Do difficulties in mentalizing correlate with severity of borderline personality disorder?

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Overview

Borderline personality disorder (BPD) is a severe and complex disorder, historically believed to be 'untreatable'. This view has been challenged through the success of various therapies in enabling individuals with this diagnosis to create 'a life worth living'. However despite this progress little is known about how or why these treatments work. This thesis aims to contribute to this understanding through exploring the role of mentalization in BPD.

Part 1 is a literature review which critically assesses studies investigating the processes that potentially underlie therapeutic change in BPD treatments. It reveals a lack of any research meeting the criteria for concluding a component of therapy a mechanism of change, but finds evidence for a link between therapeutic alliance and clinical outcome. One suggested explanation for this finding is the development of mentalization within a secure therapeutic relationship.

Part 2 is an empirical research paper which further explores the contribution of mentalization to BPD. It investigates whether symptom severity in BPD is associated with performance on a battery of tasks measuring different dimensions of mentalizing ability. It also explores whether the current sample share similar impairments in mentalizing to participants in a previous study (Newbury-Helps,2011) with a diagnosis of antisocial personality disorder (ASPD). The results contradicted hypotheses, finding no evidence for a relationship between BPD severity and mentalizing impairments, and revealing significant differences between mentalizing in BPD and ASPD samples. Possible reasons for these findings are discussed, along with their implications for future clinical practice and research. This study was conducted as part of a joint project (Perera, 2012).

Part 3 critically appraises this work. The experience of developing and conducting the thesis is examined and retrospective improvements to the study are suggested, along with ideas for future research, in light of the practical and personal challenges encountered throughout the process.

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Part 1: Literature Review

Mechanisms of change in effective treatments of

borderline personality disorder

Abstract

Aims

Despite growing evidence that many therapies are effective in treating borderline personality disorder (BPD), little is known about how or why. This review assesses studies that investigate the processes that could underlie therapeutic change in these treatments.

Method

A search was conducted to identify studies measuring potential mediators or mechanisms of change during or following treatment for BPD.

Results

358 references were identified, of which 10 met inclusion criteria. Reference lists revealed two further studies consistent with these limits. A total of 12 studies were reviewed.

Conclusions

No studies met criteria for concluding a component of therapy a mechanism of change in the treatment of BPD. Associations between aspects of different therapies and clinical outcomes have begun to be revealed however. Several studies found a relationship between therapeutic alliance and clinical outcome. It is recommended that future research focuses on understanding how this relationship leads to therapeutic change.

Introduction

In 1938 Stern described a group of patients he found difficult to classify and treat as lying on the 'border line' of psychosis and neurosis. Since the inception of this term, both its definition as a mild form of schizophrenia and its perception as untreatable have been challenged. Borderline personality disorder (BPD) is now recognised as a distinct psychiatric diagnosis, affecting 0.7% of the general population (Coid, Yang, Tyrer, Roberts, & Ullrich, 2006). It is characterised by a pervasive pattern of instability, manifested through emotional dysregulation, poor impulse control, unstable and intense relationships with others and identity disturbance (American Psychiatric Association, 2000). These symptoms are associated with significant social and occupational impairment and an increased suicide mortality rate, 50 times that of the general population (Skodol et al., 2002).

Historically, since Stern's grave prognosis, a sense of therapeutic nihilism has surrounded the diagnosis. Over time though this view has begun to shift as various psychological therapies have been developed and found effective in treating BPD. As Clarkin and Levy (2006) recognised however, while there is growing evidence that therapies, both cognitive behavioural and psychodynamic, can successfully treat BPD, little is known about how or why.

The processes that create change in therapy are known as 'mechanisms of change', and the aspects of treatment that lead to these are termed 'active ingredients'. It is important to investigate these for several reasons. Firstly, understanding what underlies therapeutic change can help bring order to what Kazdin (2007) referred to as an 'embarrassing wealth of treatments in use' (pp.3-4). He explained that it is likely that common change mechanisms are at work across various treatment modalities and that discovering this could therefore lead to a more integrative approach. Livesley (2005) echoed this view, proposing a framework for treating

personality disorder that draws together ideas from various models while focusing primarily on the nonspecific aspects of therapy, particularly the development and maintenance of a collaborative relationship. Further, knowing what elements of an intervention cause change allows us to optimise treatment effectiveness through developing and enhancing these aspects of therapy and discarding the components that do not contribute towards this outcome. Finally, mechanism of change research can give clues as to possible moderators of treatment effectiveness, helping therapists more accurately predict who will benefit from different treatments. This is particularly important in the study of BPD where 'the experience for individuals who meet criteria … and their treatment providers has historically been a discouraging path of recurrent treatment failures despite their best efforts' (Koerner, & Dimeff, 2007,p.2).

The first step in investigating mechanisms of change is often to identify mediators. Mediators are components that statistically account for the relationship between an independent variable (in this case treatment) and a dependent variable (treatment outcome or therapeutic change). Kraemer, Wilson, Fairburn and Agras (2002) referred to these as 'potential mechanisms', explaining that 'all mechanisms are mediators but not all mediators are mechanisms' (p.878). Kazdin (2007) described the difference in terms of specificity, mediators revealing a relationship between an aspect of an intervention and its results while mechanisms elucidate precisely how this change occurs.

To demonstrate either effectively, Kazdin (2007) listed several criteria that must be met by studies:

(1) a strong statistical association must be demonstrated between the intervention and the proposed change mechanism, and also between this mechanism and treatment outcome.

(2) other plausible mechanisms should not contribute towards therapeutic change. While there can be more than one mediator Kazdin suggested that demonstrating specificity strengthens the hypothesis that the mechanism proposed does mediate change.

(3) evidence of mediation should be replicated across various studies, samples and conditions.

(4) it must be proven that the mechanisms act before change occurs. Kazdin highlighted that many studies fail to demonstrate this causal relationship.

(5) increased activation of the hypothesised mediator should predict greater therapeutic change.

(6) there should be a theoretically plausible explanation as to how this mechanism might exert its effect on therapeutic outcome.

Ahn and Wampold (2001) recognised this as a complex task and suggested that component studies are 'closest to the "gold standard" of experimental designs' (p.251) in proving the effect of a specific ingredient on therapeutic outcome. These studies compare treatment with and without the components of therapy believed to be responsible for change. This can be achieved by either dismantling the treatment, leaving out the proposed mechanism, or by adding that component to an existing treatment.

The aim of this review is to evaluate current evidence regarding potential mediators and mechanisms of change in effective treatments of BPD. For the purposes of this paper, these are interventions which have been proved effective in randomised controlled trials. To date, these are cognitive behaviour therapy (CBT: Davidson et al., 2006), dialectical behaviour therapy (DBT: Linehan et al., 2006), schema focused therapy (SFT: Giesen-Bloo et al., 2006), transference-focused

psychotherapy (TFP: Giesen-Bloo et al., 2006) and mentalization-based treatment

(MBT: Bateman, & Fonagy, 2008). This topic was explored in a special issue of the

Journal of Clinical Psychology (2006), however at this time most answers were

theoretical rather than empirically tested, or drew conclusions from research that did

not meet Kazdin's (2007) first assumption of statistical association. This review will

investigate how much closer we are today to identifying and understanding the

processes that underlie therapeutic change in BPD.

Method

Inclusion criteria

Studies were included in this review if they meet the following criteria:

 (1) participants were over 18

 (2) participants had a diagnosis of BPD or BPD traits

 (3) participants received one of the therapeutic interventions under review: CBT,
      DBT, MBT, SFT or TFP

(4) a potential mediator or mechanism of therapeutic change was measured during,
     or following, the intervention,

or participants were asked which aspects of therapy they found effective.

Literature search

Relevant papers were identified initially by searching electronic databases
(PsycINFO, MEDLINE and EMBASE) using the following phrase: (Borderline
Personality Disorder or bpd) AND ((cognitive adj2 therapy) OR (cbt)) OR ((dialectic*
behavio?r therapy) OR (dbt)) OR ((mentalization based therapy) OR (mentalization
based treatment) OR (mbt)) OR ((schema adj2 therapy) OR (sft)) OR ((transference
focused psychotherapy) OR (tfp)) AND ((Psychotherapeutic Processes or
mechanism* of change) OR (mechanism* of action) OR (mediat*) OR (moderat*)
OR (active ingredient)).

Table 1. Characteristics of studies shortlisted for review.

Study	Sample size	Treatment	Proposed Mechanism of change	Statistical Analysis Method	Findings related to this review
Diamond, Stovall-McClough, Clarkin and Levy (2003)	10	TFP	Reflective function within the patient-therapist attachment	N/A	➤ most clients in the study showed increased reflective function and improvements in behaviour, symptomatology and attachment status ➤ clients demonstrating the smallest shifts in attachment varied noticeably from the therapist in reflective function measures
Perseius, Öjehagen, Åsberg, Ekdahl and Samuelson (2003)	14	DBT	-	Qualitative content analysis	➤ clients and therapists both reported that respect within the therapeutic relationship and shared responsibility are effective components of DBT ➤ both clients and therapists found the therapy contract supportive and appreciated the method of DBT ➤ clients found group therapy and telephone consultation helpful

Cunningham, Wolbert and Lillie (2004)	14	DBT	-	Qualitative analysis	➢ clients found individual therapy most effective where they valued their relationship with their therapist and felt they were treated as an equal
					➢ achieving a balance between acceptance and change was experienced as helpful in individual therapy
					➢ respondents found skills training most useful when the facilitators had a large knowledge base
					➢ interviewees highlighted how gaining control over their emotions had positively changed their lives
					➢ participants found that some DBT skills were difficult to learn and also expressed a wish for more validation in skills coaching
Levy, Meehan et al. (2006)	90	TFP, DBT & SPT	Attachment pattern and reflective function	ANOVA, t-tests and McNemar's test	➢ reflective function and narrative coherence increased as a function of treatment with TFP
					➢ clients receiving TFP showed significant changes in attachment security

Wenzel, Chapman, Newman, Beck and Brown (2006)	19	CBT	Change in dysfunctional beliefs	Paired and independent samples t-tests	➢ measures of dysfunctional beliefs decreased significantly between baseline and treatment termination and baseline and follow-up but not between treatment termination and follow up ➢ at follow-up there was no significant difference between dysfunctional belief scores in treatment responders and nonresponders
	27		Reduction in hopelessness	Paired and independent samples t-test	➢ measures of hopelessness decreased significantly between baseline and treatment termination, baseline and follow-up and treatment termination and follow up ➢ at follow-up there was no significant difference between hopelessness scores in treatment responders and nonresponders
Davidson, Livingstone, McArthur, Dickson and Gumley (2007)	10	CBT	Integrative complexity	Wilcoxon signed-rank test	➢ good outcome in CBT was not associated with changes in integrative complexity between early and late sessions ➢ therapist integrative complexity was in fact found to increase where clients showed a poor outcome ➢ increased integrative complexity was however related with improved social functioning

Dewe and Krawitz (2007)	19	DBT	DBT skills use	T-tests	➢ clients reported experiencing 'What good are emotions?' as the most useful skill taught in DBT, followed by 'Factors reducing interpersonal effectiveness' and 'Options for intensity of asking or saying no' ➢ 11 skills were rated as *significantly* less helpful than 'What good are emotions?' ➢ of these less useful skills, the majority were taught in the distress tolerance module
Spinhoven, Giesen-Bloo, van Dyck, Koolman and Arntz (2007)	54	SFT & TFP	Therapeutic alliance	Hierarchical regression	➢ early changes in client perception of the therapeutic alliance had a significant relationship with later changes in BPD symptoms ➢ early therapist ratings of the therapeutic alliance predicted premature termination of treatment ➢ later ratings of therapeutic alliance by both clients and therapists predicted time to treatment dropout
Stepp, Epler, Jhang and Trull (2008)	27	DBT	DBT skills use	Multilevel modelling	➢ increased DBT skills use showed a significant association with decreased borderline features ➢ overall skills use was associated with improvements in scores of affective instability, negative relationships and identity disturbance ➢ reduced identity disturbance scores were predicted by the use of mindfulness and emotion regulation skills

Davenport, Bore and Campbell (2010)	17	DBT	Self-control	Wilcoxon signed-rank test and Kruskal-Wallis test	➢ the pre-treatment sample scored lower on measures of self-control, agreeableness and conscientiousness than norms, and higher on neuroticism ➢ post-treatment respondents only scored differently from norms on measures of neuroticism which were elevated ➢ pre-treatment group scores were significantly lower than post-treatment on self-control, agreeableness and conscientiousness
Neacsiu, Rizvi and Linehan (2010)	108	DBT	DBT skills use	Hierarchical linear modelling	➢ DBT skills use fully mediated decreases in suicide attempts, depression and improved anger control over time ➢ skills use partially mediated the association between decreased self-injury and time in treatment ➢ use of DBT skills was not found to mediate anger expression or suppression
Axelrod, Perepletchikova, Holtzman and Sinha (2011)	27	DBT	Emotion regulation	ANOVA	➢ emotional regulation and mood increased significantly over time while substance use decreased ➢ changes in substance use were explained by increased emotional regulation (not improved mood)

Results

Limiting results to journal articles in English published in the last 10 years, the search identified a total of 331 studies for review. Of these, 10 met inclusion criteria.

Two further studies that met inclusion criteria were found in the references of these papers, giving a total of 12 studies for review. These are listed in Table 1, along with their characteristics.

In presenting the results of this review, the theoretical background and practical application of each therapy is described and evidence regarding their potential mechanisms of change is evaluated. The search did not identify any studies empirically investigating mechanisms of change underlying the effectiveness of MBT. This treatment is therefore not included in this review.

Cognitive behaviour therapy

CBT posits that dysfunctional schemas underlie personality disorder symptoms. Schemas are cognitive structures that determine how we interpret events and make sense of ourselves, others, the world and our future, given our early experiences and their interaction with our genetic predispositions. Schemas bias which aspects of our experiences we notice, attend to and remember and distort or discount contradictory evidence. Those with a diagnosis of BPD commonly hold the beliefs 'the world is dangerous and malevolent', 'I am powerless and vulnerable' and 'I am inherently unacceptable' (Beck, Freeman, Davis et al., 2004). Unhelpful behaviours are understood as responses that were adaptive when they were developed, but have become dysfunctional and self-defeating in new environments where the same threats are not present. The combination of beliefs held in BPD can lead to the activation of contradictory behavioural strategies to survive, clinging to others for

protection and pushing them away through distrust. This frightening experience leads to the intense emotional arousal and weak sense of self that define BPD.

This understanding is used to develop a therapeutic relationship with clients and to collaboratively build a formulation of their difficulties. Davidson (2008) described this as the 'most important therapeutic tool' (p.39) in cognitive therapy, giving clients the chance, maybe for the first time, to begin to make sense of why they feel the way they do in a non-blaming way. Listening to this formulation in itself, she suggested, can reduce self-harm. It is also used to guide therapy which focuses on exploring how helpful negative beliefs are in current circumstances and aims to shift them to be less absolute with the goal of improving quality of life. This can be achieved through strategies such as behavioural experiments testing the reality of dysfunctional beliefs, worksheets looking for evidence against these and supporting more adaptive thoughts, or through imagery, where clients recall and manipulate distressing memories. Unhelpful behaviours are addressed through practising skills such as relaxation, assertiveness and problem solving.

In a review article, Wenzel, Chapman, Newman, Beck and Brown (2006) looked at evidence for several potential mechanisms of change promoted by the cognitive theory of BPD. They hypothesised that of primary importance in improving BPD symptoms is the modification of dysfunctional core beliefs. To support this they presented new evidence from an open clinical trial (Brown, Newman, Charlesworth, Crits-Cristoph, & Beck, 2004, cited in Wenzel et al., 2006) of CBT for BPD. Participants in the trial completed the BPD scale of the Personality Beliefs Questionnaire (PBQ-BPD; Butler, Brown, Beck, & Grisham, 2002) at baseline (n=27), treatment termination (n=25) and 18 month follow-up (n=19), rating the extent to which they endorsed various negative beliefs. These scores reduced significantly from baseline to termination and baseline to follow-up but not between

termination and follow-up. Exploring the changes in endorsement of individual items, the greatest reductions were found in statements regarding the self, particularly 'If people get close to me, they will discover the "real" me and reject me'. Smaller reductions were seen in negative beliefs about others, for example 'People will take advantage of me if I give them the chance'. Participants who presented at follow-up with less than five BPD criteria according to the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV; American Psychiatric Association, 1994) were classified as treatment responders (n=15). Comparing change in PBQ scores in this group to that in nonresponders (n=4) found only a non-significant difference. The authors reported a large effect size (d = -0.99), suggesting that the study may simply have lacked power due to the small n. Given the group sample size of 4 however it might have been more appropriate to explore these changes using qualitative methods. A larger study is therefore required to test the link between modification of dysfunctional beliefs and clinical outcome in BPD. Further, this study does not determine a timeline of changes so it is possible that the change in BPD symptoms preceded belief change. Reductions in behaviours such as alcohol use and making threats for example could have led to new experiences of the self and others that challenged these beliefs.

Davidson, Livingstone, McArthur, Dickson and Gumley (2007) hypothesised that a change in cognitive *style* rather than cognitions themselves would predict outcomes of CBT for clients with a diagnosis of BPD. They used integrative complexity (IC) to test this prediction. IC is a measure of the cognitive style individuals and groups use in processing information, solving problems and making decisions. Complexity requires the recognition and acceptance of multiple valid perspectives, and also the integration of these, appreciating the connections between different, sometimes contradictory, views (Seudfeld, Tetlock, & Streufert, 1992). It can be measured from verbal material, by splitting data into segments that relate to one idea and scoring

the IC of each unit from 1 (low differentiation and low integration) up to 7 (high differentiation and high integration). Low levels of IC have been linked to inflexible and simplistic attitudes and perceptions (Seudfeld, Tetlock, & Streufert, 1992) and also to symptoms characteristic of BPD, including deliberate self-harm (Patsiokas, Clum, & Luscomb, 1979) and aggressive behaviour (Bruch, McCAnn, & Harvey, 1991). This rigid style of thinking is something that is challenged through CBT.

To test whether changes in IC mediate therapeutic change Davidson et al. (2007) coded transcripts from two sessions (one early in therapy and one late) with five clients with good outcomes and five with poor outcomes. Outcome was determined by number of suicide attempts, and then by reduction in depression across therapy, measured using the Beck Depression Inventory-II (Beck, Steer, & Brown, 1996). They predicted that clients with a good therapeutic outcome, and their therapists, would show a greater increase in IC over time. This relationship was not confirmed however. In fact the reverse trend was found in therapists, who showed significantly enhanced IC in later sessions where clients' outcomes were *poor*.

Further, no significant association was found between mean changes in IC scores over therapy and changes in measures of anxiety, depression, dysfunctional beliefs or items endorsed in the Brief Symptom Inventory (Derogatis, 1993). Changes were associated with improved score on social functioning, measured by the Social Functioning Questionnaire (Tyrer et al., 2005). However correlational studies cannot determine causality; it is equally plausible that an increase in social functioning could enhance IC as spending time with others will increase exposure to different ideas and perspectives which can become integrated into thinking.

Its conclusions are also limited by the range of sessions analysed. The transcripts labelled 'early in therapy' were taken from between the first and tenth session. Davidson (2008) suggests however that by session 10 the therapist should have

developed and shared with their client a formulation of their difficulties. Given the importance of this aspect of therapy it might have been more appropriate to only class sessions as 'early' pre-formulation otherwise changes could already have begun to occur in different areas of the client's presentation, including the IC of their discourse. Finally, this study used a technique that had not previously been applied in this context. IC is typically used to analyse ideas expressed in essays and speeches rather than natural discourse, and the authors described the problems that they encountered in coding this material. IC could not be scored in 45 – 80% of the interactions in sessions, for example where the therapist and client interrupted each other. It is possible therefore that the IC levels did not accurately reflect the complexity of the reasoning underlying the therapeutic discourse. The relationship between this measure and social functioning could be understood as IC becoming more obvious (and therefore more easily scored) with increased social functioning, participants developing their ability to express their thoughts as they spend more time interacting with others.

Turning back now to Wenzel et al.'s (2006) review, participants in the clinical trial were asked to complete the Beck Hopelessness Scale (BHS; Beck & Steer, 1989), again at intake (n=29), treatment termination (n=29) and follow-up 18 months later (n=27) , to investigate the plausibility of reduction of hopelessness as an active ingredient in CBT. Significant reductions in scores on this scale were found between intake and termination, intake and follow-up and termination and follow-up. Comparing follow-up hopelessness scores in treatment responders (n=22) and nonresponders (n=5) however revealed a difference that was non-significant.

Wenzel et al. (2006) also investigated whether improvements in attitude towards treatment may act as a mechanism of therapeutic change in CBT. 29 participants in the trial were classified as having a positive or negative attitude towards treatment

according to their response to the question 'What is your attitude toward talking with a therapist/counsellor as treatment for your problem?', part of the Attitudes and Expectations Questionnaire (AAE; adapted from Elkin at el., 1989). Attitudes were classed as positive if participants responded between 1 and 3, and negative between 4 and 7 (where 1 was 'very positive' and 7 'very negative'). After 12 months of CBT, 66.7% of those with a positive attitude towards treatment no longer met BPD criteria, while only 14.3% of those with a negative attitude showed the same outcome. To prove mediation however an association must be demonstrated between the intervention and the mechanism of change, in this case treatment attitude. Unlike the previous studies reviewed, this does not measure *improvement* in treatment attitude so cannot conclude mediation, but does suggest that treatment attitudes may moderate the outcome of CBT, influencing the effect of the intervention. Further, the severity of participant's symptomatology at assessment is not reported in this paper. It is possible that this was lower in those with more positive attitudes and that relatively smaller changes would therefore allow them to no longer meet BPD criteria.

In summary, studies have attempted to ascertain whether therapeutic change in CBT can be attributed to changes in beliefs, attitudes and thinking style. While some have found these to improve over therapy, others have revealed the opposite, and none have found an association between these changes and those achieved over therapy. This is not to say that these components do not play a role in effecting therapeutic change, but suggests that future research needs to employ larger sample sizes and develop more valid measures of complex cognitive features.

Dialectical behaviour therapy

DBT is based on Linehan's (1993) biopsychosocial theory which defines BPD as primarily a dysfunction of the emotional regulation system. It is hypothesized that the

emotional system in individuals diagnosed with BPD responds with greater than average speed and sensitivity to stimuli. This causes intense arousal which inhibits cognitive processing systems underlying skills needed to manage such experiences, such as problem solving and recalling previous coping. This dysfunction is understood to be a result of the interaction and transaction between biological vulnerability and exposure to an invalidating environment. In such an environment individuals' internal experiences are punished, denied or ignored, leaving them unable to understand their emotions, let alone learn how to express or moderate them. It can also lead individuals to invalidate their own emotional experiences. In this model the characteristic features of BPD are therefore seen as both a consequence of, and also a means of coping with or escaping the extreme emotional arousal and confusion they experience. Linehan also highlighted how the environment can continue to reinforce the maladaptive behaviours that individuals have developed to cope with their distress and block the use of more protective skills.

DBT aims to enhance emotional regulation with the ultimate goal of helping clients to build 'a life worth living' (McMain, Korman, & Dimeff, 2001). It uses a combination of techniques from behaviour therapy and mindfulness and is underpinned by the theory of dialectics. This proposes that reality is interrelated, composed of opposing forces and constantly changing. The fundamental dialectic underlying DBT is that of acceptance and change (Dimeff, & Linehan, 2001). The therapy achieves a balance between these two states, validating clients' experiences whist teaching strategies to moderate their emotions.

There are several modes of treatment in DBT. At skills training groups clients learn and practise skills in mindfulness, emotional regulation, distress tolerance, and interpersonal effectiveness. In individual sessions these can be related to clients'

personal goals and rehearsed with their personal therapist. Sessions also focus on enhancing motivation and commitment to therapy. Between sessions therapists are available to clients through telephone contact to generalize their learning to their lives outside of therapy. Clients can call in times of crisis to identify skills they can use and how to put these into practice. Finally, therapists attend a weekly consultation meeting where together they enhance their skills and motivation. A final aspect of DBT involves shaping the environment around clients to reinforce their use of newly developed skills, for example through consultation with those around them, professionally or socially (Feigenbaum, 2007).

Given DBT's conceptualization of BPD as a disorder of emotional regulation, Axelrod, Perepletchikova, Holtzman and Sinha (2011) investigated whether improvements in this area could account for decreased substance use in individuals with this diagnosis. Participants (n = 23, all female) had a diagnosis of BPD and substance dependence and attended a 20 week DBT programme. Their emotional regulation and substance use were measured at three points throughout therapy (baseline, mid treatment and end of treatment) using the Difficulties in Emotion Regulation Scale (DERS; Gratz, & Roemer, 2004) and a combination of self-report, clinician assessment, collateral information and urine toxicology screening or breathalyser tests. The study revealed a significant reduction in both DERS scores and substance use over time. There was a significant interaction between the two, changes in substance use becoming non-significant when enhanced emotional regulation was controlled for. The strength of this result is also enhanced by its demonstration of specificity; Beck Depression Inventory (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) scores showed an increase in mood over time but this was not significantly associated with reduced substance use.

Linehan has led studies investigating the effectiveness of DBT adapted for substance users, comparing it to treatment as usual for women with a diagnosis of both BPD and substance dependence (Linehan et al., 1999) and to comprehensive validation therapy with a 12-step program for heroin-dependent women with a diagnosis of BPD (Linehan et al., 2002) . In both studies, participants receiving DBT showed significant reductions in substance use as well as improvements in psychological functioning. Verheul et al. (2003) conducted a randomised trial comparing treatment as usual and DBT in treating participants with a BPD diagnosis, including those with substance use disorders. They found that, even without Linehan's modifications, DBT resulted in greater reductions in alcohol use than treatment as usual. This study however reveals a specific link between reduced substance use and improved emotional regulation, encouraging further investigation into this as a potential mechanism for change in DBT.

Testing treatment outcomes (substance use and depression) and putative mediators of change (emotional regulation) at these three different time points offers a chance to evaluate the sequence of these changes. However, with both substance use and emotional regulation showing a significant increase from baseline to mid treatment and from mid treatment to end of treatment it is still impossible to know which change preceded the other: maybe using alcohol or drugs less frequently increased participants' emotional regulation, or a different factor accounted for the change in both.

Testing a similar hypothesis, Davenport, Bore and Campbell (2010) investigated whether decreased dysfunction, measured by scores on the International Personality Item Pool inventory (Goldberg, 1999), was associated with enhanced self-control, measured by a self-control questionnaire developed by Tangney, Baumeister and Boone (2004). This asks participants to rate on a 5 point scale how

'like me' different statements are, for example 'I'd be better off if I stopped to think before acting'. The questionnaires were sent to two groups of participants: the first, their control condition, were on the waiting list or had started the 14 month DBT programme within the last eight weeks (n = 7), and the second had graduated from this programme within the past three years (n = 10). Further therapy received by those in this treatment condition was not reported. A comparison of the means of these constructs in pre and post-treatment samples to norms, revealed significantly lowered self-control, agreeableness and conscientiousness, and higher neuroticism in the pre-treatment group. DBT graduates only differed significantly from the norm in neuroticism which was still elevated. Comparing the scores of both groups it was revealed that pre-treatment respondents scored lower than those post-treatment in self-control, agreeableness and conscientiousness. Davenport et al. (2010) concluded that these results support their prediction that self-control is developed through DBT and demonstrate a link between this and borderline presentation, specifically an increased level of agreeableness and conscientiousness.

No measures of BPD symptoms were employed in this study however, reducing its reliability. It is possible that participants reported enhanced self-control whilst feeling and acting in a way that did not reflect this. This could have been more accurately represented by measuring the frequency of emotions and behaviours that indicate low levels of self-control, such as impulsive behaviours, rather than asking participants for more subjective representations of this potential mediator. Further it cannot be established from this study that the link between enhanced reported self-control and improved functioning is causal, given that the design is between-subjects rather than within-subjects. Davenport et al.'s inclusion criteria could also confound results; over eight weeks of treatment changes in self-control could already be occurring in participants who made up the pre-treatment group. Similarly, given three years, the heightened levels of self-control, agreeableness and

conscientiousness found in post-treatment participants could reflect spontaneous remission rather than therapeutic benefits. Finally, the self-selection of participants could have biased results, those who return the postal questionnaire possibly having different experiences of therapy, and maybe different personality traits, to those who did not respond.

The use of DBT skills has also been explored as a potential mechanism of change. Neacsiu, Rizvi and Linehan (2010) investigated how this mediates treatment outcome, measured by scores on the Suicide Attempt and Self-Injury Interview (Linehan, Comtois, Brown, Heard & Wagner, 2006), Hamilton Rating Scale for Depression (Hamilton, 1960) and State-Trait Anger Expression Inventory (Spielberger, 1988). Women with a diagnosis of BPD were allocated to either DBT (n = 54) or a control treatment (community treatment by experts, treatment as usual or comprehensive validation therapy with a 12-step program, n = 54). They each completed these measures and the DBT Ways of Coping Checklist (adapted from the Revised Ways of Coping Checklist, Vitaliano, Russo, Carr, Maiuro, & Becker, 1985) at pre-treatment, and again after four, eight and twelve months of treatment and at a four month follow up. Although skills were employed by all participants about 50% of the time before they had begun treatment, their use was found only to increase significantly over time in participants assigned to the DBT condition. Given that there was evidence of skills use across all conditions, mediation analyses combined data from all participants. These revealed that the relationships between time in treatment and reduced probability of suicide attempts and improvements in depression and in anger control were each fully mediated by increased use of DBT skills. This factor also partially mediated the association between time in treatment and the increased likelihood of no self-injurious behaviours.

Neacsiu et al. (2010) acknowledged that retrospective bias could have led to inaccuracies in their collection of data regarding coping. They suggested that this factor is not expected to fluctuate over time though so will have been controlled for in their data analysis. This assumption can be questioned though, given that the self-report data was not collected just over time, but over time *in treatment* which might affect this bias. Schraedley, Turner and Gotlib (2002) for example highlighted the importance of controlling for depressive symptoms in interpreting retrospective reports, finding that these influenced the reporting of, particularly self-referential, information. Improvements in depression over treatment could therefore be hypothesised to lead to increased reporting of DBT skills use. Further, as mediational analyses are correlational, it could be proposed that improvements in depression mediate not just an increase in reporting DBT skills, but in their use. It is plausible that reductions in suicidality, depression and anger control could enable participants to use skills more often, or that another factor influences both the use of DBT skills use and these outcomes.

Stepp, Epler, Jhang and Trull (2008) tested a similar hypothesis that DBT skills use would predict a reduction in scores on the Personality Assessment Inventory – Borderline Features Scale (PAI- BOR; Moorey, 1991). Twenty-seven participants meeting DSM-IV criteria for BPD, or above the PAI-BOR threshold for BPD features, took part in the study. Participants completed the PAI-BOR at the start of each DBT skills module and kept daily diary cards, recording whether or not they used each of 22 skills, throughout treatment. This study found skills use to increase over time and PAI-BOR scores to decrease, and further that these variables were significantly associated. Analysing individual symptom subscales, Stepp et al. found that overall skills use was associated with improvements in affective instability, negative relationships and identity disturbance, but not self-harm. Reduced identity disturbance was predicted by the use of mindfulness and emotion regulation skills,

but no other significant associations were found between specific skills sets from individual modules and subscale outcomes.

Stepp et al.'s (2008) conclusions, like Neacsiu et al.'s (2010), rely on self-report data which can be biased, and are also drawn from correlations. Stepp et al. (2008) proposed that motivation may have acted as an extraneous variable influencing both skills use and treatment outcomes. As a solution to this they controlled for diary card compliance in their analyses, dividing number of completed diary cards by number of weeks spent in therapy for a measure of motivation. It is possible however that motivation (and card compliance) does not remain constant throughout treatment. West's (2007) PRIME theory suggests that motivation, rather than being a stable factor, is fluid and highly dynamic. Further, DBT aims to enhance client motivation so it is unlikely that this will be accurately recorded through a cumulative measure of diary card compliance across therapy. There are also many other factors besides motivation which could equally have affected participants' skills use and PAI-BOR scores.

Despite these limitations both studies do suggest a role of skills use in mediating treatment outcomes in DBT which may be a first step in establishing this as a mechanism of change. The papers show a consistent association between DBT and increased skills use as well as between skills use and measures of therapeutic change.

Dewe and Krawitz (2007) asked clients what they found the most effective aspects of DBT skills training. Using a Likert-type scale, they asked 19 clients (17 with a diagnosis of BPD and 2 with clinically significant BPD traits) to rate the effectiveness of 27 skills they had learnt over a full course of DBT. The top rated skill was 'What good are emotions?', presented in the emotion regulation module. This teaches the importance of emotions, for example in communication, motivation, and self-

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validation. The next rated skills were 'Factors reducing interpersonal effectiveness' and 'Options for intensity of asking or saying no'. These skills are taught in the interpersonal effectiveness modules and explore what can block the use of effective interpersonal skills such as worrying thoughts, difficult emotions or overpowering environments, and ways of judging how intensely you should make or refuse a request in different situations. The three skills rated lowest were all from the distress tolerance module which teaches skills to use when it is not possible or appropriate to change your situation or emotion. They are 'concerned with tolerating and surviving crises and with accepting life as it is in the moment' (Linehan, 2003, p. 96).

While this study indicates which skills clients value in DBT, its timing, after completion of the course, could have biased opinions. The authors wondered whether different skills could be experienced as valuable at different points in the programme, for example, when recently learnt and so fresh in their mind, or taught earlier and so better practised. Participants' perceptions of how effective skills are could also have been effected by how often they needed to use them. If a client was not experiencing crises often for example, they would not have much call to practise their distress tolerance skills but this is not to say that these skills are not effective in appropriate situations. Perhaps this could have been explored in the questionnaire, asking participants how effective they find each skill in different situations. Beyond these limitations, it is also important to know exactly what respondents meant when they rated a skill effective, for example *how* it helped them and in what ways things changed when they used it.

Cunningham, Wolbert and Lillie (2004) looked for this richer data, asking clients what they found effective in DBT and why. They used semi structured interviews to explore the views of 14 women with a diagnosis of BPD who had been receiving DBT for between six months and three years. Transcripts of these interviews were

coded according to descriptive topics before authors conducted an interpretive analysis of the quotes from each topic, identifying common themes. Overall, participants felt that the quality of their relationship with their individual therapist and being treated as an equal, the ability of their therapist to successfully balance acceptance and change, the knowledge base of their skills trainers and a better ability to modulate their emotions were important in improving their day to day lives, relationships and hope. They further suggested that some aspects of the treatment were less helpful, including the difficulty in understanding and applying some of what they were taught in skills coaching. Participants also described how they thought telephone consultation would be more effective if they were offered more validation during these calls, confirmation that what they are feeling is understandable in that context. One participant told her interviewer 'I wish that they would… tell me that things are going to be ok. I tend to get really ruffled and need to be soothed a little bit by somebody else' (p.254).

This highlights an important consideration to hold in mind when looking at the results of this study; what people want is not always what they need. The purpose of telephone consultation in DBT is not to soothe clients but to encourage appropriate help-seeking and receiving behaviour, to enhance skills generalization and to offer an opportunity to repair the therapeutic relationship following misunderstandings (Linehan, 1993). In fact if clients receive more soothing in consultation this could reinforce crises and feelings of self-inefficacy. Koons (2011) described this process, explaining how 'soothing' calls, while comforting at the time, do not teach clients how to tolerate distress on their own and can therefore increase their use of unhelpful behaviours and their sense of being out of control. Williams (1998) too recognised in her own recovery from BPD that it is crucial for professionals sometimes to be 'cruel to be kind' (p.174). Participants might feel differently about

these issues given the length of time they have been receiving therapy. It would have been useful for such characteristics to have been included in the paper.

Perseius, Öjehagen, Åsberg, Ekdahl and Samuelson (2003) too used interviews to investigate client perceptions of DBT and the components of therapy they found effective. Ten women who had been in DBT for 12 months or longer participated, and qualitative content analysis revealed that they found six aspects of treatment particularly important. These were: the respect, understanding and confirmation they felt from their therapists, DBT's focus on problems and understanding these, its emphasis on the client's responsibility within therapy and their lives, the contract, group skills training, and finally telephone coaching. Questionnaires and a group interview were also given to therapists who similarly valued the respect that DBT promotes for clients and their difficulties, the mutual responsibility taken by themselves and their clients and also their confidence in the model itself, which thoroughly prepared them for anything that may arise in therapy.

Several of these factors are also hypothesized to be mechanisms of change in Lynch, Chapman, Rosenthal, Kuo and Linehan's (2006) review of DBT. They proposed that skills training, the skill sets taught in DBT, telephone consultation, high levels of therapist self-disclosure and therapist reciprocal vulnerability potentially underlie therapeutic change. Reciprocal vulnerability is the willingness of therapists to allow themselves to be vulnerable in sessions through self-disclosure and accepting clients' behaviours rather than struggling with them (Shearin & Linehan, 1993), important in building the relationships that both clients and therapists valued. It is difficult however to determine whether these aspects of DBT are simply components of therapy or in fact mechanisms underlying its success. To unpick this, further research would be required to operationalize these factors and demonstrate a relationship between their presence in therapy and therapeutic gain.

While both qualitative papers gave an impression of what clients felt helped them to progress in therapy it would have been useful to focus too on *how* they thought these things made a difference, linking what happens in therapy with changes outside. The participants in both studies also largely related very positive experiences of therapy while it could be valuable to explore further what people found less effective. Finally, neither study gave an explicit statement of the authors' position beyond the fact that interviewers were not employed within the services from which they recruited. Elliott, Fischer and Rennie (1999) highlighted how important it is that authors own their perspective in qualitative research as this will inherently bias outcomes and should be held in mind while interpreting results. A control against this is to provide credibility checks. In Perseius et al.'s (2003) study two colleagues independently analysed the interviews and came together to reflect on their findings, but both were authors of the paper. Analysis in Cunningham et al.'s (2004) study was also collaborative between the authors. This suggests that their perspectives did not necessarily vary but were shared for the most part. Further, neither study checked back with respondents that their views were accurately expressed in the paper. Despite these considerations however it is striking that both studies found clients to describe their experience of being treated with respect in a collaborative therapeutic relationship as being a critical aspect of DBT.

In summary, studies have revealed associations between therapeutic outcome in DBT and increased emotion regulation, enhanced self-control and the use of skills. These conclusions are reinforced by clients' descriptions of how emotional regulation skills have improved their day to day lives. A further factor clients and therapists felt was a central component in DBT was the client-therapist relationship. Kazdin (2007) promoted caution in labelling this therapeutic alliance as a mechanism of change though, arguing the need for 'next-step' research that

explains how and why, identifying the specific aspects of this supportive relationship that promote or effect symptom change.

Some suggest that the therapeutic alliance can effect therapeutic change in and of itself. Indeed, an investigation by Strupp and Hadley (1979) found no difference in outcomes between clients (including those with a borderline presentation) receiving treatment from highly experienced psychotherapists and college professors with no therapeutic experience, but an ability to develop understanding relationships. Others hypothesise however that although a therapeutic relationship may be a necessary ingredient in treatment, it is not sufficient to produce successful therapeutic outcomes (Gaston, 1990). Henry and Strupp (1994) presented the alliance as potentially important in both senses, explaining that it not only produces direct change, but creates a context within which change is possible. They describe the client-therapist relationship as providing a 'gating function' (p.80), inhibiting or enhancing the success of interventions and therefore mediating their effectiveness. It is impossible to determine which theory is supported by the studies reviewed here. Gaston (1990) explained that to do this specific hypotheses need to be tested, examining and controlling for other factors which could influence outcome such as the technical ability of the therapist.

Schema focused therapy

Schema therapy is an extension of CBT, incorporating techniques from object relations and gestalt therapy. Young (1990) suggested that the behaviours characteristic of BPD are driven by early maladaptive schemas, 'self-defeating emotional and cognitive patterns that begin early in our development and repeat throughout life' (p.7). These stem from unhappy and often abusive upbringings where basic needs, such as those for secure attachments to others and the freedom to express emotions, are unmet.

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Young proposed that there are 'different aspects of self', or modes, that interact to form the inner world of borderline clients. At their core is the *abandoned and abused child*, helpless and frightened and desperately seeking care. The *angry and impulsive child* rages against their cruel treatment and unmet needs and is punished by the *punitive parent*. This is an identification with, and internalization of, invalidating and rejecting caregivers, who affirms the child's 'badness'. In order to survive, the *detached protector* keeps clients safe by emotionally shutting down, avoiding intolerable feelings of distress or connection with others. In therapy the underdeveloped *healthy adult* mode is promoted, who nurtures and protects the vulnerable child, limits the angry child and fights the punitive parent.

Work initially focuses on developing an affirming, corrective relationship between therapist and client. In this period another aim is to enhance clients' emotional regulation, exploring the feelings that trigger episodes of self-destructive behaviour and developing self-care plans. In the second phase of therapy schema modes are named and then changed using various techniques. Dialogue work (conversations between different aspects of the personality using empty chairs or visualisation) for example, is employed to encourage the detached protector to step aside and allow the abused child to make contact with the therapist, and also to fight the punitive parent, expunging their voice. Using imagery the punishing parent can also be challenged through revisiting memories as an adult who can protect the vulnerable child. The therapist further helps clients to explore ways the angry child can have their pain heard without hurting themselves or others. Eventually clients prepare to use all they have learned and achieved through sessions to enhance their interpersonal relationships and sense of identity outside.

To date only one study has empirically investigated a possible mechanism of change in SFT. Spinhoven, Giesen-Bloo, van Dyck, Koolman and Arntz (2007)

looked at whether improvement in the therapeutic relationship over the first year of therapy was related to later clinical improvement in SFT (n = 33) and TFP (n = 21), defined as reduced scores on the Borderline Personality Disorder Severity Index (BPDSI-IV; Arntz et al., 2003). Therapeutic alliance was measured at three months, fifteen months and thirty-three months using the patient and therapist forms of the Working Alliance Inventory (WAI-P and WAI-T respectively, Horvath & Greenberg, 1989) and therapists' responses to the Difficult Doctor Patient Relationship Questionnaire-Ten Item Version (DDPRQ-10; Hahn, Thompson, Budner, Stern & Wills, 1994). Cross-lagged correlations revealed that early to mid treatment changes in WAI-P showed a significant relationship with mid to late treatment BPDSI scores. This outcome measure shared no significant association with early to mid treatment change in alliance as rated by therapists (WAI-T and DDPRQ) though, suggesting that the client's experience of the therapeutic relationship may mediate change. The authors further found evidence that in the first three months of treatment therapist ratings of the quality of the therapeutic alliance predicted premature termination of work in TFP, and after three months both patient and therapist ratings were associated with time to dropout for both therapies. Comparing SFT and TFP the study revealed that both therapists and clients rate the therapeutic alliance more favourably in SFT (even when controlling for therapeutic change) and also that while clients receiving both interventions reported improvements in their relationship over time, therapists delivering TFP showed increasing frustration while this decreased in SFT. Despite this, clinical improvement was not significantly associated with treatment condition.

As with most studies reviewed here, the correlational design does not enable a conclusion to be made regarding the direction of causality, but it tentatively suggests that the therapeutic alliance might act as one mediator in both SFT and TFP outcomes, reinforcing the feelings of participants in Cunningham et al. (2004) and

Perseius et al.'s (2003) studies. As the authors highlighted, this is not to say that other factors, both common and unique to different approaches, do not contribute to change in BPD. It is also important to be aware of the debates presented above regarding the status of therapeutic alliance as a mediator of change.

Transference-focused psychotherapy

Object relations dyads are internalized representations of relationships comprised of a representation of the self and the other, connected by affect (Levy, Clarkin et al., 2006). Internal worlds are populated by many of these representations, some positive, some negative, and it is the integration of all of these that allows us to view people, ourselves and our experiences as a coherent whole. Kernberg (1984) suggested that this integration can be prevented however by intense negative affect. This can result from constitution, experiences or a combination of both. In a state of distress it is proposed that positive representations are split off from negative representations to protect them from being overwhelmed and destroyed. This total splitting of the world, relationships and the self into all good or all bad leads to an incoherent and fragmented experience of reality, characteristic of BPD. The resulting affective instability further prevents the integration of these disparate representations.

This understanding of the cause and maintenance of BPD led to the development of TFP which aims to help clients to integrate split-off representations, increasing their sense of coherence and reducing their use of primitive defenses, such as splitting and denial. Levy, Meehan et al. (2006) explained that as clients achieve more coherent representations of themselves and others they become more able to reflect on mental states, or to mentalize. This is defined as 'the process by which an individual implicitly and explicitly interprets the actions of himself and others as meaningful on the basis of…desires, needs, feelings, beliefs, and reasons'

(Bateman & Fonagy, 2004, p.21). The capacity to mentalize within the context of an attachment relationship has been operationalized as reflective function (RF; Fonagy et al., 1995). As this increases so does the capacity to develop secure attachments, enabling individuals to use others as a secure base from which they can explore their internal and external world, and also as a safe haven in times of distress (Levy, Meehan et al., 2006). This, in turn, is theorised to lead to the ultimate goals of TFP, enabling clients to enjoy greater intimacy in relationships and enhancing affect regulation, behavioural control and the ability to pursue aspirations (Clarkin, Levy, Lenzenweger, & Kernberg, 2004).

The treatment is highly structured and begins with the collaborative development of a contract setting out rules for therapy that address potential threats to treatment and to the client and defining roles, boundaries and emergency procedures. Once this is agreed therapy focuses on exploring the client's internal world through transference, the redirection of feelings for one object, often from childhood, onto another, in this case the therapist. Using what is experienced in the here and now, the client and therapist seek to understand and eventually question the split-off internal representations which are played out in their relationship through clarification, confrontation and interpretation.

In line with this theory, Levy, Meehan et al. (2006) predicted that RF and attachment security would be enhanced through TFP and hypothesized that these might act as mechanisms of change. Ninety participants with BPD were randomised into three conditions: TFP (n=31), DBT (n=29) and supportive psychotherapy (SPT, n = 30). Participants completed the Adult Attachment Interview (AAI: George, Kaplan, & Main, 1996), which was scored for RF, at assessment and after 12 months of therapy. Across this time both RF and attachment coherence (the capacity to relate attachment experiences, both positive and negative, in a coherent way) were found

to increase as a function of treatment with TFP. Participants also showed significant changes in attachment pattern, with an increased percentage being classified as securely attached after a year of therapy. When looking at treatment groups however this change was only significant for those clients who had received TFP. The authors hypothesized that these changes promote improved functioning by acting as 'buffers against internal and external stressors' (p.1037), making clients less likely to create stressful situations and more able to cope with natural stressors.

The greatest limitation in this study is that BPD symptoms are not measured throughout therapy. Without this information a statistical association between the proposed mechanisms of change and treatment outcomes cannot be demonstrated and it therefore cannot be concluded that improvements in RF or attachment are related to therapeutic change in clients. There is also no attempt to investigate their hypotheses explaining how these potential mechanisms come about or how they act to improve functioning. These are important areas for further study.

Diamond, Stovall-McClough, Clarkin and Levy (2003) also investigated the role of attachment and RF in therapeutic change. Using case studies and measures of attachment they investigated how attachment state of mind and RF in both clients and their therapists influence therapeutic process and outcome. Ten clients with BPD participated in the study, completing the AAI after four months and again after a year receiving therapy. Both therapist and client were also assessed using the Patient-Therapist Adult Attachment Interview (PT-AAI; Diamond et al., 1999) after one year of treatment. Diamond et al. found that over the year most clients showed improved RF, behaviour, symptomatology and attachment status, however they did not comment on how this was measured or the association between change in RF and these outcomes.

In the majority of cases therapists scored more highly in RF than their clients, forming more rich and integrated understandings of both their own and their clients' mental states. Diamond et al. (2003) highlighted that this difference was particularly noticeable in a participant demonstrating one of the smallest changes in attachment. From this observation it was suggested that in order for clients to build new understandings of themselves and others their RF level should not differ too much from that of their therapist. A case report within the paper however, following a client who showed no improvement in RF, implied conversely that change was hindered by the therapist having the same RF rating, directly mirroring their experience and perhaps not offering a different enough perspective to be containing. The authors therefore concluded that to optimise outcomes client and therapist RF levels should be 'complementary'. They suggested that therapists can successfully scaffold the development of this capacity by working in what Vygotsky (1978) termed the zone of proximal development (between what the client can achieve alone and what they can do with support).

These conclusions are made however from the results of a small sample size. Further, crucially, Diamond et al. (2003) did not statistically demonstrate an association between RF and treatment outcomes, essential in concluding mediation. Together these studies do suggest however that TFP enhances RF and attachment patterns. Further research should look to determine whether these improvements are associated with reduced symptomatology.

<u>Discussion</u>

Despite increasing evidence for the effectiveness of various therapies in treating BPD, little is known about what explains these positive outcomes. This review evaluated the evidence for various processes theoretically supposed to effect therapeutic change, exploring which are promising candidates as mediators of this process. The results largely echo the conclusions of the Cochrane review of psychological therapies for people with BPD: 'the studies are too few and small to inspire full confidence in their results… [and their] findings require replication in larger 'real-world' studies' (Binks et al. 2009, p.2).

While researchers have investigated various plausible mechanisms of change, using different methodologies, samples have often been small and unrepresentative. Across the papers reviewed, an overwhelming proportion of participants were female. While the National Institute for Health and Clinical Excellence (NICE; 2009) reported that more women present to services than men they also noted that in the community its prevalence is roughly equal between genders (Singleton, Bumpstead, O'Brien, Lee, & Meltzer, 2003), suggesting that the samples used in these studies do not accurately reflect the BPD population.

Methodological issues have also limited the conclusions that can be drawn from these studies. Referring back to Kazdin's (2007) criteria for demonstrating mediation, studies must first find a statistical association between the intervention and the potential mechanism of change, and between this mechanism and treatment outcome. Kazdin (2007) referred to this as the 'initial requirement… if these three variables are not related, the case for the operation of a mediator is greatly weakened, if not eliminated' (p. 5). Several studies reviewed failed to look for this relationship or to report it. Another of Kazdin's (2007) criteria, the establishment of the temporal relationship between mediators and outcomes, he described as 'the

Achilles' heel of treatment studies' (p.5). In line with this view, none of the studies reviewed ascertained this timeline, making it impossible to know which changes in therapy occurred first.

Despite these limitations however, these studies have begun to reveal associations which may prove important in the mediation of clinical outcomes in BPD treatment. The largest body of research regarding change mechanisms investigates the mediators of DBT. The studies reviewed here suggest that positive outcomes could stem from the use of the skills taught as part of this therapy, which showed correlations with decreases in borderline features, suicide attempts and depression and increased anger control. Emotional regulation skills in particular were experienced as helpful in Cunningham et al.'s (2004) qualitative study and this was reinforced by findings that increased emotional regulation was significantly associated with decreased substance use that could not be explained by improvements in mood. The top rated skill in Dewe et al.'s (2007) survey was also from this module, and Davenport et al.'s (2010) exploration of self-control, of which emotional control is a part, found that post-treatment participants scored no differently to norms in this feature.

While participants in Cunningham et al.'s (2004) paper discussed the positive impact of enhanced emotional control, both in this study and that by Perseius et al. (2003) clients valued the therapeutic relationship as one of the most effective aspects of their treatment. In quantitative studies too this non-specific factor was found to influence therapeutic change. The developing therapeutic alliance was found to be predictive of outcome in Spinhoven et al.'s (2007) investigation into SFT and TFP for example. Attitudes towards treatment and the fit between therapist and client in cognitive abilities such as IC and RF, which might influence this alliance, have also been found to affect therapeutic gain in CBT (Davidson et al., 2007) and TFP

(Diamond et al., 2003) respectively. Although it has not been tested, theoretically the growing therapeutic relationship could also facilitate change in MBT, symptom reduction being understood to result from clients developing a secure attachment with the therapist within which they are safe to explore the mental states of themselves and others (Bateman, & Fonagy, 2004).

Although the therapeutic relationship is a factor linked to successful outcomes across therapies and diagnoses (Weinberger, 1995), Frieswyk et al. (1986) suggested that this component may be especially relevant in the treatment of BPD, given clients' difficulties in developing and maintaining relationships. They proposed that the 'success or failure [of the alliance] and its vicissitudes spell the outcome of the process' (p.37). NICE (2009) recognised this, presenting principles to promote a positive therapeutic relationship in treating clients with a diagnosis of BPD, describing how this 'is at times as important as the specific treatments offered' (p.11). As Weinberger's (1995) review stated however, while both quantitative data and client reports attribute therapeutic outcome to the therapeutic relationship, it is still important to explore its operation.

There are many potential pathways to understanding this in the context of BPD. Bateman and Fonagy (2004) for example posit that the development of this relationship enhances mentalization, or RF (found to increase in both TFP studies), which in turn facilitates the regulation of emotions (emotional control, associated with clinical outcomes in DBT studies) and attention. It is also possible that the experience of being in a relationship which is validating and non-threatening may in itself challenge the dysfunctional beliefs that characterise BPD and have been revealed to reduce over the course of CBT. Discovering whether these or other potential mediators are developed or facilitated through a strengthening therapeutic alliance would contribute towards enhancing this understanding and investigating

whether, as Livesley's (2005) integrative model suggests, a collaborative relationship is key for therapeutic change.

In order to strengthen this theory of an underlying common change mechanism, research should also continue to investigate the association between mediators, such as mentalization and emotional regulation, and clinical outcomes across *different* therapeutic modalities, as some studies here did. Discovering universal mechanisms of change could allow us to focus interventions on enhancing these processes and therefore improve outcomes for clients with this diagnosis.

In conclusion, this review of mechanisms of change in effective treatment for BPD has revealed that future research is required to learn how these interventions work. Studies to date have highlighted the difficulty in demonstrating the causality of potential mediators, but have also begun to reveal associations between different aspects of therapy and clinical outcome. Most consistently the developing therapeutic relationship, and factors that could relate to this, have been found important in predicting the effectiveness of treatments, both through qualitative and quantitative studies. Further research is now needed to explore how this relationship helps to foster change, testing hypotheses as to why this bond is so important in rebuilding the lives of those diagnosed with BPD.

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Part 2: Empirical Paper

Do difficulties in mentalizing correlate with severity of

borderline personality disorder?

Abstract

Aims: This study aimed to explore the relationship between impairments in mentalizing and symptom severity in individuals diagnosed with borderline personality disorder (BPD). It was hypothesised that the two would be correlated, given the theory that deficits in mentalization underlie the symptoms that characterise the disorder. The study also compared mentalizing capacity in the current sample to that of a group with a diagnosis of antisocial personality disorder (ASPD). The theory that the disorders share the same psychopathology led to the prediction that there would be similarities in their performance.

Method: 25 people with a diagnosis of BPD completed a questionnaire measuring the severity of their symptoms. In order to activate the attachment system, participants were then asked to reflect on difficult experiences in early attachment relationships, before completing a battery of three tasks measuring different aspects of mentalization.

Results: Correlational analyses found that, contrary to prediction, there was no evidence to support a relationship between mentalizing impairments and the severity of BPD symptoms. Significant differences in performance across the BPD and ASPD groups were revealed, with the BPD sample demonstrating greater accuracy in two of the three tasks.

Conclusions: The study was underpowered due to difficulties in recruitment and this could account for its unexpected findings. Further research is recommended to investigate the relationship between mentalization ability and severity of BPD.

<u>Introduction</u>

Borderline personality disorder (BPD) is a severe and complex disorder, characterised by a pervasive pattern of emotional lability, poor impulse control, unstable and intense relationships with others and an unstable sense of identity (American Psychiatric Association, 2000). It is associated with difficulties in social, psychological and occupational functioning and a suicide mortality rate 50 times that of the general population (Skodol et al., 2002).

Bateman and Fonagy contended that underlying these symptoms are deficits in the capacity to mentalize, 'the process by which we make sense of each other and ourselves, implicitly and explicitly, in terms of subjective states and mental processes' (Bateman, & Fonagy, 2010, p.11). Mentalizing is a multifaceted concept, organized along four dimensions: self/other focused, controlled/automatic, external/internal-based and cognitive/affective (Fonagy, & Luyten, 2009). It involves reflecting on the minds of ourselves and of others, both of which, Allen (2006) highlighted, can be equally elusive, and sometimes frightening to comprehend. Mentalizing is achieved both explicitly, through controlled, conscious reflection, and implicitly, through automatic and intuitive processes. In conversation for example, we will generally mentalize implicitly, reflexively understanding when it is our turn to talk and adjusting our tone and body language according to what our partner is communicating. This is quite different to the process of actively reflecting on and assessing our own and others' internal experiences. Our understanding of others can be gained using both external features, such as a person's facial expression or their gestures, and also by focussing on internal experiences, considering what others may be feeling, thinking or intending. Genuine understanding of others requires us to develop not only representations of what others believe but to recognise and identify with their feelings, or to empathise.

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Fonagy and Luyten (2009) suggested that individuals with a diagnosis of BPD are impaired in the domains of explicit, internal and cognitive mentalizing. That is, they find it difficult to reflect consciously on the internal experiences of themselves and others, they are more successful in inferring states of mind from physical cues than by focusing on 'mental interiors', and they can powerfully experience the emotional states of others without being able to fully comprehend their perspective. Fonagy and Luyten (2009) further contended that these difficulties affect their capacity to differentiate between themselves and others, increasing their vulnerability to becoming overwhelmed by others' emotions.

It is understood that we learn to mentalize through *being mentalized* (Allen, & Bleiberg, & Haslam-Hopwood, 2003). This occurs within the context of a secure attachment, which Fonagy, Gergely, Jurist and Target (2002) argued creates a safe base for exploring not just the outside world, but the inner worlds of ourselves and others. Within this context infants can begin to learn about their own emotions, using the responses of caregivers to convert their unlabelled and confusing internal states into contained experiences that they can recognise and understand. This is achieved through mirroring, caregivers providing accurate but altered representations of infants' affective states. A caregiver might respond to their child's distress with an exaggerated frown for example, expressing not only an understanding of their emotions but also care (Choi-Kain, & Gunderson, 2008). This can then be internalized by the infant, containing their intolerable feelings. Mirroring therefore not only helps children to label their emotions but teaches them that they can be modulated. Recognising mirrored emotions as belonging to the caregiver rather than being an expression of their own internal state further creates a sense of agency in the infant, who has initiated this response in their caregiver, and also a developing sense of self as being distinct from others (Fonagy & Bateman, 2007).

Not all children experience the secure attachment conducive to developing this understanding however, nor find themselves accurately represented in the mind of another. This could result from the child's genetic temperament, their environment, or the interaction between the two (Fonagy, & Bateman, 2007). A bad fit between child and caregiver for example could hinder the development of a secure attachment relationship between them, a child could grow up in an environment where emotional states are not discussed, or in more severe cases children can suffer abuse at the hands of their caregivers. Fonagy and Bateman (2006) proposed that the resulting deficit in mentalization is likely to be secondary to hyperactivity of the attachment system. Individuals with diagnoses of BPD appear to respond with greater arousal to interpersonal situations which trigger the attachment system. Further, their history of trauma within attachment relationships is understood to reduce the threshold at which conscious, reflective, explicit mentalizing is lost to automatic, intuitive, implicit mentalizing and consequently to *non*-mentalizing (Fonagy, & Luyten, 2009). When this happens experiences are understood through modes that predate mentalizing, such as psychic equivalence, where thoughts are experienced as reality, or teleological mode, where the feelings of others are only understood as real if they are physically expressed. Combined with overwhelming arousal this results in the symptoms associated with BPD.

Mentalization based treatment (MBT; Bateman, & Fonagy, 2006) aims to stabilise clients' sense of self, through fostering mentalization about the self, others and relationships. MBT appreciates that it is within a secure relationship, such as that between client and therapist, these skills can grow, but that it is also intimacy that causes the lapses in mentalization that characterise BPD. Much of the work within sessions therefore focuses on holding onto mentalizing during states of arousal or reinstating this where it has been lost. This is facilitated through various techniques such as 'stop, rewind, explore', where the individual or group retrace the events and

emotions that led to a disruption of mentalizing, or simply 'stop and stand', where the therapist interrupts the session to ask the client to reflect on an aspect of the conversation that suggested a lack of mentalization. The recovery of this capacity is also encouraged by the 'inquisitively curious, *not-knowing* attitude – which requires tolerance for ambiguity and uncertainty' (Allen, Fonagy, & Bateman, 2008, p.182) therapists take in MBT.

MBT (Bateman & Fonagy, 2008) is just one of many interventions that have demonstrable effectiveness in treating individuals diagnosed with BPD (de Groot, Verheul, & Trijsburg, 2008; National Institute of Health and Clinical Excellence, 2009). These include transference-focused psychotherapy (TFP; Giesen-Bloo et al., 2006) and also cognitive therapies such as cognitive behaviour therapy (CBT; Davidson et al., 2006), dialectical behaviour therapy (DBT; Linehan et al., 2006) and schema focused therapy (SFT; Giesen-Bloo et al., 2006). It is not yet known which aspects of these interventions are responsible for their outcomes, but this knowledge would be invaluable in enabling us to optimise treatment effectiveness for individuals with a diagnosis of BPD. Kazdin (2007) contended that it is likely that common change mechanisms underlie treatments of different modalities and Livesley's (2005) framework similarly posited that it may be of more value in BPD treatment to focus on nonspecific factors such as the development and maintenance of a therapeutic relationship. Bateman and Fonagy (2004) recognised that most approaches consider the therapeutic alliance an important aspect of treatment. The strength of this relationship is also known to contribute to the success of all forms of psychological interventions. Kazdin (2007) however argued that 'next-step' research is needed to explain *how* this supportive relationship causes symptom change. Bateman and Fonagy (2004) suggested that the experience of security within an attachment relationship enables individuals to feel safe to explore the mental states of themselves and others and therefore enhances mentalization. Regardless of

orientation, therapists facilitate this exploration, labelling and mirroring feelings they don't understand and providing an experience of seeing things from different perspectives. Given this argument, they contended that *any* 'successful treatment must have mentalization as its focus or at least stimulate development of mentalizing as an epiphenomenon' (Fonagy, & Bateman, 2007, p.84).

Despite the clinical implications of mentalizing impairments in BPD, this relationship is poorly understood empirically. Studies exploring this association have yielded inconsistent results (Domes, Schulze, & Herpetz, 2009; Franzen et al., 2011; Preißler, Dziobek, Ritter, Heekeren, & Roepke, 2010). Some have revealed impaired performance in mentalizing. Levine, Marziali, & Hood (1997) for example, found that participants meeting BPD criteria scored significantly below healthy controls in several tests of emotional processing. These included tasks that required participants to identify emotions from facial expressions presented in photographs (this finding was replicated by Bland, Williams, Scharer, & Manning, 2004), and measures that analysed their emotional responses to vignettes. These explored participants' capacity for recognizing mixed emotions and their ability to differentiate their own feelings from those of others.

In contrast, recent studies have revealed that BPD groups outperform healthy controls in tests of mentalizing. Fertuck et al. (2009) found enhanced sensitivity in individuals diagnosed with BPD in inferring the internal states of others from photographs of their eyes, using the Reading the Mind in the Eyes Test (RMET; Baron-Cohen, Wheelwright, Hill, Raste, & Plumb, 2001. Please see Methods section for details). Arntz, Bernstein, Oorschot and Schobre (2009) also revealed a tendency for those with a diagnosis of BPD to demonstrate more accuracy than healthy controls on an advanced theory of mind test. This required participants to make attributions about characters' thoughts, feelings and intentions in stories

containing persuasion, white lies and double bluffs. Similarly, Franzen et al. (2011) found that participants with a diagnosis of BPD showed superiority in inferring the intentions of others in a virtual game that required participants to make decisions based upon their partner's emotional facial cues and previous behaviours.

Reflecting this inconsistency, Harari, Shamay-Tsoory, Ravid and Lekovitz (2010) found a double dissociation in their study. Participants diagnosed with BPD showed enhanced affective empathy (the capacity to share the emotional experience of another) compared to controls, but impaired cognitive empathy (the ability to understand others' perspectives). Preißler et al. (2010) too found conflicting results, comparing social cognitive abilities in women with a diagnosis of BPD and healthy controls. They used two tests of mentalization, the RMET and the Movie for the Assessment of Social Cognition (MASC; Dziobek et al., 2006). The MASC requires participants to attribute intentions, emotions and thoughts to characters in a film (please see Methods section for details). Their results revealed weaker performance on the MASC in those diagnosed with BPD compared to controls, but no difference in scores on the RMET. The authors suggested that this outcome reflected the superior sensitivity and ecological validity of the MASC and concluded therefore that those with a BPD diagnosis have a significant impairment in their capacity to mentalize. It is possible however that deficits were not revealed in the RMET because this task, unlike the MASC, requires participants to make inferences based purely on visible features, an ability that research suggests is unimpaired or even enhanced in those diagnosed with BPD. Understood in this way, these results reinforce Fonagy and Luyten's (2009) proposal that mentalizing impairments are not global but are found in specific domains, in this case internal mentalizing rather than external. Harari et al's (2010) study similarly strengthens the hypothesis that underlying BPD symptoms is a deficit in cognitive but not affective mentalizing.

To improve research into mentalizing, Choi-Kain and Gunderson (2008) promoted the use of tasks that reflect the various dimensions encapsulated by this ability. Both research and theory converge to suggest that impairments in mentalizing in BPD are not global but confined to specific domains. These may even be overcompensated by superior abilities in other dimensions (Fonagy, & Luyen, 2009). Single measures therefore cannot reflect the complexity and multidimensionality of this construct. This study employed several measures of mentalization, with the aim of investigating abilities across its different domains. It explored performance in both the RMET and the MASC, replicating Preißler et al.'s (2010) study, and also a recently developed Computerised Perspective Taking Task (CPTT; Dumontheil, Apperly & Blakemore, 2010) which assesses internal and cognitive aspects of mentalizing, requiring participants to use another's perceptual perspective to complete a task.

Newbury-Helps (2011) recently used this battery of tasks to investigate mentalization in individuals with a diagnosis of antisocial personality disorder (ASPD), given Bateman and Fonagy's (2008) hypothesis that violent and controlling acts result from sudden losses of mentalizing in response to challenges to integrity. He found subtle deficits in performance on all three measures.

Paris (1997) highlighted that there are in fact many similarities between BPD and ASPD, particularly their underlying impulsive personality traits. He suggested that both disorders may be different manifestations of the same psychopathology according to gender. He explained that females might learn to express their impulsivity internally through the self-destructive behaviours characteristic of BPD, while males externalise, hurting others, as seen in ASPD.

Evidence for mentalizing impairments in ASPD, as in BPD, has been inconsistent. Dolan and Fullam (2004) used several theory of mind tasks, measuring different dimensions of mentalizing ability, to compare this in participants with a diagnosis of

ASPD and healthy controls. They found that while the clinical group demonstrated impairment on certain aspects of the tasks they outperformed the control group on others. Taken together, their results suggested that those with an ASPD diagnosis could take the perspective of another but lacked concern about others' emotional experiences. Shamay-Tsoory, Harari, Aharon-Peretz and Levkovitz (2010) similarly found that mentalizing deficits in participants diagnosed with ASPD were only evident in measures of affective, and not cognitive, theory of mind. These results suggest a different profile to that demonstrated in individuals with BPD who conversely show impairments in the cognitive but not affective domain of mentalizing. This contradicts Paris's (1997) proposal of a shared underlying psychopathology. In order to explore this idea further, this study compared the performance of individuals with a diagnosis of BPD to that of Newbury-Helps' (2011) sample, diagnosed with ASPD.

In sum, this study aimed (1) to investigate correlations between different measures of mentalization and severity of BPD and (2) to compare performance in these tasks between this sample and one recruited from an ASPD population. In line with Fonagy and Luyten's (2009) proposal that deficits in BPD are specifically in the domains of cognitive and internal mentalization, it is predicted that BPD severity is likely to correlate negatively with scores on tasks measuring these abilities (the MASC and CPTT). Paris's (1997) argument for a shared psychopathology underlying BPD and ASPD suggests that similarities can be hypothesised in the mentalizing profile of the two samples, however previous research into mentalization across the cognitive/affective domain has begun to contradict this claim.

Method

Design

This was a correlational study using a cross-sectional design.

Participants

Twenty-five participants with a primary diagnosis of BPD were recruited from a specialist personality disorder service. All had recently been assessed within the service.

Individuals with a diagnosis of a learning disability or head injury were excluded from this study since it is hard to distinguish whether behavioural and emotional difficulties in these populations are attributable to these diagnoses or to personality disorder (Alexander, & Cooray, 2003; American Psychiatric Association, 2000). Individuals younger than 18, or currently experiencing a psychotic disorder were also excluded from participating as they did not meet the referral criteria within the service.

Measures

Borderline Evaluation of Severity Over Time: BEST (Pfohl, Blum, & Zimmerman, 1997)

Although participants all had a diagnosis of BPD, this study investigated the relationship between the *severity* of BPD symptoms and performance in tasks of mentalizing. This was measured using the BEST (see Appendix A). This is a self-report measure which requires participants to indicate on a 5-point Likert scale how much 12 different thoughts, feelings and negative behaviours have caused distress or difficulties over the past seven days (none to extreme). It also asks how often they have been able to use three positive behaviours (almost always to almost

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never). The internal consistency coefficient for individuals with BPD has been found high at 0.86, and test-retest reliability moderate at 0.62 (Pfohl, Blum, St. John, McCormick, Allen, & Black, 2009). The BEST has been used previously in research exploring the efficacy of BPD treatments (eg. Black, Blum, Eichinger, McCormick, Allen, & Sieleni, 2008; Harvey, Black, & Blum, 2010).

Computerised Perspective Taking Task: CPTT (Dumontheil, Apperly, & Blakemore, 2010)

This was a computerized task, presented on a laptop. It was written in E-Prime 2.0 (Psychology Software Tools, Inc.). Participants were read the instructions provided (Appendix B) then shown a 4x4 set of shelves containing eight objects. Auditory instructions were given to participants to move different objects up, down, left or right, using the touchpad.

In the director condition participants were told that the director, who stood behind the shelves, would give their instructions. Five compartments of each set of shelves had grey backgrounds representing screens that blocked the director from viewing their contents. This had to be remembered when he gave instructions to move objects, and participants were instructed to take his point of view into account when responding to these. Sixteen different shelf-object configurations were then presented, each with three instructions. Eight of the forty-eight instructions were experimental trials, where participants were required to take the perspective of the director and ignore a distractor object in the grey slot, invisible to the director; eight were control trials, where the shelf arrangement was identical except for the distractor item which was replaced by an irrelevant object (see Figure 1); thirty-two were fillers, referring to items in slots that could be seen by both participant and director. In the no-director condition participants were told that the director was not there anymore. It was explained that the further instructions they would receive only

referred to the objects in the clear slots, and that those with the grey screens were to be ignored. All other aspects of the task (number and type of trials) remained identical.

Participants' accuracy and speed were recorded in this task, producing scores in director condition experimental errors, director condition control errors, no-director condition experimental errors, no-director condition control errors, and response times for correct responses in each condition.

Figure 1. An example of an experimental (left) and control (right) trial in the director condition of the CPTT. The director has just instructed the participant to 'Move the large cup up.' In the experimental trial (left) the participant is required to take the perspective of the director and move the target cup that is visible to both of them. If they fail to do this they would move the distractor cup which is the largest cup on the shelves but is invisible to the director. In the control trial (right) the distractor item is replaced by an irrelevant object so participants can correctly respond to the director's instruction without taking his perspective.
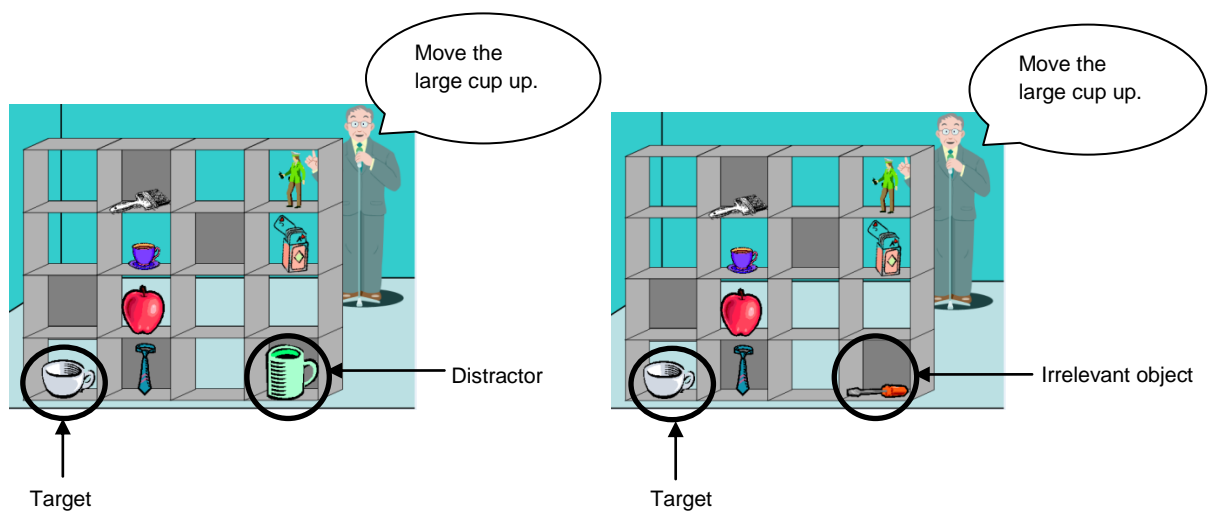
Both conditions are matched in their executive demands, requiring participants to inhibit their automatic reaction to move the object that fits the instruction from their perspective. The director condition however requires that participants take into account not simply the colour of the slot, but what is visible to the director.

Perspective taking is an important aspect of internal and cognitive mentalizing. Our ability to imagine the visual experience of another allows us to infer their beliefs and

understanding of situations in order to explain and predict their behaviour. The CPTT was therefore used in this study to measure internal and cognitive aspects of mentalization.

The task has demonstrated main effects of condition (director/no-director) ($p < 0.001$), trial type (control/experimental) ($p < 0.001$) and also age groups (young children/older children/young adolescents/older adolescents/adults) ($p < 0.001$).
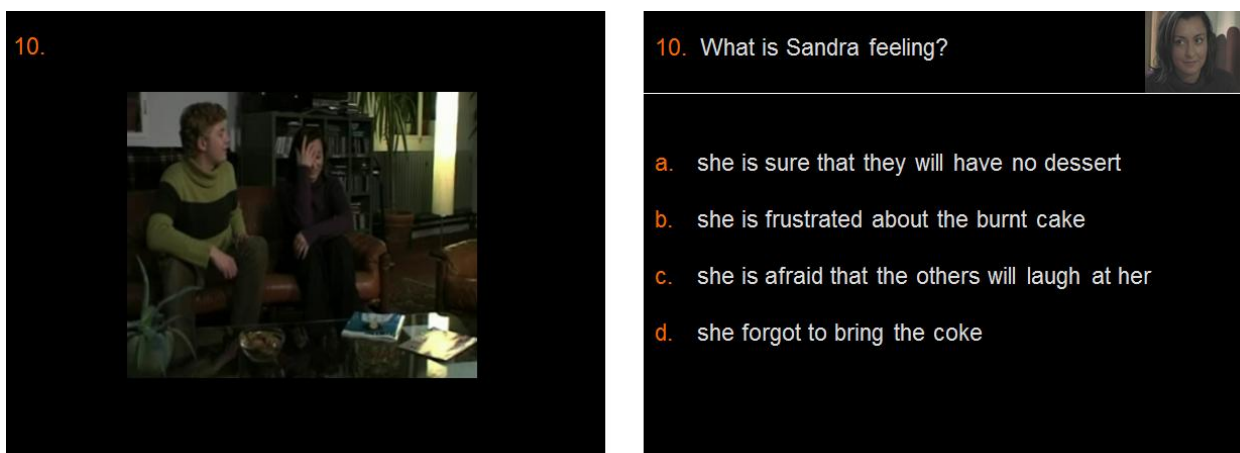
Movie for the Assessment of Social Cognition – Multiple Choice version: MASC-MC (Dziobek et al., 2006; Fleck et al., 2006)

Participants viewed a 15 minute film in which four characters spend an evening together at a dinner party. This was presented on a Microsoft PowerPoint slideshow controlled by the researcher, with the instructions that participants should watch very carefully and try to understand what each character is feeling or thinking. Before the film began participants were shown photographs to introduce them to each character they would be meeting. They were informed that the film would be paused at various points and that questions would be asked. In answering these, participants were instructed to try to imagine what the characters were feeling or thinking at the very moment the film was stopped. They were also informed that the film was dubbed.

Forty-three video clips were then shown, each followed by one or more questions with four possible answers (see Figure 2). Of these questions, 45 regarded the characters' intentions (19), feelings (18) and thoughts (8) and 6 required no mentalizing and controlled for memory and general comprehension effects and the making of non-social inferences. Each set of possible answers included an accurate mentalizing response and three incorrect answers based on the responses given by participants in the original version of the task where no multiple choice answers

were presented (Dziobek et al., 2006). The incorrect responses reflected three different types of mistakes: (1) 'undermentalizing', demonstrating insufficient mentalizing in attributing characters' mental states , (2) 'hypermentalizing', resulting in attributions that are 'too excessive', and (3) non-mentalizing, showing a complete lack of mentalization. Examples of these can be seen in Figure 2. Participants were asked to tell the researcher which they thought was the most accurate response from the four different answers and this was recorded on a multiple choice answer sheet. Participants therefore gained a correct mentalization score, with subscores for correctly attributing intentions, feelings and thoughts, a correct control score, and also scores for mistakes that show 'hypermentalizing', 'undermentalizing' and a lack of mentalizing.

Figure 2. An example of a question from the MASC. Sandra has just been into the kitchen to get Cliff some cola and has checked on the cake to find that it is 'ruined – totally burnt!' The four answers represent (a) insufficient mentalizing, (b) accurate mentalizing, (c) excessive mentalizing, and (d) no mentalizing.

Correct answers in this task required accurate recognition of physical and verbal indicators of mental states as well as an ability to consider the feelings, thoughts and beliefs of the characters. The film was designed to approximate everyday social interactions, requiring participants to use facial cues, body language, gestures, and literal and figurative expressions to attribute positive, negative and neutral emotions and intentions to others. The MASC was therefore used in this study as a measure

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of both internal and external mentalizing, and also mentalizing in cognitive and affective domains.

The measure has demonstrated highly satisfactory internal consistency (Chronbach's alpha = 0.84), and good test-retest reliability (intraclass correlation coefficient = 0.97). It has previously been used to demonstrate specific social impairments in populations with diagnoses of Asperger's syndrome (Dziobek et al., 2006), euthymic bipolar disorder (Montag et al., 2010), paranoid schizophrenia (Montag et al., 2011) and BPD (Preißler et al.,2010).

Reading the Mind in the Eyes, Revised Version: RMET (Baron-Cohen, Wheelwright, Hill, Raste & Plumb, 2001)

Using a Microsoft PowerPoint slideshow on a laptop, 36 of photographs actor's eyes (18 female, 18 male) were shown to participants. These were presented with four words, one a correct description of the person's mental state, the others foils with the same emotional valence (see Figure 3). Participants were asked to tell the researcher which word best described what the person in the picture was thinking or feeling. The word they selected was circled on a multiple choice answer sheet. Participants were provided with word definitions to use if they did not understand any of the descriptors used in the task. A score was obtained for each participant by adding together the answers they got correct.

Figure 3. Two of the questions presented in the RMET. In these examples the correct answers are (3) desire, and (4) insisting.

The RMET was used in this study as a measure of external mentalizing, requiring participants to infer the mental state of another based on their visible features. It also assesses cognitive and affective mentalization, correct answers requiring that participants use these cues to take the perspective of the people in the photographs, understanding their beliefs and intentions, and also to identify their emotional states.

In the original study developing this measure, Baron-Cohen et al. (2001) found a significant main effect of group in a one-way ANOVA, comparing adults with Asperger's syndrome or high functioning autism, to three control groups, $F(3, 250) = 17.87$, $p = 0.0001$. Since its development the task has also successfully differentiated healthy control groups from populations with various diagnoses including schizophrenia (Schimansky, David, Rössler, & Haker, 2010), depression (Lee, Harkness, Sabbagh, & Jacobson, 2005) and anorexia nervosa (Harrison, Sullivan, Tchanturia, & Treasure, 2009). In BPD samples the RMET has yielded inconsistent results, Fertuck et al. (2009) revealing enhanced sensitivity in this task compared to controls, while Preißler et al. (2010) found no significant differences in performance.

Other sources of data

As well as the measures completed for this study, participants had completed the Structured Clinical Interview for DSM-IV Axis II Personality Disorders (SCID-II: First, Gibbon, Spitzer, Williams, & Benjamin, 1997) and Treatment History Inventory (THI: Linehan, 1987) as part of their assessment process. These outcomes and demographic data (date of birth and ethnicity) were provided by their therapists.

Procedure

The National Research Ethics Service Committee London - East approved the study (Appendix C). Participants were recruited through their therapists. They were asked to refer all clients they had met for assessment and any within their first four weeks of receiving therapy at the service. This cut-off was set to reduce the possibility that any changes in mentalization could have taken place as a result of their treatment. At four weeks, most clients would still be in the process of becoming socialised to the CBT or DBT model, establishing and enhancing commitment to treatment and identifying goals or developing a formulation of their difficulties.

Potential participants were approached by phone. The purpose and process of the study was explained and they were sent an information sheet with further details (Appendix D). Those interested in taking part booked an appointment to meet with the researcher at an NHS site.

At this appointment written informed consent was obtained from all participants (Appendix E). Participants then completed the BEST.

Fonagy and Luyten (2009) proposed that it is when the attachment system is activated that mentalizing is lost in individuals with BPD, leading to the re-emergence of pre-mentalistic modes of processing experiences. They suggested that this can be achieved experimentally through collecting Adult Attachment

Interview (AAI; Main and Goldwyn, 1998) narratives. The AAI is a semi-structured interview that accesses thoughts, feelings and memories about attachment experiences to assess current mental representations of these. In order to activate the attachment system participants in this study were therefore asked questions from the AAI that encouraged them to reflect on their relationships growing up:

a. I'd like you to try to describe your relationship with your parents as a young child. If you start as far back as you can remember…

b. Did you ever feel rejected as a young child? Of course looking back on it now you may realise that it wasn't rejection, but what I'm trying to ask about is whether you remember ever having felt rejected?

This method has been used in previous doctoral research.

The battery of mentalization tasks was then completed. These were presented in a counterbalanced order, to counteract any sequence or order effects.

The session took between one and two hours on average. Participants received £10 for their time plus travel expenses.

Joint project

In order to maximise recruitment and reduce participant fatigue, this study was conducted alongside another project conducted by a trainee clinical psychologist, investigating the effects of therapy on self-compassion in the same population (Perera, 2012). Participants therefore also completed questionnaires relating to self-compassion before the mentalizing tasks were presented (see Appendix F for details).

Sample size and statistical power

Cohen's Power Primer tables (Cohen, 1992) recommended that for correlational analyses a sample size of 67 is required to detect a medium effect size, and 30 to detect a large effect size, at α=5% and power = 80%. Unfortunately, given time limitations and difficulties in recruiting this population, the achieved sample size in this study was 25.

Data analysis

Participants' scores on the BEST, MASC and RMET were manually entered into an SPSS 20 database along with demographic information and outcomes from the SCID-II and THI which were provided by their therapists. CPTT results were automatically collected in E-Prime and then transferred to the SPSS database. A CPTT experimental error variable was calculated through dividing the difference in incorrect responses on director experimental tasks (requiring mentalizing) and director control tasks by the total number of incorrect responses in director trials ([Director Experimental Errors – Director Control Errors]/[Director Experimental Errors + Director Control Errors]) . This index, previously used by Newbury-Helps (2011), reduces the chance of results being confounded by extraneous variables such as individuals' visuospatial ability, processing speed and confidence and experience in using computers.

All variables were checked for normality using histograms and the Kolmogorov-Smirnov test. After removing three outliers from the data (more than three standard deviations away from the mean), this revealed the CPTT experimental error ($z =$ .272, $p<.01$) and scores on two subscales of the MASC to violate the assumptions of normality: insufficient mentalizing ($z = .191$, $p = .024$) and no mentalizing ($z =$

.217, p = .004). Non-parametric statistics were therefore used when exploring these variables.

Hypotheses were tested using correlational analyses and independent samples t-tests or Mann-Whitney U tests comparing the results of this study from those of the sample tested in the study of Newbury-Helps' (2011), looking at mentalizing in individuals with a diagnosis of ASPD (n=82).

Table 1 presents the demographic profile of participants. The sample had a mean age of 34.76 years (SD = 12.18) ranging from 19 - 54. The majority of participants were female (84%) and White British (68%). Correlations revealed no significant association between age and scores on any of the tasks employed in this study. This suggests that age is not a confounding factor in the results below. Given the size of the gender and ethnicity groups it was not possible to accurately test for the impact of these factors on performance in mentalizing tasks.

Table 1. Demographic information.

	n (N=25)	%
Gender		
Female	21	84
Male	4	16
Age Group		
18 – 25	9	36
26 – 35	4	16
36 – 45	5	20
46 – 55	7	28
56 – 65	0	0
Ethnicity		
White British	17	68
Asian	1	4
African-Caribbean	1	4
Mixed	2	8
White Other	4	16

Pre-hypothesis testing

If mentalizing ability is related to symptom severity in BPD it is necessary that the performance of this sample is below that achieved by healthy controls. To confirm this, the results from this study were compared to those from the control groups tested in the original studies employing each of the mentalization tasks (Table 2). This comparison revealed that healthy controls outperformed the current sample in

both the MASC (t(42) = 3.43, p<.01) and the RMET (t(111) = 1.99, p = .05). Of

mistakes made in the MASC, 48.9% revealed excessive mentalizing, 36.8%

insufficient mentalizing, and 14.3% no mentalizing. In the CPTT, the current sample

performed less accurately than adults in Dumontheil, Apperly, and Blakemore's

(2010) study.

Table 2. Comparison of performance in this study and in the original healthy control groups.

	This Study	**Original Study***
CPPT		
Director Control Error	11%	1%
Director Experimental Error	72%	45%
No Director Control Error	6%	2%
No Director Experimental Error	42%	8%
MASC		
Total Correct	31.0	34.8
	(4.3)	(2.7)
RMET		
Correct	24.5	26.2
	(4.3)	(3.6)

Note. Standard Deviations appear in parentheses below means where available.
* CPTT: average percentage errors in Control and Experimental trials in the Director and No Director conditions for adults (N=36) from Dumontheil, Apperly, and Blakemore (2010)
MASC: performance of the control group (N=20) from Dziobek et al. (2006)
RMET: performance of general population controls (N=88) from Baron-Cohen et al. (2001)

Hypothesis testing

Hypothesis 1: BPD severity will correlate negatively with scores on tasks measuring

mentalizing ability

A bivariate correlation was conducted to test this hypothesis, the results of which are

presented in Table 3. No significant correlations were found between scores on the

BEST and performance on any mentalizing task.

Table 3. Correlations between BEST scores and performance on mentalization tasks.

		BEST Scores
CPPT		
Experimental Error	Correlation	-.22
	Sig.(2-tailed)	.15
	N	25
MASC		
Total Correct	Correlation	-.35
	Sig.(2-tailed)	.10
	N	24
Feelings Correct	Correlation	-.02
	Sig.(2-tailed)	.91
	N	25
Cognitions Correct	Correlation	-.26
	Sig.(2-tailed)	.22
	N	24
Excessive Mentalizing	Correlation	.28
	Sig.(2-tailed)	.17
	N	25
Insufficient Mentalizing	Correlation	.09
	Sig.(2-tailed)	.56
	N	24
No Mentalizing	Correlation	.21
	Sig.(2-tailed)	.17
	N	25
RMET		
Correct	Correlation	-.21
	Sig.(2-tailed)	.32
	N	25

Pearson's Correlation was used for all mentalizing variables except CPPT Experimental Error, MASC Insufficient Mentalizing and MASC No Mentalizing where Kendall's non-parametric correlation was used.

Hypothesis 2: There will be similarities in performance on mentalizing tasks across

the BPD sample and an ASPD sample

To compare mentalizing performance between this sample and Newbury-Helps'

(2011) ASPD population (n=82), independent samples t-tests and Mann-Whitney U

tests were conducted. The results of these are presented in Tables 4 and 5. The

current sample significantly outperformed those diagnosed with ASPD on the MASC

($t(54.85) = 2.89$, $p = .005$), particularly in identifying characters' cognitions ($t(52.32)$

= 3.09, p = .003). Results also reveal that on this task the ASPD sample selected

more responses demonstrating insufficient mentalizing (U = 679.00, p = .025) and

no mentalizing (U = 687.00, p = .015). The BPD sample further outperformed the

ASPD sample in the RMET (t(104) = 2.06, p = .042).

Table 4. Independent samples t-tests comparing performance on mentalizing tasks across BPD(n=25) and ASPD (n=82) samples.

	Diagnosis		*t*	*df*	*Sig.(2-tailed)*
	BPD	**ASPD**			
MASC					
Total Correct	31.04 (4.35)	27.77 (6.34)	2.89	54.85	**.005****
Feelings Correct	11.36 (2.00)	10.85 (2.58)	.91	104	.367
Cognitions Correct	19.54 (3.19)	17.01 (4.46)	3.09	52.32	**.003****
Excessive Mentalizing	7.12 (3.44)	7.11 (3.56)	.01	104	.989
RMET					
Correct	24.48 (4.34)	21.86 (5.86)	2.06	104	**.042***

*Note. * = p<.05. ** = p<.01. Standard Deviations appear in parentheses below means.*
Equal variances assumed except MASC Total Correct and MASC Cognitions Correct where Levene's test for equality of variances was significant, p < .05.

Table 5. Mann-Whitney U tests comparing performance on mentalizing tasks across BPD (n=25) and ASPD (n=82) samples.

		Mean rank	*U*	*Sig.(2-tailed)*
CPTT				
Experimental Error	**BPD**	46.56	839.00	.162
	ASPD	55.64		
MASC				
Insufficient Mentalizing	**BPD**	40.79	679.00	**.025***
	ASPD	56.62		
No Mentalizing	**BPD**	40.48	687.00	**.015***
	ASPD	57.52		

*Note. * = p<.05.*

Post hoc analyses

As part of their assessment for the service, participants completed the SCID-II and THI. These measures determine the BPD DSM-IV criteria met by each participant, the personality disorders they met diagnostic criteria for and the number of years of psychological treatment they had previously received. These details are presented in Table 6. The majority of participants met seven of the nine DSM-IV criteria for BPD, all demonstrating impulsivity, affective instability and suicidal behaviours, and all but one presenting with a pattern of unstable and intense interpersonal relationships. 92% of participants had diagnoses of comorbid personality disorders. 44% of the sample had a diagnosis of Avoidant Personality Disorder, and 28% a diagnosis of Histrionic Personality Disorder. Participants had received a mean of 2.14 years of psychological treatment (SD = 2.01), ranging from no history of therapy to 8 years in treatment.

Table 6. Assessment outcomes.

	n (N=25)	%
Number of BPD criteria met		
5	1	4
6	6	24
7	11	44
8	5	20
9	2	8
Number of personality disorder diagnoses		
1	2	8
2	15	60
3	7	28
4	1	4
Number of years previously in psychological treatment		
None	6	24
0 – 2	11	44
2 – 4	5	20
4 – 6	2	8
6 – 8	1	4

Post hoc analyses explored the impact of these additional variables on participants' performance in mentalizing tasks.

Bivariate correlations revealed no significant associations between the number of BPD criteria participants met and their performance in mentalizing tasks. This is presented in Table 7.

Table 7. Correlations between the number of DSM-IV BPD criteria met and performance on mentalization tasks.

		Number of BPD symptoms
CPPT		
	Correlation	.03
	Sig.(2-tailed)	.88
	N	25
MASC		
Total Correct	Correlation	.07
	Sig.(2-tailed)	.76
	N	24
Feelings Correct	Correlation	.21
	Sig.(2-tailed)	.31
	N	25
Cognitions Correct	Correlation	.07
	Sig.(2-tailed)	.76
	N	24
Excessive Mentalizing	Correlation	.17
	Sig.(2-tailed)	.41
	N	25
Insufficient Mentalizing	Correlation	-.01
	Sig.(2-tailed)	.96
	N	24
No Mentalizing	Correlation	-.23
	Sig.(2-tailed)	.17
	N	25
RMET		
Correct	Correlation	-.10
	Sig.(2-tailed)	.63
	N	25

Pearson's Correlation was used for all mentalizing variables except CPPT Experimental Error, MASC Insufficient Mentalizing and MASC No Mentalizing where Kendall's non-parametric correlation was used.

Investigating the association between number of personality disorder diagnoses and performance on the measures of mentalization revealed no significant relationships (Table 8).

Table 8. Correlations between the number of personality disorder diagnoses given and performance on mentalization tasks.

		Number of personality disorder diagnoses
CPPT		
	Correlation	.03
	Sig.(2-tailed)	.89
	N	25
MASC		
Total Correct	Correlation	.23
	Sig.(2-tailed)	.29
	N	24
Feelings Correct	Correlation	.17
	Sig.(2-tailed)	.41
	N	25
Cognitions Correct	Correlation	.22
	Sig.(2-tailed)	.30
	N	24
Excessive Mentalizing	Correlation	-.23
	Sig.(2-tailed)	.27
	N	25
Insufficient Mentalizing	Correlation	.03
	Sig.(2-tailed)	.86
	N	24
No Mentalizing	Correlation	-.02
	Sig.(2-tailed)	.93
	N	25
RMET		
Correct	Correlation	.35
	Sig.(2-tailed)	.09
	N	25

Pearson's Correlation was used for all mentalizing variables except CPPT Experimental Error, MASC Insufficient Mentalizing and MASC No Mentalizing where Kendall's non-parametric correlation was used.

Exploring the impact of previous psychological treatment on mentalizing ability, a bivariate correlation was conducted to investigate the relationship between number of years in treatment and performance on mentalization tasks. The results are presented in Table 9. No significant relationships were found.

Table 9. Correlations between the number of previous psychological treatments received and performance on mentalization tasks.

		Number of psycholgcal treatments
CPPT		
	Correlation	.02
	Sig.(2-tailed)	.92
	N	25
MASC		
Total Correct	Correlation	.26
	Sig.(2-tailed)	.23
	N	24
Feelings Correct	Correlation	.23
	Sig.(2-tailed)	.27
	N	25
Cognitions Correct	Correlation	.18
	Sig.(2-tailed)	.41
	N	24
Excessive Mentalizing	Correlation	-.03
	Sig.(2-tailed)	.88
	N	25
Insufficient Mentalizing	Correlation	-.26
	Sig.(2-tailed)	.11
	N	24
No Mentalizing	Correlation	-.20
	Sig.(2-tailed)	.22
	N	25
RMET		
Correct	Correlation	-.01
	Sig.(2-tailed)	.95
	N	25

Pearson's Correlation was used for all mentalizing variables except CPPT Experimental Error, MASC Insufficient Mentalizing and MASC No Mentalizing where Kendall's non-parametric correlation was used.

Finally, mentalizing performance was compared between participants who had

(n=19) and had not (n=6) received any previous psychological treatment. The

Kolmogorov-Smirnov test found that the CPTT experimental error (z = .317, p<.01)

and no mentalizing subscale of the MASC (z = .307 p<.01) violated the assumptions

of normality for the sample who had received treatment in the past. The Mann-

Whitney U test was therefore used to investigate these variables, otherwise

independent samples t-tests were conducted to explore the differences between the

two samples. The results, presented in Tables 10 and 11, revealed some

differences in the groups' performance on the MASC. Participants who had received

treatment in the past showed greater accuracy in identifying characters' feelings

$(t(23) = 2.09, p = .048)$ and also gave less responses demonstrating non mentalizing

$(U = 25.00, p = .043)$.

Table 10. Independent samples t-tests comparing performance on mentalizing tasks across participants who had and had not received previous treatment.

	Previous Treatment	No Previous Treatment	*t*	*Df*	*Sig.(2-tailed)*
MASC					
Total Correct	31.72 (4.31)	29.00 (4.15)	1.35	22	.190
Feelings Correct	11.79 (1.99)	10.00 (1.10)	2.09	23	**.048***
Cognitions Correct	19.72 (3.06)	19.00 (3.79)	.47	22	.641
Excessive Mentalizing	7.21 (3.47)	6.83 (3.66)	.23	23	.821
Insufficient Mentalizing	4.17 (1.65)	6.17 (3.19)	-1.47	5.92	.192
RMET					
Correct	24.00 (4.36)	26.00 (4.29)	-.98	23	.336

*Note. * = p<.05. Standard Deviations appear in parentheses below means.*
Equal variances assumed except MASC Insufficient Mentalizing where Levene's test for equality of variances was significant, p < .05.

Table 11. Mann-Whitney U tests comparing performance on mentalizing tasks across participants who had and had not received previous treatment.

		Mean rank	*U*	*Sig.(2-tailed)*
CPTT				
Experimental Error	**Previous Treatment**	13.47	48.00	.598
	No Previous Treatment	11.50		
MASC				
No Mentalizing	**Previous Treatment**	11.32	25.00	**.043***
	No Previous Treatment	18.33		

*Note. * = p<.05.*

<u>Discussion</u>

This study aimed to explore mentalizing capacity in individuals with a diagnosis of BPD, hypothesising that difficulties in this ability would correlate with symptom severity. Contrary to this prediction, no correlation was found between symptom severity and performance on any of the tasks measuring different aspects of mentalizing ability. Further, in post hoc analyses neither the number of BPD symptoms participants were experiencing, nor the number of personality disorder diagnoses they had received, nor the time they had previously spent in psychological treatments, showed any relationship to their performance on the mentalizing tasks.

It was also predicted that, in line with Paris's (1997) contention that BPD is another manifestation of the psychopathology underlying ASPD, there would be similarities in mentalizing performance across samples with these diagnoses. This hypothesis was not supported by the data, which revealed significant differences in the performance of the BPD sample who took part in this study, and the ASPD sample recruited by Newbury-Helps (2011). Specifically, the BPD group outperformed the ASPD sample in the RMET and the MASC (particularly in questions regarding characters' cognitions), selecting fewer answers that revealed insufficient mentalizing or no mentalizing at all.

Hypothesis 1: BPD severity will correlate negatively with scores on tasks measuring mentalizing ability

Although the current sample did perform less accurately on mentalizing tasks than healthy comparison groups from previous studies, no evidence was found for a relationship between mentalizing ability and BPD symptom severity.

There could be several explanations for this result. The first is that the negative finding is a type II error and that a relationship between mentalization and BPD symptom severity does exist but the study was too underpowered to detect this.

The non-significant finding could also result from methodological limitations. It has been proposed that it is only when the attachment system is activated that impairments in mentalizing ability are revealed (Fonagy, & Luyten, 2009). If this switch from controlled to automatic processing had not occurred the extent of participants' impairments in mentalizing might not have been accurately illustrated by the data collected. The AAI questions asked as part of the testing session were chosen due to their focus on important relationships and feelings of rejection as it was predicted that remembering these experiences and sharing them with another would lead to the reactivation of a fear of abandonment frequent in BPD, related to insecure attachment. There is a possibility however that the arousal experienced by participants in reflecting on these relationships was not great enough to activate the attachment system and, in turn, deactivate mentalization. Fonagy and Luyten (2009) explained that not everyone responds to such questions in the same way. While BPD was initially understood to be related to preoccupied attachment, characterised by feeling overwhelmed and confused by experiences, it has since been revealed that individuals diagnosed with BPD can also frequently be diagnosed with dismissing attachment (Levy, 2005). Individuals classified with this style of attachment use deactivation strategies when reflecting on attachment experiences, becoming dismissive and devaluing the importance of relationships, or conversely idealizing them, in an attempt to avoid the difficult emotions that thinking about these evokes. Fonagy and Luyten (2009) explained that these defenses ultimately fail under severe stress, but they do enable individuals to maintain controlled mentalizing for longer than those who instead protect themselves through a preoccupation with the availability of attachment figures. In this study, responses to

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the MASC revealed both overmentalizing (comprising 48.9% of the errors made) and undermentalizing (36.8%) suggesting that participants were employing different strategies, possibly allowing some to maintain controlled mentalization throughout the tasks, masking links between symptom severity and mentalizing performance.

Finally, there is the possibility that there is no relationship between mentalizing performance and severity of BPD symptoms, or that there is a relationship between these variables but of a different kind to that predicted. In Fonagy and Luyten's (2009) model it is proposed that the symptoms experienced by those diagnosed with BPD are characterised by a low threshold for activation of the attachment system, and for deactivating controlled mentalization. It could be the case then that the severity of the disorder does not determine the severity of the mentalizing impairments, but rather contributes to where this threshold is set.

Hypothesis 2: There will be similarities in performance on mentalizing tasks across the BPD sample and an ASPD sample

This study revealed that the current BPD sample outperformed an ASPD sample (Newbury-Helps, 2011) in both the RMET and the MASC. In the latter task, they more accurately guessed characters' cognitions, and made fewer errors revealing insufficient mentalizing or a lack of mentalizing.

As discussed in the introduction to this paper, research investigating mentalizing in both of these populations has yielded inconsistent results. These could be understood however through looking specifically at deficits in particular aspects of mentalization. BPD was proposed to impact specifically on cognitive mentalization (Fonagy, & Luyten, 2009) while dissociations have been demonstrated in ASPD samples revealing limitations in affective but not cognitive domains of mentalizing (Shamay-Tsoory, Harari, Aharon-Perets, & Levkovitz, 2010). This is in keeping with

the present results that those diagnosed with BPD illustrated greater accuracy in the RMET, a task which requires participants to infer emotional states using external cues. The finding that the BPD group also outperformed the ASPD group in correctly inferring characters' *cognitions* in the MASC however contradicts this theory.

A possible explanation for this could be the MASC's superior ecological validity compared to other measures of mentalization (Preißler et al., 2006). The questions regarding thoughts and intentions in this task are very linked to characters' emotions, as they would be in life. To accurately guess what Sandra is thinking when Michael presents her with a bunch of flowers for example, requires an understanding of her *feelings* towards Michael. Possibly this inextricable link between our thoughts and emotions is not represented so realistically in tasks assessing purely cognitive or affective aspects of mentalization.

The BPD group were also revealed to give fewer responses to the MASC revealing undermentalizing or no mentalizing. This supports the conclusions of a study by Sharp et al. (2011) who found a relationship between hypermentalizing and borderline traits in adolescents, but not undermentalizing or no mentalizing. They proposed that this capacity is not lost in times of emotional arousal, but rather *undermined* by hypermentalizing strategies.

These results question Paris's (1997) theory that both disorders stem from the same underlying psychopathology, suggesting that their symptoms could result instead from distinct impairments in mentalization, individuals with a diagnosis of BPD mentalizing excessively on the MASC, while those with a diagnosis of ASPD do not mentalize enough, or at all.

Post hoc analyses

Post hoc analyses found a lack of a significant relationship between mentalizing performance and the number of BPD symptoms (a further measure of BPD severity) and the number of personality disorder diagnoses individuals had. As some participants had received psychological treatment for a number of years before being referred to this service, the relationship between the length of time in therapy and mentalizing performance was also investigated. Bateman and Fonagy (2004) suggested that regardless of orientation, therapists facilitate clients' exploration of the mental states of themselves and others, labelling and mirroring feelings they don't understand and providing an experience of seeing things from different perspectives. Given this argument it was hypothesised that the more treatment participants had received the better their performance would be in tasks requiring mentalizing. Although this prediction was not supported by the data, comparing performance across those who had not received *any* previous treatment and those who had, found that participants who had received therapy in the past were more accurate in identifying feelings in the MASC and were less likely to demonstrate non-mentalizing in their responses These results need to be replicated in larger samples, and using within-subject designs, but tentatively suggest that, as Bateman and Fonagy proposed, therapy does foster mentalizing, those who had received therapy previously demonstrating a greater ability to reflect on mental states, particularly the emotions of others.

The lack of relationships found between other variables could again be a result of the study lacking power, or of the methodological limitations described above. If the AAI questions did not sufficiently activate participants' attachment system then responses would not reveal deficits in mentalizing but reflect differences in the use

of hyperactivating or deactivating strategies. Finally, it is possible that these factors do not impact on mentalizing deficits.

Limitations

As highlighted throughout, it is possible that the unexpected results found in this study were due to its sample size. The study was underpowered due to difficulties in recruitment and this increased the chance of a type II error.

There are also limitations in the methodology used in the study. While the questions taken from the AAI were chosen in order to activate the attachment system there was no check in place to conclude that this was effective. This raised the possibility that participants maintained mentalization throughout the task, concealing deficits in mentalizing and therefore any relationship between this and symptom severity.

Finally, it cannot be certain that the measures employed were not confounded by aspects of their design. The CPTT and RMET for example, while enabling the isolation of specific dimensions of mentalization do so at the expense of ecological validity. And the MASC, while approximating real life situations more accurately, risks losing important information regarding participants' mentalizing through its multiple choice format. It is also flawed practically, the movie's dubbing possibly preventing immersion in the film and impacting on participants' ability to imagine what the characters think and feel.

Research implications

Redressing these limitations, future research employing larger sample sizes is necessary to confirm or question the results found in this study, and to further explore the relationship between BPD and mentalizing capacity.

It is also recommended that the link between attachment style and impairments in mentalizing are investigated. It is possible that differences between the strategies participants used when reflecting on early attachment experiences masked differences in mentalization, leading to the non-significant results found in this study. Performance in these tasks for example could be compared with measures of attachment style, such as the AAI, to determine whether this factor, more than symptom severity, influences the severity of impairments on mentalizing performance. Or more simply a measure of emotional arousal, even a scaling question asking participants to rate their emotional state, before presenting the mentalization tasks could be used to assess the impact this has on accurately representing others' affective and cognitive states.

This study, although underpowered, found a significant difference in the mentalizing profiles of samples diagnosed with ASPD and BPD. This is an original finding that has not been reported in previous research and it is recommended that this difference is explored further using larger sample sizes, and controlling for possible confounds in these results, such as gender and socioeconomic differences.

Mentalization is a difficult construct both to define and to measure, and future research into developing valid tools to assess this capacity would be invaluable to our understanding of the role of mentalizing in personality disorder and its treatment. In teasing apart the differences in mentalization deficits between disorders such as BPD and ASPD it would be helpful for more measures to be developed or adapted that, like the MASC, allow inaccuracies to be categorized as stemming from hypermentalization, insufficient mentalization or from mind blindness. Mentalizing can fail for different reasons and tools measuring this capacity need to reflect this.

It can be concluded however that this battery of tasks is feasible for use with this population, as no complaints were received and no participants withdrew consent during or following testing or requested for their data to be withdrawn from the study.

Clinical implications

Bateman and Fonagy (2010) highlighted how successful treatment for BPD requires clients to maintain 'an optimal level of arousal' in sessions. This means that they are neither too detached from their feelings to be able to explore or process these, nor too overwhelmed by these to think. They developed general principles for therapists to follow in deciding which interventions to use in different situations, suggesting that the intensity of the intervention should be inversely related to the intensity of the emotional arousal the client is experiencing.

While results from this study reveal that clients with a diagnosis of BPD most commonly misread mental states through hypermentalizing, 36.8% of the inaccurate responses given in the MASC were as a result of *undermentalizing*. This suggests that clients with this diagnosis do not only use hyperactivating but deactivating strategies to avoid experiencing difficult and painful emotions. Connors (1997) recommended that in treating clients who have learned to respond in this way to closeness it is important first to develop an alliance through discussing less threatening topics, avoiding using relational terms and focussing on concrete problems. So where a dismissive attachment style in demonstrated, less intense interventions are required even though arousal may appear low, in order for clients to feel safe enough to express these emotions. It is important that clinicians remain aware of this when introducing interventions to achieve the optimal level of arousal in sessions.

The differences revealed between the BPD and ASPD sample suggest that the mentalizing impairments underlying the two disorders are distinct. If this finding can be replicated it could promote the use of different strategies in MBT for BPD and ASPD, The finding that the current sample made less errors reflecting insufficient mentalizing for example supports the theory that mentalization is not lost in clients with BPD but is altered through hyperactivating strategies. If this is the case then it may be more appropriate that therapy for BPD focuses on enabling clients to '*relax* mentalization*' (Allen, Fonagy, & Bateman, 2008, p.39) rather than trying to *foster* mentalization per se which would be of more therapeutic value for clients with a diagnosis of ASPD.

Conclusions

In conclusion, this study revealed no association between mentalizing performance and severity of BPD symptoms. The study was underpowered, thus requires replication using larger sample sizes, but promotes further investigation of the link between BPD, mentalizing and emotional arousal.

Results also revealed enhanced performance in mentalizing tasks compared with a sample of individuals diagnosed with ASPD, suggesting that BPD is characterised not by a *loss* of mentalization but through hypermentalizing strategies in response to emotional arousal. This finding again needs to be confirmed through future research.

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Part 3: Critical Appraisal

Introduction

This appraisal examines my experience of the process of developing and conducting my major research project. It reflects first on what motivated me to study mentalization, and then, in line with the limitations highlighted in my empirical paper, it focuses on the issues I faced in accurately measuring this concept, the difficulties I encountered in recruiting a hard to reach population, and my experience of asking participants to reflect on difficult experiences in early attachment relationships. Each of these sections concludes with suggestions for further research given these limitations. I hope that others might find my reflections on these practical and personal challenges helpful when embarking on their own research.

Background context

Working before the course as a support worker in a complex needs recovery service, I discovered a passion for helping clients with a diagnosis of borderline personality disorder (BPD) to understand their experiences and work towards recovery. My time there gave me an invaluable insight into the experiences of individuals with this diagnosis and those who care for them, which has had a profound influence on my work, both direct and indirect. I actively sought opportunities to work with this population throughout my training and felt privileged to be given the opportunity to conduct a piece of research that could help gain a better understanding of the disorder and its treatment.

I have always been particularly interested in attachment (Bowlby, 1969), and how our early experiences of relationships can shape our lives, guiding our feelings, expectations and beliefs about others and ourselves. I also share Bowlby's (1988)

view that one of our roles as a therapist is to provide a secure base for clients, perhaps the first they have ever known, and to offer corrective emotional experiences that can help them develop trust in themselves and others. When my supervisor introduced the concept of mentalization (Fonagy & Luyten, 2009) to me I found it fascinating. It was a way of understanding the impact of early relationships on later life and also how secure attachment within the therapeutic relationship could improve treatment outcome. I was excited to be able to contribute to our understanding of its relationship to BPD.

Measuring mentalizing

Choosing measures

The first thing to decide upon was how to measure mentalizing. Traditionally this has been measured using the Reflective Functioning (RF) Scale. RF (Fonagy et al., 1995) is an operationalization of the capacity to mentalize within the context of an attachment relationship. It is measured by coding Adult Attachment Interview narratives (AAI: Main and Goldwyn, 1998), looking at the thinking revealed by interviewees about their own and others' mental states, as part of understanding their experiences within attachment relationships. As I learned about this measure however I realised that it would not be practical to administer as part of this project given that it is not only very time-consuming but also requires considerable training and the need for external validation of scoring. Further there were questions about its reliability and interpretive value which seemed particularly important given my research questions.

Choi-Kain and Gunderson (2008) highlighted a lack of empirical evidence of its test-retest reliability and convergent and divergent validity, and further stated that its single score does not reflect the complexity and multidimensionality of the construct it measures. As they explained, a low score could equally represent a consistently superficial understanding of mental states or a highly variable capacity to mentalize. It is also possible that its score only represents capacity in certain domains of mentalization which is not a unitary ability. It has been proposed that individuals diagnosed with BPD only demonstrate impairments in tasks requiring specific aspects of mentalizing; in other areas their performance has been found superior to that of healthy controls (Fonagy, & Luyten, 2009). It would therefore be impossible to reflect an individual's capacity to mentalize in a single measure. To improve its measurement, Choi-Kain and Gunderson (2008) promoted the use of tasks that reflect these various dimensions.

In answering a similar research question, investigating the relationship between difficulties in mentalizing and symptoms of antisocial personality disorder, a previous trainee (Newbury-Helps, 2011) used the Computerised Perspective Taking Task (CPTT; Dumontheil, Apperly, & Blakemore, 2010), the Movie for the Assessment of Social Cognition (MASC; Dziobek et al., 2006) and the Reading the Mind in the Eyes Task (RMET; Baron-Cohen, Wheelwright, Hill, Raste, & Plumb, 2001) to gain measures of the various facets of mentalizing ability.

The CPTT is a recently developed measure of internal and cognitive aspects of mentalizing, requiring participants to inhibit their egocentric bias and take another's perspective in order to complete a task. The task has two conditions, one where instructions to move different objects are given by a director, whose visual perspective must be considered in responding, and one with no director, where

participants are given the rule to ignore certain objects (those that would have been hidden from the director in the previous condition). The conditions are matched in all aspects except for the presence of the director so the difference in performance across the conditions can be ascribed only to participants' ability to perspective take and not to confounding factors such as executive demands. Although the results of Dumontheil, Apperly and Blakemore's (2010) study have yet to be replicated, their research presenting the task to 177 female participants aged between 7 and 27, revealed significant differences in performance across condition (director/no-director) ($p < 0.001$), trial type (control/experimental) ($p < 0.001$) and age (young children/older children/young adolescents/older adolescents/adults) ($p < 0.001$). This task therefore offered a measure of purely cognitive and internal mentalizing, a domain where clients with BPD have previously revealed impairment.

The MASC requires participants to watch a film showing four characters meeting for a dinner and to answer questions about their thoughts, feelings and intentions. Several aspects of this measure made it an appropriate choice for this study. Primarily I was drawn to its ecological validity. In designing the MASC, Dziobek et al. (2006) wanted to develop a task that approximated real life interactions and the difficulties that individuals experience in social understanding. As in real life, participants are required to accurately interpret characters' positively and negatively valenced thoughts, emotions and intentions through both verbal and non-verbal displays and to recognise and understand concepts such as first and second order false belief, persuasion, sarcasm and irony. The MASC further addressed the limitations of previous measures using film clips such as the Awkward Moment Test (Heavey, Phillips, Baron-Cohen, & Rutter, 2000) through avoiding distracting stimuli such as music or additional characters, thus reducing information processing demands which could confound results. Asking questions immediately after

characters' expressions or statements also minimises the impact of memory on performance. Dziobek et al.'s (2006) study successfully revealed that there were no significant between group effects of executive functions, attention, visual processing and memory, suggesting that these confounds are minimal in the task. Another unique feature of the MASC is that its scoring system allows you to not only assess whether a response is right or wrong, but whether the error showed insufficient mentalizing, a complete lack of mental state reasoning, or excessive interpretation. This allows for a more detailed understanding of what underlies participants' difficulties in judging the mental states of others. The task has good test-retest reliability (intraclass correlation coefficient = 0.97) and has previously discriminated control groups from those with diagnoses of BPD (Preißler et al.,2010), Asperger's Syndrome (Dziobek et al., 2006), euthymic bipolar disorder (Montag et al., 2010) and paranoid schizophrenia (Montag et al., 2011).

Finally, given that the CPTT gives a measure of internal mentalization I felt it was important to also include a measure of external mentalizing in the battery. The RMET is a well-established task that measures this ability, requiring participants to infer the mental states of others from photographs of their eyes. The task has already successfully discriminated control groups from those with diagnoses of autism (Baron-Cohen et al., 2001), BPD (Fertuck et al., 2009), depression (Lee, Harkness, Sabbagh, & Jacobson, 2005), schizophrenia (Craig, Hatton, Craig, & Pentall, 2004) and more.

Overall ,therefore, I felt that these tasks would give a good impression of participants' 'mentalizing profile' (Fonagy, Bateman, & Bateman, 2011, p.106). Practically the battery was also not too lengthy to be completed in a single session and when I ran the tests with friends and family they found the tasks interesting and

enjoyable. This was an important consideration given that I wanted the measures to be feasible for use within a clinical population.

Administering the measures

Surprisingly, administering the tasks I was struck most by the limitations of the MASC, despite previously feeling the most confident in this measure due to its ecological validity. A practical flaw with the task was the film's dubbing. Although Dziobek et al. (2006) commented that participants did not refer to this or report it as an interference, participants in my study did refer to this asynchronicity between the voiceover and lip movements of the actors. I wondered how this might affect their ability to 'imagine what the characters are feeling or thinking at the very moment the film is stopped' as they are instructed. Studies have demonstrated that the emotional intensity of films can be lost where there is a mismatch between lip movements and speech, even when these are in the same language (Carter, Sharan, Trutoiu, Matthews, & Hodgins, 2010). Pettit (2005) described how translations in themselves can tone down characters' emotions. Roberts (2010) found that students experienced dubbing in films as unreal, fake and distracting, and reported that the lack of lip synchronization was disruptive, and Wissmath, Weibel and Groner (2009) suggest that this might prevent immersion. This could impact on the ability of participants to judge characters' thoughts and feelings.

I also felt that important information about participants' mentalizing throughout the task was lost through the MASC's scoring system. Bateman and Fonagy (2006) contend that 'good mentalization' requires an acceptance that we cannot know what other people are thinking, and an acknowledgement that situations will be understood differently by people depending on their previous experiences.

During the film many participants, despite giving incorrect answers, made comments on the characters' actions and explained their reasoning to me in ways that demonstrated these traits, showing insight and sensitivity into the characters' thoughts, feelings and intentions. They also expressed an understanding that people have different perspectives on situations, often telling me that 'I know what I'd be thinking but I don't know about her'. These displays of mentalizing capacity however are not reflected in scores which are deemed simply correct or incorrect.

Dziobek et al. (2006) described how correct answers were determined through 'agreement between how the mental states were intended in the script and how the actual mental states were depicted by the characters' (p.628) and by administering the test to 30 healthy controls to test for feasibility. However, given Bateman and Fonagy's (2006) indicators of good mentalization, I wondered how valid it was to label responses in this way, understanding that we can never *know* what another person is thinking or feeling. In some questions I felt that the answers which demonstrated 'excessive mentalizing' were as plausible as those scored correct, particularly within the context of the story. Towards the end of the evening for example, during a game of carrom, Michael performs badly on his turn and Sandra, who finds Michael a show off, comments sarcastically that he is 'a real pro!' He subsequently throws his chip at the board, scattering the other pieces. Michael has made it clear previously that he is attracted to Sandra, and that he values her opinion, appearing upset when she ignored him during a conversation. When asked how Michael is feeling the 'correct' answer is that he is 'frustrated about his bad performance', however given Sandra's response and his desire to impress her it seems likely that he could equally feel 'angry at Sandra for humiliating him'.

It is perhaps inevitable that a task measuring mentalization with ecological validity raises these issues which are very much a part of interactions in the real world. Such limitations are not so prevalent in tasks like the RMET where mental states are implied using external features such as facial expressions, leaving less room for subjective interpretation than a focus on internal experiences which are by their nature 'opaque' (Bateman, & Fonagy, 2006). Similarly it is easier to know what another believes based on their physical perception (measured in the CPTT) or on information available to them, than to recognise and empathise with their feelings which are by definition subjective. Barker, Pistrang and Elliott (2002) described how qualitative methods allow researchers to study concepts that 'do not easily lend themselves to quantification' (p.74) and I wonder if Dziobek et al.'s (2006) original version of the task, using an open answer format, may therefore be better suited to assessing these internal and affective domains of mentalizing.

The RF Scale, in attempting to measure individuals' capacity to think in terms of their own and others' mental states, uses a scoring system to rate participants' answers to open ended questions and I feel that developing a similar methodology for the MASC might yield a richer and more valid assessment of participants' mentalizing profiles. The scale does not determine answers wrong or right but classifies RF according to evidence of qualities that suggest good mentalization in participants' responses to questions. Bateman and Fonagy (2006) have also developed a more simplified checklist for assessing mentalization clinically, awarding points according to the evidence given of traits such as an acknowledgement of the opaqueness of other's mental states, forgiveness, and an awareness of the impact of affect on people's understanding of themselves and others. Dziobek et al.'s (2006) film, approximating real life, depicts situations where each of these would be important: it is necessary for example for participants to

recognise Betty's ability to forgive Michael's insensitive comments in order to correctly infer that she is warming towards him by the end of the night. Rating responses in this way still gives the opportunity to investigate whether answers reflect a lack of mentalization or conversely excessive mentalizing, as the RF scale does, identifying comments that are clichéd for example as revealing simplistic RF, and those that show greater depth than expected as over-analytical (Fonagy, Target, Steele, & Steele, 1998). This methodology would be more time intensive than the multiple choice version of the MASC and would require more than one researcher to assess transcripts in order to check inter-rater reliability, but I feel that the greater understanding of individuals' mentalizing it would afford outweigh these limitations.

Recruitment

It was decided with my supervisor that we would recruit from clients recently accepting therapy in the specialist personality disorder service where she works as clinical lead. The service receives 20 new referrals per month and half of these go into treatment so assuming that half of these again would agree to participate we estimated that it would be feasible to recruit five participants per month, aiming for a sample size of 30.

I made my first presentation to the team in early August 2011, describing my study to the service's therapists and outlining the inclusion criteria. Despite initial interest it was a month until I received any names and another month until any clients agreed to take part in the study.

I encountered difficulties at every stage of the recruitment process. The first step was to gather names and phone numbers of clients who had recently been assessed for the service. Although I kept in regular contact with therapists via email and phone messages I received very few responses. My supervisor suggested that it might be helpful to visit team meetings more often, developing a relationship with staff members, however attending the meeting only resulted in receiving one more name. We recognised that it was a difficult time in the service which had very recently been restructured, and that understandably staff might not have the time or motivation to help in recruiting for studies. To improve this my supervisor made space in her supervision with staff to look through their caseloads for any clients who were appropriate for the study and we found that protecting this time and making it an agenda item in this way was the most effective way of gathering the details of individuals who might be interested in participating.

At the next stage, calling clients, approximately half were interested in the study, as we had predicted. Some told me straight away that they did not want to participate, others asked me to phone back but then did not answer my calls and many simply never answered. I noticed that as more people declined to take part I was becoming anxious when I called clients to tell them about the study, worrying about how I was going to recruit enough participants to finish the project within the time limit. I was also disconcerted that I was beginning to feel like a salesperson, offering clients an opportunity that benefitted me more than them.

My anxiety increased further when over half of the participants who had booked to attend testing sessions did not attend their appointment or cancelled on the day, often explaining that they were feeling overwhelmed by difficulties in their lives, mostly arguments with others. Participants were recruited having recently been

assessed at the service or within their first weeks of treatment. In this period

symptoms are severe enough for clients to seek help and to receive a diagnosis of

BPD, which is characterised by instability (American Psychiatric Association, 2000).

They had also had little contact with the service, even those receiving therapy still

being within the process of socialising to the cognitive behaviour therapy or

dialectical behaviour therapy model and establishing or enhancing commitment to

treatment. They were therefore unlikely to have developed an affiliation to the

service that might motivate them to participate in a study there, or to attend once

they had made an appointment. Some participants even expressed negative

feelings towards the service, finding their therapy sessions upsetting and holding

negative expectations about their treatment given difficult experiences in previous

services. In hindsight I feel that I should have taken this into consideration when

estimating the number of participants it would be feasible to recruit.

I thought back to occasions on placement when I had experienced similar feelings of

anxiety, an uncomfortable sense that I was encouraging people to do something

they did not want to do and a growing hopelessness. I remembered how recognising

and exploring these feelings and challenging the thoughts underlying them had

enabled me to overcome difficulties in my therapeutic work. My feelings in this

situation were driven by my beliefs that in order to complete the project on time I had

to recruit *everyone* I spoke to and that I was annoying everyone by calling them and

perhaps being selfish by asking them to take part in my study, especially at such a

difficult time in their lives.

Chadwick (2006) described how in therapy such beliefs and assumptions threaten

relationships as therapist anxieties become played out interpersonally. I reflected

that this might equally apply to my project so I challenged the catastrophic thoughts I

had been struggling with. It clearly was not the case that I had to recruit *everyone* I called in order to finish the project; it was also an almost impossible goal I had set myself. I also recognised that I was not annoying *everyone* by calling. Some clients probably were irritated by me phoning, but others were very eager to participate, and were grateful for the opportunity to help others experiencing similar difficulties. Remembering these positive responses to my work I was able to accept that recruiting clients to take part in this research was not a selfish thing to be doing, but felt as important for some individuals as it did to me.

Reflecting on these experiences now I wonder if a self-selection bias may have influenced the results of this study. Those who attended sessions frequently described their wish to help others experiencing the same difficulties they have faced through contributing to our understanding of BPD. This compassion, and their demonstration of thoughtfulness about the emotional experience of others, could suggest that those who chose to participate had a greater mentalizing ability than those who did not.

Given participants' enthusiasm and their positive experiences of the testing sessions I wonder if further research studies could employ a pre-post design to explore the relationship between mentalizing and BPD symptoms. My project was originally designed as a longitudinal study, investigating changes in mentalizing over three months of treatment, hypothesizing that mentalization would improve over therapy and that enhancements in mentalizing ability would correlate with improvements in symptom severity. This became implausible given time constraints and recruiting difficulties, however I do think that this is a feasible design for future research that would contribute to our understanding of the role of mentalizing in treatment outcomes. Studies conducting t-tests also require slightly smaller sample sizes in

order to detect differences in means which would be advantageous given the difficulties in recruiting from this population.

Even with a small N however there is still scope for valuable research into mentalization and its relation to BPD symptoms. Davidson, Livingstone, McArthur, Dickson and Gumley (2007) recruited a sample of just 10 individuals with BPD to investigate whether therapeutic change was mediated by changes in integrative complexity (IC). They explored this through coding for IC in transcripts from therapy sessions early and late in treatment, and I wonder if this could also be a plausible way of measuring mentalizing. As described above, the RF scale offers a framework for scoring individuals' capacity to reflect on the internal states of others' through their responses to questions relating to their attachment experiences. Bateman and Fonagy (2006) described however that mentalization can also be assessed through exploring more spontaneous discussion in therapy. They described for example how good and poor mentalizing can be revealed through participants' discourse in response to therapists' questions regarding their thoughts and feelings during interpersonal episodes such as an argument, their ideas about how the other person involved was feeling or thinking, their understanding of their actions and finally their ability to contemplate contradictory ideas about the other person's internal state. Given that unstable interpersonal relationships and difficulty controlling anger are symptoms of BPD (American Psychiatric Association, 2000) it could be assumed that such incidences might be prevalent in discussions during therapy. If so, possibly future research could employ Davidson et al.'s (2007) methodology, assessing mentalization using Bateman and Fonagy's (2006) guidelines, from transcripts taken from a small samples' early sessions and correlating these with their symptom severity.

Testing sessions

The sessions themselves were the aspect of the research that I found most rewarding. I had assumed that conducting quantitative research would be quite impersonal but my experience was very different to this. Throughout testing participants were keen to share their experiences with me, their hopes and fears about the therapy they were about to embark on and also their thoughts on the tasks. The sessions felt collaborative and also beneficial for participants who often told me that they had valued being able to speak with me.

Balancing the need to stay boundaried and follow my protocol with that of remaining warm and empathic during testing was something that came naturally, since in therapy too these qualities are vital in promoting the therapeutic relationship, which develops from the feelings of security that this provides (Davidson, 2008). What I did find difficult however was asking participants questions to activate their attachment system. While I feel comfortable talking about relationships and rejections in a therapeutic context it felt hard to ask these questions not to formulate or to help participants to understand these experiences, but in order to conduct research. The events and difficult feelings they recounted and their openness in describing these was very moving and it felt insensitive to then ask them to complete tasks on the computer.

Something I found helpful in managing my emotional response to testing was learning about other clinicians' experiences of conducting research. Orb, Eisenhauer and Wynaden (2000), suggested that this discomfort arises from the sense of passivity clinicians experience in the unfamiliar role of researcher, being required to simply listen rather than offering any form of intervention. Brinkmann (2007) too

highlighted the importance of accepting that participants had consented to take part in *research* and not to engage in a therapy session. Smith's (1999) reflections on researching within a vulnerable population, helped to reduce some of my concerns, particularly his assertion that 'people who cannot tolerate thinking about a sensitive topic will not do so, and that participants are probably wiser than we think' (p.361). This resonated with me as I completed more sessions and noticed the wide variation in how much participants would disclose to me about their past. It was also reassuring that many participants expressed that they found the session a positive experience, valuing the opportunity to speak about their lives and not reporting any distress in completing the tasks after sharing these memories.

Noticeably however, while participants remembered very traumatic and distressing experiences and I found myself moved, they often told their stories in a surprisingly blank way. Ryle (1998) described how 'unfeeling' accounts can mask emotions that individuals fear they would be overwhelmed by and linking back to the non-significant findings of the study, I wonder if this might suggest that participants employed deactivating strategies to defend against these frightening internal experiences, thereby increasing the threshold for activation of the attachment system. As highlighted in the discussion of the empirical paper, if participants maintained controlled mentalization throughout the tasks, any links between symptom severity and mentalizing performance could be masked.

With greater sample sizes there is the possibility that different mentalizing profiles may have emerged depending on participants' use of hyperactivating and deactivating strategies in response to reflecting on attachment experiences. Future research could explore this idea and also investigate whether mentalizing impairments differ according to specific BPD symptoms. Features of BPD such as

anger and paranoia have been linked to attachment style in previous studies (eg. Critchfield, Levy, Clarkin, & Kernberg, 2008; MacBeth, Schwannaeur, & Gumley, 2008) and it could be hypothesised that attachment style influences both these manifestations of BPD and mentalizing capacity. With a larger sample the current study could have begun to explore this prediction, as BPD symptoms were collected as part of participants' assessment for the service, but group sizes would have been too small to draw any reliable conclusions.

Further research could also investigate the development of measures of mentalization that in themselves promote the activation of the attachment system. The AAI achieves this through its focus on difficult events and feelings, so by introducing similar themes into tasks such as the MASC arousal could possibly be triggered without the need for pre-task questions. A measure developed by George and West (2001) presents drawings of attachment situations (such as a man standing beside a gravestone) to activate internal representations which can be revealed in individuals' responses to the scenes. There is no reason why film should not also be successful in evoking these feelings. The MASC primarily features issues such as friendship and dating, but perhaps a stronger focus on more distressing subjects such as a loss through the break-up of a relationship or through bereavement could lead to greater emotional arousal throughout the task. These themes are touched upon during the movie but are not predominant in the story. Maybe expanding on these topics could offer a more accurate way of measuring mentalization deficits through recreating the emotional states in which these are revealed.

Conclusions

Taking on the role of researcher was something that felt quite new to me as I began this project, but throughout the process I realised why psychologists are so well placed to conduct this work. The issues raised in this appraisal and the skills required to overcome them were surprisingly similar to those faced in clinical work, for example finding an approach which fits, balancing the need for empathy, containment and boundaries, and also the importance of self-care throughout the process which can feel overwhelming.

If I were to conduct this research again I would make several methodological changes based upon these reflections. Primarily, I would explore further the possibility of employing a more open-ended measure as part of the battery of tasks, so that the rich information gained from sessions was not lost through rigid scoring systems. Given the difficulties in obtaining the sample size required for this project, I would also start to recruit participants earlier, giving myself more time for data collection. I would decide with the team how we could best integrate recruitment into their regular activities without adding to their workload, maybe making it an agenda item as part of their regular supervision or team meetings that they bring a list of all new clients they have assessed. Finally, with regards to the AAI, I would use a simple self-report measure of arousal to determine participants' emotional state on undertaking the tasks, to explore the possibility that results were confounded by some participants maintaining controlled mentalization throughout the session.

Completing this project is an experience which I have found challenging but also incredibly rewarding and humbling. I am very thankful to those who took the time to participate in this research to help others, and I look forward to continuing to

contribute towards clients' recovery in this way through my work as a reflexive

scientist-practitioner.

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Appendices

Appendix A: The Borderline Evaluation of Severity Over Time (Pfohl, Blum, & Zimmerman, 1997)

BEST ® *(Borderline Evaluation of Severity over Time)*

For the first 12 items, the highest rating (5) means that the item caused extreme distress, severe difficulties with relationships, and/or kept you from getting things done. The lowest rating (1) means it caused little or no problems. Rate items 13-15 (positive behaviours) according to frequency.

Circle the time period you have been asked to rate:	Last 7 Days	Last 30 Days	Other ___

Circle the number that indicates how much the item has caused distress, relationship problems, or difficulty with getting things done.

A. Thoughts and Feelings [ ]

	None/slight Mild Moderate Severe Extreme
1. Worrying that someone important in your life is tired of you or is planning to leave you	1 2 3 4 5
2. Major shifts in your opinions about others such as switching from believing someone is a loyal friend or partner to believing that person is untrustworthy and hurtful	1 2 3 4 5
3. Extreme changes in how you see yourself. Shifting from feeling confident about who you are to feeling like you are evil, or that you don't even exist	1 2 3 4 5
4. Severe mood swings several times a day. Minor events cause major shifts in mood	1 2 3 4 5
5. Feeling paranoid or like you are losing touch with reality	1 2 3 4 5
6. Feeling angry	1 2 3 4 5
7. Feelings of emptiness	1 2 3 4 5
8. Feeling suicidal	1 2 3 4 5

To the clinician: the total for each section (A, B, and C) should be recorded in the brackets following the section titles. At the top of the page record the total composite score (15 + A + B - C)

Name: _____ ID# _____

Total Score: _____ Date: _____

B. Behaviours (Negative) [ ]

	None/slight Mild Moderate Severe Extreme
9. Going to extremes to try to keep someone from leaving you	1 2 3 4 5
10. Purposely doing something to injure yourself or making a suicide attempt	1 2 3 4 5
11. Problems with impulsive behaviour (not including suicide attempts or injuring yourself on purpose) Examples are: over-spending, risky sexual behaviour, substance abuse, reckless driving, binge eating, other _____ (circle those that apply)	1 2 3 4 5
12. Temper outbursts or problems with anger leading to relationship problems, physical fights, or destruction of property	1 2 3 4 5

Circle the number that indicates how often you used the following positive behaviours

C. Behaviours (Positive) [ ]

|	Almost always Most of the time Half of the time Sometimes Almost never
13. Choosing to use a positive activity in circumstances where you felt tempted to do something destructive or self-defeating	5 4 3 2 1
14. Noticing ahead of time that something could cause you emotional difficulties and taking reasonable steps to avoid/prevent the problem	5 4 3 2 1
15. Following through with therapy plans to which you agreed (e.g., talk therapy, "homework" assignments, coming to appointments, medications, etc.)	5 4 3 2 1

: Instructions for the Computerised Perspective Taking Task (Dumontheil, Apperly, & Blakemore, 2010)
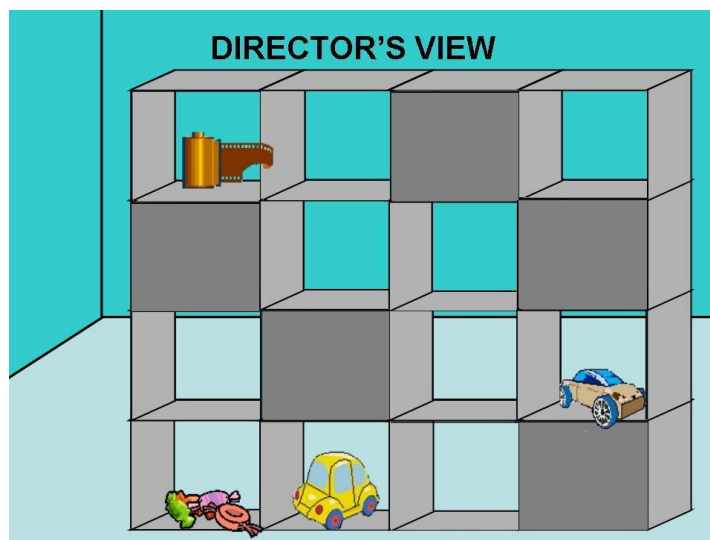
Instructions

First Part

This experiment is investigating people's ability to follow instructions on the computer.

Here is an example of what you will see [showing picture example].
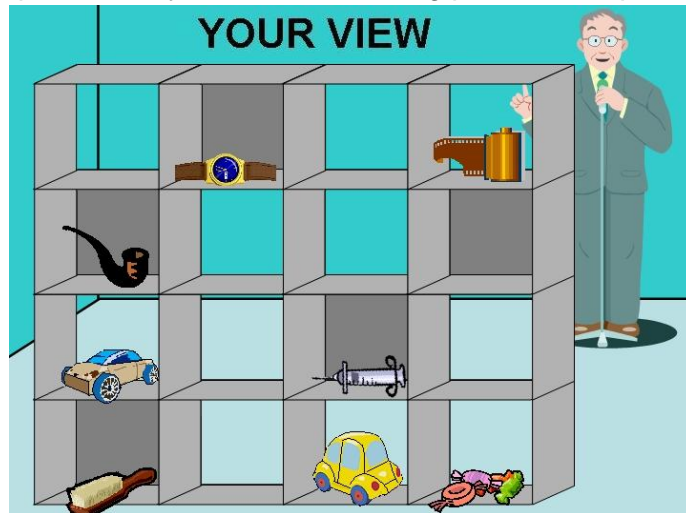
You will be presented with a grid with several objects located in the slots. The director, who is on the other side of the grid, will give you instructions on which objects to move and where to move them. As you can see, there are several covered slots. You are able to see the objects in these slots, but the director cannot. This is how things look for the director [show slide of the array from director's point of view].

The director does not know what is behind the covered slots, so it will be important to take his point of view into account when you follow his instructions.

[Go back to the first screen] For example you can see the sweets, and because this slot is not covered, [Go to the director's point of view screen], the director can see the sweets too.

[Go back to the first screen] Let's do another one. You can see the pipe, but because this slot is covered, [Go to the director's point of view screen], the director cannot see the pipe.

[Go back to the first screen] Can you show me another object which the director cannot see? [Wait for a response] … Yes that's right [Go to the director's point of view screen], the director cannot see the watch/brush/syringe.

[Go back to the first screen] Now can you show me an object that the director can see? [Wait for a response]… [Go to the director's point of view screen], yes that's right the director can see the camera film/racing car/yellow car.

[Repeat until it seems the child understands].

So remember, when you follow the director's instructions, it's important to take his point of view into account.

Your task is to listen to the director's instructions and then "move" the object by clicking the mouse pointer on the object and sliding it to the correct slot. You will always be asked to move the object by one slot, for example one slot to the right, or one slot to the left.

The instructions given by the director should be taken from your point of view, [Go back to the first screen] so if the director asks you to move the scissors left for example, you need to move the scissors towards your left, i.e. this side. Can you see we wrote Left and Right on those pieces of paper? It is to help you.

[Demonstrate example of moving person up].

Can you try? What should do if the directory says "move the sweets up" ? [Check that the child click and drag the mouse pointer correctly].

You should do this as quickly and as accurately as possible. When you click on them, the objects won't actually move, but you should act and move the mouse as if they did.

If for some reason you don't respond quickly enough the experiment will move on automatically. If that happens, don't worry – you should just respond to the next instruction and not try to catch up.

Second part

Now you are going to do something similar to the task where you were moving objects earlier. This time the director is not going to be there anymore [showing picture example].
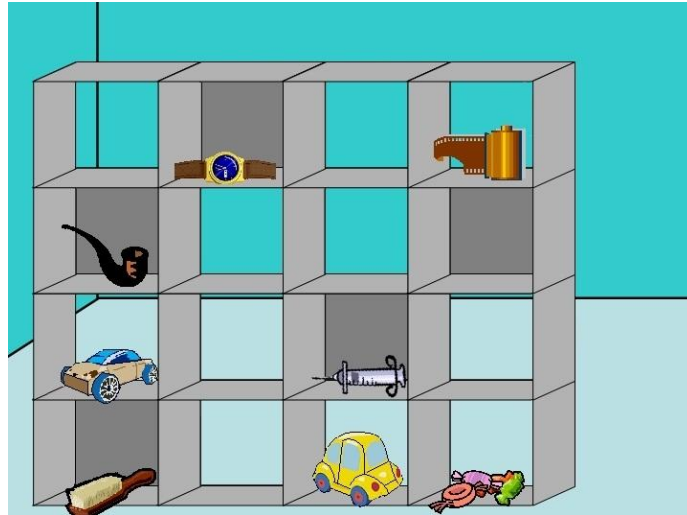
As you can see, several of the slots have dark grey backgrounds, whereas most of them are clear. You are going to hear instructions to move the objects. These instructions only refer to items in the clear slots. They do not refer to objects in the grey slots. So you have to ignore the objects in the grey slots. It will be important to take this into account when you follow the instructions. Can you show me a slot with a grey background? [Let them answer] And a slot with a clear background? [Let them answer] Is it all clear ? [Show the next slide with relational trials].
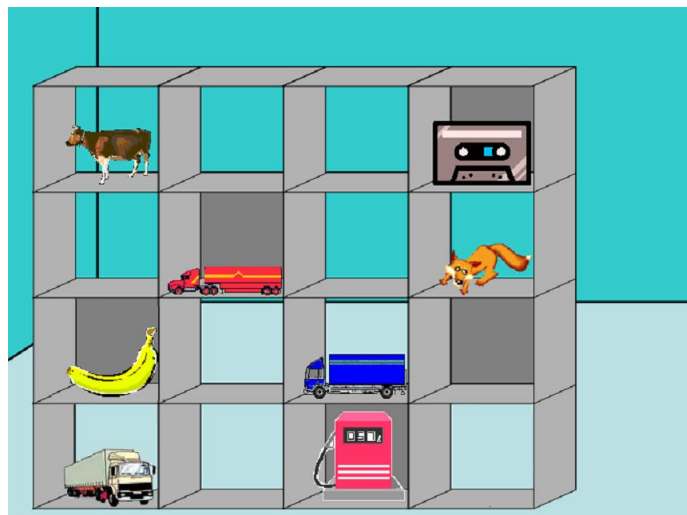
If I said move the top truck right, what would you do ? [Check they do the correct thing and ignore the truck in the grey background. If not clear, explain again.] Great, now we'll start this part of the experiment.

Appendix C: Letter of approval from NRES Committee London - East

NHS

National Research Ethics Service

NRES Committee London - East
REC Offices
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21 June 2011

Dr Janet Feigenbaum
Strategic and Clinical Lead for   and Senior Lecturer UCL
University College London
Res. Dept. Clin. Educ. Health Psychology
University College London
Gower Street, London
wC1E 6BT

Dear Dr Feigenbaum

Full title of study: Do Dialectical Behaviour Therapy and Cognitive
                              Behaviour Therapy for Borderline Personality Disorder
                              enhance mentalization?
REC reference number: 11/LO/0576

Thank you for your letter of 13th June 2011. I can confirm the REC has received the documents listed below as evidence of compliance with the approval conditions detailed in our letter from the 12th May 2011 meeting. Please note these documents are for information only and have not been reviewed by the committee.

Documents received

The documents received were as follows:

Document	Version	Date
Covering Letter		13 June 2011
Protocol	2	03 June 2011
REC application		09 June 2011

You should ensure that the sponsor has a copy of the final documentation for the study. It is the sponsor"s responsibility to ensure that the documentation is made available to R&D offices at all participating sites.

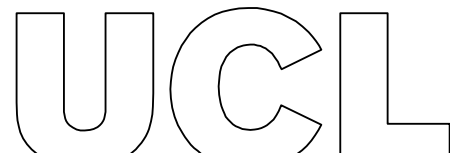| 11/LO/0576	Please quote this number on all correspondence

Yours sincerely

Laura Keegan
Committee Co-ordinator

E-mail: laura.keegan@nhs.net

Copy to: Mr David Wilson (Copied via e-mail)

**RESEARCH DEPARTMENT OF CLINICAL,
EDUCATIONAL AND HEALTH PSYCHOLOGY**

Participant Information Sheet
Version 4 (03/02/12)
Researcher: Rachel Tolfree

Do difficulties in mentalizing correlate with severity of personality disorder?

You are being invited to take part in a research study. Before you decide whether to take part, this sheet will give you some more information about why the study is being carried out, what you would be asked to do if you decide to take part, and how the study will be conducted. Please take some time to read this sheet, and to discuss it with other people if you wish. You are also very welcome to ask me any further questions about the study, or if you find anything on this sheet unclear.

Why is this study being done?
Mentalization is our ability to think about the thoughts and feelings of ourselves and others. It is thought that the difficulties experienced by people diagnosed with a personality disorder, such as difficulties managing emotions and relationships, result from temporary problems in this ability. This study is being done to explore mentalizing in people diagnosed with a personality disorder. This will help us to gain a better understanding of personality disorder and its treatment.

Why have you been invited to take part?
You have been invited to take part in the study because you have a diagnosis of a personality disorder and have recently been assessed for treatment at   .

Do I have to take part?
No. Taking part in the study is entirely voluntary. It is your choice whether or not you would like to participate. Deciding not to take part in the study will not affect the care you receive from services either now or in the future.

If you do decide to participate, you will be given this information sheet to keep, and you will later be asked to sign a consent form stating that you wish to take part. If you do give consent to take part in the study, you are still free to leave the study at any point, without giving a reason. This will not affect the care you are currently receiving, or will receive in the future. If you leave, any information that we have already collected from you will be destroyed.

What will happen if I decide to take part?

If you wish to take part in the study, then please ring me, Rachel Tolfree, on 07592 308 565 and we can arrange a time to discuss the study in more detail and to complete the first session. Alternatively, if you prefer, you can ask the member of staff who gave you this information sheet to ring me and pass on your contact details. I can then contact you to arrange a convenient time to meet. At this meeting, you will meet myself or Samanthi Perera (another Trainee Clinical Psychologist who will be working with me on this study) and can ask any other questions you may have. You will then be asked to sign a consent form to say that you wish to take part in the study.

In this session you will be asked to fill in a questionnaire on how you have been feeling and behaving over the past week. Then myself or Samanthi will ask you some questions about your relationships. After this you will be given three computer tasks. These involve watching videos, looking at photographs and puzzles and answering questions on these. All together the session should last approximately an hour and a half. No part of the sessions will be audio-recorded. The meeting will take place either at   or where you are receiving therapy.

No part of the study is compulsory, and it is not related to the care that you receive from your GP, hospital or other mental health professionals.

What are the possible disadvantages and risks of taking part?
Some people can find it upsetting to talk about their personal experiences. However, we will support you if you become upset. Your personal therapist will also be aware of your participation in the study and able to support you should you find discussing your experiences difficult.

What are the possible benefits of taking part?
You may find it interesting to complete these tasks and the information gathered during this study will also help to inform our understanding of treatment for personality disorder, which will hopefully be a step towards helping improve interventions in the future.

Will I be paid for taking part in the study?
As an acknowledgement of your time, we will be offering you £10 for their participation.

Who will know you are taking part in the study?

We will inform your personal therapist and GP of your participation in this study, but information collected during all stages of the study will be kept strictly confidential. All information will only be viewed by members of the research team. However, if through the course of the study it was found that you are at immediate risk of harm to yourself or others, this information will be shared with your therapist and, if necessary, emergency services.

Your consent form will be kept in a separate location from your questionnaire, ensuring that this remains anonymous. All data will be stored in secure locations and the results of your tasks will be recorded on computers or flash drives which are password protected. Any published data will also be entirely anonymous meaning individuals cannot be identified.

The data from this study will be stored in accordance with the UCL and NHS Data Protection and Records Management policies.

What will happen to the results of the research study?

The results will be written up in the form of a report for review by University College London (UCL) as part of my Clinical Psychology Doctorate. This report will also be published in relevant journals outside UCL. As mentioned, you will not be identifiable from these results. On completion you will be sent a report of the study.

What if there is a problem?

Every care will be taken in the course of this study. However, in the unlikely event that you are injured by taking part, compensation may be available.
If you suspect that the injury is the result of the Sponsor's (University College London) or the hospital's negligence then you may be able to claim compensation. After discussing with your research doctor, please make the claim in writing to Dr. Janet Feigenbaum who is the Chief Investigator for the research and is based at University College London. The Chief Investigator will then pass the claim to the Sponsor's Insurers, via the Sponsor's office. You may have to bear the costs of the legal action initially, and you should consult a lawyer about this.

Regardless of this, if you wish to complain, or have any concerns about any aspect of the way you have been approached or treated by members of staff or about any side effects (adverse events) you may have experienced due to your participation in the research, the normal National Health Service complaints mechanisms are available to you. Please ask your research doctor if you would like more information on this. Details can also be obtained from the Department of Health website: http://www.dh.gov.uk.

Who has reviewed this study?
This study has been reviewed by the NRES Committee London - East.

Contact Details
If you wish to contact me to discuss any of the information further or any concerns you have about the study, then please do so by ringing me on 07592 308 565 or sending me an email at r.tolfree@nhs.net.

If you feel that I have not addressed your questions adequately or if you have any concerns about my conduct, then please contact my supervisor Dr. Janet Feigenbaum (Strategic and Clinical Lead
and Senior Lecturer, Research Department of Clinical, Educational and Health Psychology, UCL) on 07957 919 961or by email at janet.feigenbaum@nhs.net.
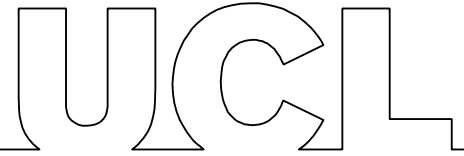
Thank you very much for taking the time to read this information sheet.

Rachel Tolfree
Trainee Clinical Psychologist

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**RESEARCH DEPARTMENT OF
CLINICAL, EDUCATIONAL AND
HEALTH PSYCHOLOGY**

UCL

**Participant Consent Form
Version 3 (03/02/12)**
Researcher: Rachel Tolfree

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Participant Identification Number:

Please initial box

1   I confirm that I have read and understood the information sheet for
the above study. I have had the opportunity to think about the
information provided, ask the researcher questions about the study,
and have had satisfactory answers to these questions.

2.   I understand that my participation is voluntary and that I am free to
withdraw at any time, without giving any reason, without my medical
care or legal rights being affected. I understand that if I withdraw from
the study, all of the information I have provided will be removed by
the researcher.

3.   I agree to my GP and personal therapist being made aware of my
involvement in the study, but not the specific information I give.

4   I understand In accordance with current UCL Records Management Policy, research findings will need to be stored by UCL as sponsor for 20 years after the research has finished. The UCL Records Office provides a service to UCL staff and maintains archived records in a safe and secure off site location. All activities are conducted in accordance with the Data Protection Act and UCL Data Protection Policy. Access to the data is strongly regulated and permissions to access the data are treated case by case.

5.   I understand that the information that I provide will be included in the researcher's doctoral thesis and will be published in a scientific journal. I understand that all information included will be anonymised to protect my identity.

6.   I give my consent to take part in the above study.

_____   _____   _____
Name of Participant   Date   Signature

_____   _____   _____
Researcher   Date   Signature

<u>Appendix F</u>: Joint project contributions

This thesis was conducted as a joint project with Samanthi Perera, another trainee clinical psychologist supervised by Dr Janet Feigenbaum. Samanthi's thesis explored 'The Effect of Therapy on Self-Compassion' (Perera, 2012).

While we recruited and conducted test sessions together, our projects investigated different hypotheses and employed different measures. We entered and analysed our data separately and wrote our empirical papers independently.