex mental health problems which may inform assessment and treatment.
3. Potential clinical benefits of this research include assisting in the development of psychological therapies aimed at improving metacognition.

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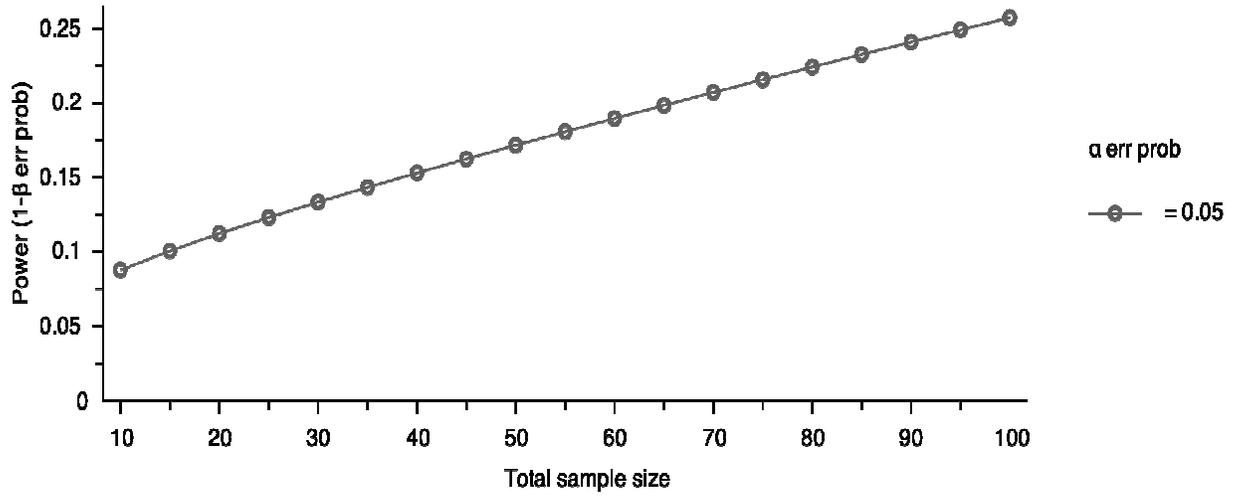
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Appendix I

t tests – Means: Difference between two independent means (two groups)

Tail(s) = One. Effect size $d = 0.2$. Allocation ratio $N2/N1 = 1$. α err prob = 0.05



ADVANCED CLINICAL PRACTICE I

REFLECTIVE ACCOUNT

Title: Reflections on Embedding a Clinical Psychology Service in a Physical Health
Setting

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Abstract

In this paper I reflect upon my experience of promoting the use of a clinical psychology service within a physical health setting for older people. In doing so I touch upon relevant policy such as the Increasing Access to Evidenced Based Psychological Therapies agenda (Scottish Government, 2008) in the context of older adults and NHS standards of care and constitution (Department of Health, 2010). I use Atkins and Murphy's (1993) Model of Reflection to help guide and structure my reflections. I reflect on the experience of providing training, consultation and endeavouring to embed clinical psychology within a ward setting. What follows are a few examples of how I went about this, what my thoughts and feelings were initially, during and after these experiences. I also detail what I have drawn from these experiences and how it has helped me develop both personally and professionally. I feel that this experience has significantly contributed towards developing my competency in 'Communication: communicating psychological knowledge, principals, methods, need and policy requirements' (generic key role 4) of the National Occupational Standards for Psychology (British Psychological Society, 2002).

ADVANCED CLINICAL PRACTICE II

REFLECTIVE ACCOUNT

Title: Reflections on Integrating Research and Clinical Governance into Clinical Practice

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Abstract

In this paper I reflect upon my experience of integrating research and clinical governance into my clinical practice. In doing so I highlight relevant policy such as the Knowledge and Skills Framework (2006) and how these activities are promoted by the National Health Service. I use Gibbs' (1988) model of reflection to guide my reflections. I consider three experiences: of integrating research into clinical practice in an adult mental health context, undertaking research governance in this setting and carrying out clinical governance. I describe these experiences, how I felt and what I was thinking. I discuss how I feel these experiences relate to my professional development. I feel this endeavour has contributed to developing my competence in research or 'generic key role 3' outlined by the British Psychological Society (2002). Finally I discuss the limitations of Gibbs' (1988) model and what these experiences have meant for my professional development and future career as a qualified clinical psychologist.