PROFESSIONAL DOCTORATES

Childhood risk factors, emotion awareness and regulation in borderline personality disorder

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Childhood Risk Factors, Emotion Awareness and Regulation in Borderline Personality Disorder

by

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Thesis submitted in partial fulfillment for the Degree of Doctorate in Clinical Psychology

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Finally, I would like to thank my friends and family, particularly my sister, who has provided support throughout every meander that has been encountered in completing this thesis.

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Section 1:

Abstract & Declarations

Childhood Risk Factors, Emotion Awareness and Regulation in Borderline Personality Disorder

Thesis Abstract

Borderline Personality Disorder (BPD) is characterised by emotional dysregulation, behavioural impulsivity and difficulties in interpersonal functioning (American Psychiatric Association, 2000a). Due to the high rate of self-injurious behaviours and risk of suicide associated with the disorder, BPD is often considered a serious public health problem, particularly for mental health services and for those individuals who experience the features. This thesis aims to explore childhood risk factors and adult features associated with BPD. Firstly, a systematic review explored the evidence available for the role of childhood adversity and attachment in the later development of BPD, in order to ascertain a possible developmental trajectory. Findings revealed that the majority of studies reviewed did report significant associations between childhood adversity, such as trauma, neglect and separation and later development of BPD features. Findings also revealed some evidence for the role of the parent-child relationship via perceptions of parents being less caring that may be worthy of further investigation. The empirical paper examined the role of alexithymia, emotional dysregulation and thought suppression in adults with BPD. Increased levels of all of these constructs were found in the BPD group compared to controls. Results suggested that individuals with BPD may oscillate between strategies that involve under-regulation of affect *and* strategies that involve over-regulation of affect, which have been researched less in the literature. These findings have implications for theory, future research and clinical practice, which are discussed in the third chapter of the thesis. A short reflective commentary on the research process is also provided. Overall findings highlight a possible developmental pathway and framework to understand BPD, where adversity and invalidation may interfere with basic abilities in emotion processing. In turn, difficulties identifying and describing emotions, and thought suppression may contribute to the emotional dysregulation, behavioural impulsivity and interpersonal problems observed in BPD.

Declarations

This work has not been previously accepted in substance for any degree and is not being concurrently submitted in candidature for any degree.

Signed: ……..

Date: …….

This thesis is the result of my own investigations, except where otherwise stated. Other sources are acknowledged by footnotes giving explicit references. A list of references is appended.

Signed: ……...

Date: ……..

I hereby give consent for my thesis, if accepted, to be available using:

a) I agree to deposit an electronic copy of my thesis (the Work) in the Bangor University (BU) Institutional Digital Repository, the British Library ETHOS system, and/ or in any other repository authorised for use by Bangor University and where necessary have gained the required permissions for the use of third party material.

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Section 2:

Ethics Proposal

Research Protocol

Louise Vickers & Dr Michaela Swales

Project Title

Alexithymia, emotional dysregulation and thought suppression in adults with Borderline Personality Disorder.

Supervision

Dr. Michaela Swales, Consultant Clinical Psychologist, North Wales Adolescent Service, BCUHB.

Background

Sifneos (1973) coined the term alexithymia, literally meaning 'a lack of words for emotion', which encompasses a cluster of cognitive and affective characteristics. As it is presently defined, the alexithymia construct is composed of the following salient features:

(i) difficulty identifying feelings and linking feelings to bodily sensations associated with emotional arousal;
(ii) difficulty describing feelings to other people;
(iii) constricted imaginal processes, as evidenced by a lack of fantasies; and
(iv) a stimulus-bound, externally oriented cognitive style.

(Nemiah, Freyberger & Sifneos, 1976; Taylor, Bagby & Parker, 1991).

Taylor, Bagby and Parker (1997) suggest that the features comprising the alexithymia construct reflect deficits in both the cognitive processing and regulation of emotions, and has been postulated as one of several possible personality risk factors for a variety of medical and psychiatric disorders, including: psychosomatic disorders such as functional gastrointestinal disorders (FGID), somatoform disorders such as hypochondriasis and somatisation disorder, compulsive behaviours such as binge eating, substance abuse, and anorexia nervosa and anxiety and depressive disorders (Taylor et al., 1997).

The deficits underlying alexithymia have been attributed, in part; to an arrest in affect development during early childhood (Lane & Schwartz, 1987; Taylor et al., 1997). Lane and Schwartz (1987) integrated Piaget's theory of cognitive development with Werner and Kaplan's (1963) concepts of

symbolisation and language development, and thereby developed a cognitive-developmental model for understanding the organisation of emotional experience. There are five levels of emotion organisation and awareness in the model (sensorimotor reflexive, sensorimotor enactive, preoperational, concrete operational and formal operational). The levels range from a simple awareness of undifferentiated bodily sensations only (level 1) to an awareness of blends of feelings and an ability to distinguish nuances of emotion as well as a capacity to comprehend the emotional experience of others (level 5). In normal affect development, the individual progresses through the stages to an awareness of blends of feelings and an ability to distinguish subtle differences in emotions in the self and others (Lane & Schwartz, 1987).

Unable to identify accurately their own subjective feelings, alexithymic people verbally communicate emotional distress to other people very poorly. An individual's social interactions provide interpersonal regulation that may be supportive or disruptive (Campos, Campos & Barrett, 1989; Dodge & Garber, 1991). They therefore may fail to enlist others as sources of aid or comfort (Taylor et al., 1997). This means that they have to live without the buffering of distress that family members, friends and other social relationships can provide when mobilised (Griffith, 1998) and lack this important affect regulating function. Thus alexithymia characteristics reflect deficits in both the cognitive-experiential domain of emotional responses and at the level of interpersonal regulation of emotion (Taylor, 2000). As a result of these functions and mechanisms being impaired in individuals with alexithymia, they are consequently vulnerable to increased tension arising from chronic states of emotional arousal and may focus excessively on somatic complaints (Taylor, Bagby & Parker, 1991).

Not surprisingly, alexithymia has been linked to difficulties in interpersonal functioning. Lumley and Norman (1996) found alexithymia to be related to less perceived social support, fewer close relationships and less social skill in healthy young adults. It seems that these findings are most likely a consequence of individuals with alexithymia difficulty in differentiating and expressing their feelings appropriately and their reduced capacity for correct interpretation of the emotional content of others. This may result in social avoidance as found in a study of high alexithymic patients participating in an inpatient group psychotherapy program by Spitzer, Siebel-Jurges, Barnow, Grabe and Freyberger (2005). Alexithymia has been found to impact on the outcome of psychotherapy. In a review of the effect of alexithymia on the process and outcome of psychotherapy, alexithymia was associated with poor outcome in both psychodynamic psychotherapy and supportive therapy (Ogrodniczuk, Piper & Joyce,

2011). This negative effect was found in individual and group psychotherapies. Karaklic, Thuile, Granger, Secret and Bungener (2011) found in a follow-up study of adults with BPD, that low levels of alexithymia and good global functioning at baseline were independent predictors of good outcome.

Borderline Personality Disorder (BPD) is characterised by severe cognitive, behavioural and emotional dysregulation (Kuo, Korslund & Linehan, 2006). Diagnostic criteria for BPD describe a pervasive pattern of instability of interpersonal relationships, self-image, and affects, and marked impulsivity beginning by early adulthood (APA, 2000). The prevalence of BPD is estimated at 0.2% to 1.8% in the general population (Linehan, 1993a). The lifetime prevalence of self-injurious acts (up to 75%) and completed suicide (approximately 10%) is extremely high in this group of people (Clarkin et al., 1983). Coid, Yang, Tyrer, Roberts and Ullrich, (2006) found a prevalence rate of 4.4% of personality disorder in Great Britain. BPD is also associated with substantial impairment in social, psychological, occupational functioning and quality of life (NICE, 2009).

Linehan's (1993a) biosocial theory posits that BPD is primarily a dysfunction of the emotion regulation system. Alexithymia has been linked with impaired social functioning, poor emotional regulation and poor impulse control (studies with people with eating disorders). These aspects are all hallmarks of BPD (Nicolo et al.,, 2011). Additionally, Bateman and Fonagy (2004) suggest that BPD is a disorder of mentalisation; the ability to make inferences about the mental state of the self and others, in order to explain and predict behaviour (Baron-Cohen, Leslie & Frith, 1985; Premack & Woodruff, 1978;). If this is in case, this concept may be linked to alexithymia as the cognitive-developmental model of emotional experience developed by Lane and Schwartz (1997) suggests that level five of the model includes the ability to recognise subtle emotions in the self and others. Perhaps it is this ability that is impaired in individuals with BPD.

Effective emotion regulation skills include the ability to be aware of emotions, identify and label emotions, correctly interpret emotion-related bodily sensations, and accept and tolerate negative emotions (Berking et al., 2011; Gratz & Roemer, 2004). Linehan (1993a) suggested that emotional dysregualtion is central to BPD. Emotional dysregulation results from high emotional reactivity and a lack of skills in managing strong emotions. Research has demonstrated a relationship between alexithymia and maladaptive styles of emotion regulation (see review by Taylor, 2000). A recent study investigating the relationship of alexithymia to emotional dysregulation in an alcohol dependent sample,

found higher scores of alexithymia were associated with poorer emotion regulation skills (Stasiewicz et al., 2012).

Reappraisal and suppression may be considered emotion regulation strategies (Gross & John, 2003). Stasiewicz et al., (2012), found in a study of individuals with alcohol dependence, a moderate correlation between alexithymia and the suppression scale of an emotion regulation questionnaire (ERQ; Gross & John, 2003). These results suggest that individuals may attempt to manage negative emotional situations by suppressing or restricting their feelings (Stasiewicz et al., 2012). Similarly, in a review of emotion-related cognitive processes in BPD, thought suppression was found to be significantly associated with BPD and may mediate the relationship between risk factors and symptom severity (Baer, Peters, Eisenlohr-Moul, Geiger & Sauer, 2012). Thought suppression is the tendency to deliberately attempt to push unpleasant or unwanted cognitions out of awareness. It has been found to have significant relationships with various disorders including depression (Baer et al., 2012). Pettit et al., (2009) found that self-reported thought suppression predicted suicidal ideation several weeks later, after controlling for general depressive symptoms. However, few studies have investigated this concept that included individuals that fulfil BPD criteria, therefore further investigation is warranted. It would be interesting to investigate whether thought suppression as an emotion regulation strategy is more prevalent in individuals with BPD than healthy controls. This information would be useful in deepening our understanding of individuals with BPD and planning appropriate treatment interventions that may target this specific tendency.

Despite the plausibility of a link between alexithymia and BPD, few studies have investigated the area. Six studies have been published on the topic to our knowledge; four reported significant associations with alexithymia (Berenbaum, 1996; Zlotnick, Mattia & Zimmerman, 2001; Modestin, Furrer & Malti, 2004; Loas et al., 2012) and two reported non-significant associations (Bach, de Zwann, Ackard, Nutzingzer & Mitchell, 1994; Nicolo et al., 2011). Loas, Speranza, Pham-Scottez, Perez-Diaz and Corcos (2012) reported that BPD subjects were more alexithymic than healthy subjects but this relationship was mainly explained by the associated symptoms of depression and/or anxiety. This study involved a cross-sectional design. The authors of this study concluded that the high levels of alexithymia in adolescents with BPD were thus probably of a secondary or state- dependent nature. It would be interesting to investigate whether similar findings would be found in another group of BPD individuals.

Alexithymia has been linked to anxiety and depression (Hendryx, Haviland & Shaw, 1991). Previous research has shown that although alexithymia is linked and overlapping with depression (Hintikka, Honkalampi, Lehtonen, & Viinamaki, 2001) alexithymia shows stability over time, thus supporting the view that it is a stable personality trait rather than a state-dependent phenomenon (Luminet, Bagby, & Taylor, 2001; Honkalampi, Hintikka, Antikainen, Lehtonen, & Viinamaki, 2001). Nevertheless, the inclusion of measures controlling for the presence of anxiety and depression when assessing alexithymia has been recommended in the literature (Loas et al., 2012; Lumley, 2000).

The present study aims to investigate the presence of alexithymia and thought suppression along with the relationship between these constructs to emotional dysregulation in an adult BPD sample. Previous research has linked some of these constructs in varying samples, but to our knowledge no study has investigated the relationship between alexithymia, emotional dysregulation and thought suppression in a BPD sample. The findings of this study would be very useful in understanding the processes involved for individuals with BPD in terms of emotion processing and emotion regulation. This could then provide information for designing and delivering the most effective therapeutic interventions for this group of people.

Research Question

The project will aim to assess the following research questions:

(a) Is alexithymia more prevalent in adults with BPD compared to controls? (while controlling for the presence of anxiety and depression)

(b) Is thought suppression as an emotion related cognitive strategy more common in individuals with BPD compared to healthy controls?

(c) Are alexithymia, emotional dysregulation and thought suppression linked in adults with BPD?

The hypothesised findings of the research project are as follows:

Hypothesis one: that increased levels of alexithymia will be present in individuals with BPD, when compared to healthy controls, using the TAS-20 (including subscales).

Hypothesis two: that thought suppression as a cognitive strategy will be more frequent in individuals with BPD than healthy controls.

Hypothesis three: that there will be a relationship between alexithymia, emotional dysregulation and thought suppression, in that individual's with increased alexithymia will have higher levels of emotional dysregulation and increased prevalence of thought suppression as an emotion related cognitive strategy.

Participant Recruitment

Once approval for the study has been granted, participants will be recruited from the North Wales DBT groups and community based mental health teams; adults with BPD will be included. Patient's awareness of their BPD diagnosis is an explicit inclusion/ exclusion criterion. Two DBT groups run throughout this geographical area, with roughly 6-7 people in each group. Adult programmes are approximately 1 year duration. The researcher will contact local clinicians to gain access to other people who do not attend the DBT groups but have been or are being treated for features of BPD. The project will aim to recruit approximately 30 participants for the clinical group. The researcher will recruit these participants. The researcher's supervisor (Dr. Michaela Swales) provides training, supervision and consultation to the clinicians of these groups. The researcher has contacted local clinicians in North Wales to assess the feasibility of the study. Each of these mental health practitioners's would be willing to allow access to the potential participants in their service. It emerged that there are approximately a total of 42 people in services in North Wales that have BPD features. A power calculation was completed for the present study, using information gained from a previous, similar study in the area with an adolescent sample (Loas et al., 2012). Results of this analysis indicated that 16 people were required in each group to have sufficient power. With a total sample size of 32 (see appendix 1).

Control subjects will be recruited from the Bangor University, School of Psychology, Community Panel. There are currently in excess of 800 people registered on the panel. The project will aim to recruit approximately 30 participants for the control group. The researcher will recruit these participants, using the participant panel guidelines.

Design and Procedures

Design

A cross sectional design will be used to address the hypotheses.

Once approval for the study has been granted, the data will be collected confidentially. It will be securely stored and anonymised before being entered onto an SPSS database. The dataset will be stored on a password protected memory stick.

Procedure

Clinical group

The researcher will not identify potential participants directly.

The researcher will contact local mental health professionals in community mental health teams (CMHT's) to identify suitable participants. The mental health professional will complete the brief eligibility screening tool for potential participants. This includes patient's awareness of their BPD diagnosis as an explicit inclusion/ exclusion criterion. If all the criteria are satisfied, the mental health professional will ask the patient if he/she would be happy to meet the researcher in order to discuss their potential participation in the study. If the patient/s agrees the mental health professional will introduce the potential participant to the researcher. This may be on an individual basis or group basis. A meeting can then be arranged with the researcher in a mutually convenient place (i.e. CMHT interview room, group meeting) to discuss the research study. If a mental health professional (group leader) prefers to present the study to the group members themselves, the researcher will describe the procedures involved in the study to them and they will then be able to describe the study to the members of their group. Following this the researcher can meet with participants that agree to participate in the research study to complete the questionnaire.

The researcher will meet with participants at the beginning or end (agreed with mental health professional) of the DBT groups and administer the questionnaire. If this is not achieved the researcher will post the questionnaire to these participants. Participants that do not attend the group but are within the community mental health teams will be contacted and asked to meet the researcher at the CMHT premises (at beginning or end of a session with the Mental Health Professional). Time for completion of the questionnaire is envisaged to be short so as to optimise completed questionnaires at the relevant time points and numbers for the project. It should take approximately 15-20 mins.

Control group

The researcher will adhere to the pathways recommended by the Bangor University Community Panel for recruitment of these participants. These participants will be met within Bangor University (at a

mutually agreed location) to complete the questionnaire. A consent form will be completed by participants and then questionnaire packs will be given out anonymously to the groups of individuals.

Measures

The Toronto Alexithymia Scale (TAS-20) will be used to assess alexithymia in individuals with BPD. This has been previously used with a wide range of clinical samples and with individuals with BPD (Nicolo et al., 2011; Loas et al., 2012). The TAS-20 (Bagby, Parker & Taylor, 1994a) is a self-report scale containing 20 items that participant's rate on a 5-point scale. Scores for the 20 items are totalled with scores of 0 to 51 indicating nonalexithymic, 52 to 60 indicating neither nonalexithymic nor alexithymic and scores of 61 and above indicating alexithymic. The measure assesses three components encompassing the alexithymia construct: (1) difficulty identifying feelings (DIF); (2) difficulty describing feelings (DDF); and (3) externally oriented thinking (EOT). Higher scores on each of its subscales are indicative of increased alexithymia. The TAS-20 has demonstrated good internal consistency (Cronbach's alpha = 0.81) and test-retest reliability over a three week interval with adult populations (r = 0.77) (Bagby, et al., 1994a).

The Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004) is a 37-item measure that assesses self-reported emotion regulation difficulties. The DERS has six subscales including: non-acceptance of emotions, difficulties engaging in goal-directed behaviour when distressed, impulse control difficulties, lack of emotional awareness, limited access to emotion regulation strategies and lack of emotional clarity.

Borderline Evaluation of Severity over Time (BEST: Pfohl, Blum, St John, McCormack, Allen & Black, 2009) is a self-report measure of severity in BPD. It consists of 15 items; 12 negative items modelled on the PBD criteria and 3 positive coping behaviours. Items are rated for the past 7 or 30 days (or other time period). Items are scored on a 1-5 ordinal scale from 'non/ slight' to 'extreme' for negative items and from 1-5; from 'almost never' to 'almost always' for positive behaviours. BEST scores can range from 12 to 72, with higher scores reflecting greater BPD symptom severity, and a clinical cut-off score of 36. The BEST has been found to have adequate test-retest reliability, high internal consistency and high discriminant validity (Zanarini et al., 2010).

The White Bear Suppression Inventory (WBSI; Wegner & Zanakos, 1994) is a self report measure of thought suppression. It consists of 15 items that subjects rate from 'strongly disagree' to 'strongly agree'. The WBSI has been found to be a reliable and valid instrument in terms of internal consistency and test-retest stability (Muris, Merckelbach, Horselenberg, 1996).

Additional measures of anxiety and depression will be administered; the HADS (Zigmond & Snaith, 1983). The HADS consists of two subscales, anxiety and depression. It consists of 14 items, 7 of which measure depression and the other 7 anxiety. Subjects underline the reply that most closely matches how they have felt during the past week. Each item is scored from 0 to 3 so the total scores range from 0 to 21 for both the anxiety and depression subscales. The HADS is a reliable and valid self-report measure of anxiety and depression.

Demographics such as age, sex and education will also be assessed.

Data Management and Analysis

Data will be anonymised and inputted into an SPSS file. This will be kept on a password protected memory stick. Any research questionnaires will be securely stored in a locked cabinet. Coding of questionnaires for individual identification will be for researcher knowledge alone, in order to ensure that, in reporting, participants are not identifiable.

Analyses

Hypothesis one: Overall, an Independent T-test will be used to compare the two groups for alexithymia. Multivariate analysis of variance (MANOVA), followed by univariate analysis of variance (ANOVA) will also be used to assess the groups for the alexithymia measure (including subscales as dependent variables). These analyses will then be repeated controlling for anxiety and depression (MANCOVA, ANCOVA).

Hypothesis two: Independent T-test will be used to assess this hypothesis by comparing the two groups for levels of thought suppression.

Hypothesis three: Correlation and multiple regression will be used to assess the relationship between alexithymia, emotional dysregulation, thought suppression and severity of BPD.

Diversity

In terms of clinical and cultural diversity, the clinical group will quite likely be a homogenous group. The researcher is therefore aware that, the sample for this research project will primarily come from the North Wales region and is likely to be people of white, British ethnicity. This means that the findings may only be generalisable to people that match that category of people. The research question and some of the methods used are applicable for use with English and Welsh speaking groups. Bilingual information will be provided, as the research consent form and information documents relating to the study will be translated into Welsh for use with Welsh speaking participants. The measure's used will not however be translated into Welsh as no psychometric properties are available for these in a Welsh sample.

Methodological diversity is apparent in the use of two different research designs to address hypothesis one and two.

Proposed Journals

Journal of Psychosomatic Research

Personality and Mental Health.

Ethical/ Registration issues

The project will be submitted to the Bangor University, School of Psychology ethics department for approval and the National Research Ethics Service (NRES) of the NHS. Ethical approval has been gained from the School of Psychology, Bangor University.

Feedback

Feedback to participants will be in the form of an information summary of the results of the project. Participants will be asked at the end of completion of the questionnaire, if they wish to receive feedback on the study. For those who express an interest in this, feedback will be in the form of an information summary of the results of the project, detailing the research findings and the implications of the study, in a language comprehensible to the lay person. This summary may be sent directly to the participant or given to the community service that they attend. In addition, the participant will be informed that he/she could contact the researchers at the contact details provided on the participant information sheet, in case

they wish to ask any question about the progress of the study. The project may also be disseminated on completion, through presentation at relevant conferences and publication of an empirical paper.

Risk Assessment

(a) Risk when meeting with participants to complete questionnaires, e.g. participant appears suicidal, or potential psychological distress following completion of questionnaire.

Addressed by: Participants will be seen by the researcher prior to, during and at the end of an intervention given within the NHS by a qualified mental health professional. Any issues can be highlighted to the qualified mental health professional of the service and it will be stressed that these individuals are available for participants to talk to should any issues arise from participation in the study. The qualified mental health professional will be responsible for the wellbeing of the participant during the time of the intervention, as routinely provided by the NHS service.

(b) If the research reveals increased anxiety and/ or depression levels in control participants

Addressed by: questionnaires will be completed anonymously so the researcher will not be aware of individual cases. At the end of the study control participants will be given a contact number to avail of should they experience any distress following participation in the research study. They will be informed to talk to the researcher if they experience distress following completion of the questionnaire. The questionnaire will be completed anonymously. In this way the researcher will not be aware of individual cases, should a mental health issue be disclosed.

(c) Risk to researcher when meeting with participants.

Addressed by:

The researcher will familiarise themselves with, and ensure safety of, the environment before testing.

The researcher will endeavour to carry out interviews in locations with reasonable access to other staff members.

The researcher will ensure that the academic supervisors are informed of location and activity on data collection days, and the researcher will call in safe to the academic supervisors after each interview. The researcher will carry a mobile phone with them on data collection days. The academic supervisors will have the number for the mobile phone and this will allow for contact should the researcher not call in safe within an allocated time.

The researcher will make use of the lone worker policy and policies relating to violence and aggression in the workplace.

Data Storage

The individual participant questionnaires will be securely stored in locked premises.

The dataset will be anonymised and held by the researcher for analysis and storage on a password protected memory stick, once the study is approved. When the analysis has been completed and all aspects in relation the project completed, such as viva examinations, research participant questionnaires will be destroyed. This is estimated to be the end of September 2014. The anonymised data file will be kept by the researcher until after publication of all relevant empirical papers derived from the study.

Financial Information

Measures: HADS is copyrighted so need to purchase forms. Buy HADS= 80.34

WBSI and BEST are available on-line and DERS is not copyrighted, available by contacting the author. (TAS-20 is obtained already).

Recruitment: photocopies of recruitment material and letter head paper = 6.00

Buy SIM card and credit for phone to be used for research purposes (recruitment and contacting participants = 30

Pay control participants £6 per hour or part thereof (in accordance with Bangor Community panel protocol, 6 x 30 = 180

Data Collection: photocopying of questionnaire cost = 10.60, cost for envelopes for 5 participants = 4.88

Cost for return post = 1.80 (of any questionnaires that were not able to be completed by meeting with the researcher or returning to clinician, number = 5)

Participant feedback: cost for envelopes = 4.88, postage cost = 21.60

Total Sum = £340.10

Timetable

Large scale research proposal submission- July 2012

Obtain approval for the LSRP from School- months 0-2 (Sept 2012)

Apply for ethics approval (School of Psychology and NHS) - months 4-9 (April 2013)

Data collection – months 10- 21 (May 2013- April 2014)

Analyse data- months 21- 22 (April 2014 – May 2014)

Prepare empirical paper of project- months 9-22 (April 2013 – May 2014)

Submit LSRP- June 2014

Viva preparation- June 2014

Viva- July 2014

Corrections/ amendments to thesis- end August 2014

Thesis approved by Bangor University- Sept 2014.

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Appendix 1- Power calculation

This was completed in G*Power 3, for an independent t-test comparing two groups. The effect size was based on a previous study that assessed alexithymia in adolescents with BPD, using the same measure (TAS-20). The two groups are clinical BPD group and healthy control group. Results indicate that for a two- tailed test for 80% power, with alpha at 5%, 16 participants in each group is required, because the expected effect size is very large.

[1] *-- Sunday, August 12, 2012 -- 12:20:18*

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

Analysis:	A priori: Compute required sample size		
Input:	Tail(s)	=	Two
	Effect size d	=	1.0340608
	α err prob	=	0.05
	Power (1−β err prob)	=	0.80
	Allocation ratio N2/N1	=	1
Output:	Noncentrality parameter δ	=	2.9247656
	Critical t	=	2.0422725
	Df	=	30
	Sample size group 1	=	16
	Sample size group 2	=	16
	Total sample size	=	32
	Actual power	=	0.8078626

[2] *-- Friday, September 07, 2012 -- 11:30:30*

F tests - Linear multiple regression: Fixed model, R^2 deviation from zero

Analysis:	A priori: Compute required sample size		
Input:	Effect size f^2	=	1.0340608
	α err prob	=	0.05
	Power (1−β err prob)	=	0.80
	Number of predictors	=	3
Output:	Noncentrality parameter λ	=	16.5449728
	Critical F	=	3.4902948
	Numerator df	=	3
	Denominator df	=	12
	Total sample size	=	16
	Actual power	=	0.8359479

Charlotte Jane Pollock
Mon 18/03/2013 10:04
To:
Louise Vickers;
...

Dear Louise,

2012-8162 Alexithymia, emotional dysregulation and thought suppression in adults with Borderline Personality Disorder.

Your research proposal number 2012-8162 has been reviewed by the School of Psychology Ethics and Research Committee and the committee are now able to confirm ethical and governance approval for the above research on the basis described in the application form, protocol and supporting documentation. This approval lasts for a maximum of three years from this date.

Ethical approval is granted for the study as it was explicitly described in the application

If you wish to make any non-trivial modifications to the research project, please submit an amendment form to the committee, and copies of any of the original documents reviewed which have been altered as a result of the amendment. Please also inform the committee immediately if participants experience any unanticipated harm as a result of taking part in your research, or if any adverse reactions are reported in subsequent literature using the same technique elsewhere.
.

Governance approval is granted for the study as it was explicitly described in the application and we are happy to confirm that this study is now covered by the University's indemnity policy.

If any new researchers join the study, or any changes are made to the way the study is funded, or changes that alter the risks associated with the study, then please submit an amendment form to the committee.

Yours sincerely

Everil McQuarrie

--

COLEG IECHYD A GWYDDORAU YMDDYGIAD
COLLEGE OF HEALTH & BEHAVIOURAL SCIENCES

YSGOL SEICOLEG
SCHOOL OF PSYCHOLOGY

PRIFYSGOL
BANGOR
UNIVERSITY

21st March 2013

Dear Sir or Madam,

I confirm that Bangor University, has agreed to act as research sponsor for the following project:

Alexithyma, emotional dysregulation and thought suppression in adults with Borderline Personality Disorder

School Ethics proposal Number 2012-8162

This project will be conducted by Dr Michaela Swales and Miss Louise Vickers.

Please contact me should you require any further details.

Yours faithfully,

Dr Charles Leek,
Head of School of Psychology
Bangor University

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DR CHARLES LEEK BSocSi, MA, MSc, PhD
PENNAETH YR YSGOL/HEAD OF SCHOOL

EBOST/EMAIL: psychology@bangor.ac.uk

www.bangor.ac.uk www.bangor.ac.uk/psychology

Welcome to the Integrated Research Application System

IRAS Project Filter

The integrated dataset required for your project will be created from the answers you give to the following questions. The system will generate only those questions and sections which (a) apply to your study type and (b) are required by the bodies reviewing your study. Please ensure you answer all the questions before proceeding with your applications.

Please enter a short title for this project (maximum 70 characters)
Alexithymia and emotional dysregulation in adults with BPD. (V1)

1. Is your project research?

(●) Yes ( ) No

2. Select one category from the list below:

( ) Clinical trial of an investigational medicinal product
( ) Clinical investigation or other study of a medical device
( ) Combined trial of an investigational medicinal product and an investigational medical device
( ) Other clinical trial to study a novel intervention or randomised clinical trial to compare interventions in clinical practice
( ) Basic science study involving procedures with human participants
(●) Study administering questionnaires/interviews for quantitative analysis, or using mixed quantitative/qualitative methodology
( ) Study involving qualitative methods only
( ) Study limited to working with human tissue samples (or other human biological samples) and data (specific project only)
( ) Study limited to working with data (specific project only)
( ) Research tissue bank
( ) Research database

If your work does not fit any of these categories, select the option below:

( ) Other study

2a. Please answer the following question(s):

a) Does the study involve the use of any ionising radiation?	( ) Yes	(●) No
b) Will you be taking new human tissue samples (or other human biological samples)?	( ) Yes	(●) No
c) Will you be using existing human tissue samples (or other human biological samples)?	( ) Yes	(●) No

3. In which countries of the UK will the research sites be located? *(Tick all that apply)*

[ ] England
[ ] Scotland
[x] Wales
[ ] Northern Ireland

3a. In which country of the UK will the lead NHS R&D office be located:

- ○ England
- ○ Scotland
- ◉ Wales
- ○ Northern Ireland
- ○ This study does not involve the NHS

4. Which review bodies are you applying to?

- ☑ NHS/HSC Research and Development offices
- ☐ Social Care Research Ethics Committee
- ☑ Research Ethics Committee
- ☐ National Information Governance Board for Health and Social Care (NIGB)
- ☐ Ministry of Justice (MoJ)
- ☐ National Offender Management Service (NOMS) (Prisons & Probation)

For NHS/HSC R&D offices, the CI must create Site-Specific Information Forms for each site, in addition to the study-wide forms, and transfer them to the PIs or local collaborators.

5. Will any research sites in this study be NHS organisations?

◉ Yes ○ No

6. Do you plan to include any participants who are children?

○ Yes ◉ No

7. Do you plan at any stage of the project to undertake intrusive research involving adults lacking capacity to consent for themselves?

○ Yes ◉ No

Answer Yes if you plan to recruit living participants aged 16 or over who lack capacity, or to retain them in the study following loss of capacity. Intrusive research means any research with the living requiring consent in law. This includes use of identifiable tissue samples or personal information, except where application is being made to the NIGB Ethics and Confidentiality Committee to set aside the common law duty of confidentiality in England and Wales. Please consult the guidance notes for further information on the legal frameworks for research involving adults lacking capacity in the UK.

8. Do you plan to include any participants who are prisoners or young offenders in the custody of HM Prison Service or who are offenders supervised by the probation service in England or Wales?

○ Yes ◉ No

9. Is the study or any part of it being undertaken as an educational project?

◉ Yes ○ No

Please describe briefly the involvement of the student(s):
Study is undertaken for the purposes of completing doctoral research for fulfillment of a Doctorate in Clinical Psychology. Student is therefore Chief Investigator.

9a. Is the project being undertaken in part fulfilment of a PhD or other doctorate?

◉ Yes ○ No

10. Will this research be financially supported by the United States Department of Health and Human Services or any of its divisions, agencies or programs?

○ Yes ◉ No

11. Will identifiable patient data be accessed outside the care team without prior consent at any stage of the project (including identification of potential participants)?

○ Yes ◉ No

Integrated Research Application System
Application Form for Research administering questionnaires/interviews for quantitative analysis or mixed methodology study

National Patient Safety Agency
National Research Ethics Service

Application to NHS/HSC Research Ethics Committee

The Chief Investigator should complete this form. Guidance on the questions is available wherever you see this symbol displayed. We recommend reading the guidance first. The complete guidance and a glossary are available by selecting Help.

Please define any terms or acronyms that might not be familar to lay reviewers of the application.

Short title and version number: (maximum 70 characters - this will be inserted as header on all forms)
Alexithymia and emotional dysregulation in adults with BPD. (V1)

Please complete these details after you have booked the REC application for review.

REC Name:
North Wales REC/ West

REC Reference Number:
13/WA/0036

Submission date:
25/03/2013

PART A: Core study information

1. ADMINISTRATIVE DETAILS

A1. Full title of the research:

Alexithymia, emotional dysregulation and thought suppression in adults with Borderline Personality Disorder. (version 1)

A2-1. Educational projects

Name and contact details of student(s):

Student 1

Title	Forename/Initials	Surname
Miss	Louise	Vickers

Address	North Wales Clinical Psychology Programme School of Psychology, Bangor University, 43 College Road, Bangor, Gwynedd
Post Code	LL572DG
E-mail	pspef9@bangor.ac.uk
Telephone	01248388059

Fax 01248383718

Give details of the educational course or degree for which this research is being undertaken:

Name and level of course/ degree:
Doctorate of Clinial Psychology (DClinPsy)

Name of educational establishment:
School of Psychology, Bangor University

Name and contact details of academic supervisor(s):

Academic supervisor 1

	Title	Forename/Initials	Surname
	Dr	Michaela	Swales
Address	School of Psychology, Bangor University		
	Adeilad Brigantia, Penrallt Road		
	Gwynedd		
Post Code	LL572AS		
E-mail	m.swales@bangor.ac.uk		
Telephone	01248382552		
Fax	01248382599		

Please state which academic supervisor(s) has responsibility for which student(s):
Please click "Save now" before completing this table. This will ensure that all of the student and academic supervisor details are shown correctly.

Student(s)	**Academic supervisor(s)**
Student 1 Miss Louise Vickers	☑ Dr Michaela Swales

A copy of a current CV for the student and the academic supervisor (maximum 2 pages of A4) must be submitted with the application.

A2-2. Who will act as Chief Investigator for this study?

- (●) Student
- ( ) Academic supervisor
- ( ) Other

A3-1. Chief Investigator:

	Title	Forename/Initials	Surname
	Miss	Louise	Vickers
Post	Trainee Clinical Psychologist		
Qualifications	B.A Psychology (Hons), MPsychSc in Health Psychology (Hons)		
Employer	Betsi Cadwaladr University Health Board		
Work Address	North Wales Clinical Psychology Programme		
	School of Psychology, Bangor University,		
	43 College Road, Bangor, Gwynedd		
Post Code	LL572DG		

A4. Who is the contact on behalf of the sponsor for all correspondence relating to applications for this project?
This contact will receive copies of all correspondence from REC and R&D reviewers that is sent to the CI.

	Title	Forename/Initials	Surname
	Professor	Charles E.	Leek
Address	School of Psychology, Adeilad Brigantia, Penrallt Road, Gwynedd		
Post Code	LL572AS		
E-mail	e.c.leek@bangor.ac.uk		
Telephone	01248 382948		
Fax	01248 38 2599		

A5-1. Research reference numbers. *Please give any relevant references for your study:*

Applicant's/organisation's own reference number, e.g. R & D (if available):

Sponsor's/protocol number:

Protocol Version:

Protocol Date:

Funder's reference number:

Project website:

Additional reference number(s):

Ref.Number Description	Reference Number

Registration of research studies is encouraged wherever possible. You may be able to register your study through your NHS organisation or a register run by a medical research charity, or publish your protocol through an open access publisher. If you have registered your study please give details in the "Additional reference number(s)" section.

A5-2. Is this application linked to a previous study or another current application?

○ Yes ◉ No

Please give brief details and reference numbers.

2. OVERVIEW OF THE RESEARCH

To provide all the information required by review bodies and research information systems, we ask a number of specific questions. This section invites you to give an overview using language comprehensible to lay reviewers and members of the public. Please read the guidance notes for advice on this section.

A6-1. Summary of the study. *Please provide a brief summary of the research (maximum 300 words) using language easily understood by lay reviewers and members of the public. Where the research is reviewed by a REC within the UK Health Departments Research Ethics Service, this summary will be published on the website of the National Research Ethics Service following the ethical review.*

The term alexithymia, literally means 'a lack of words for emotion'. The alexithymia construct is composed of the following features:
(i) difficulty identifying feelings and linking feelings to bodily sensations;
(ii) difficulty describing feelings to other people;
(iii) constricted imaginal processes, as evidenced by a lack of fantasies; and
(iv) a stimulus-bound, externally oriented cognitive style.
(Nemiah, Freyberger & Sifneos, 1976; Taylor, Bagby & Parker, 1991).

Unable to identify accurately their own feelings, alexithymic people verbally communicate emotional distress to other people very poorly. They therefore may fail to enlist others as sources of aid or comfort (Taylor et al., 1997).

Borderline Personality Disorder (BPD) is characterised by severe cognitive, behavioural and emotional dysregulation (Kuo, Korslund & Linehan, 2006). Linehan's (1993a) biosocial theory posits that BPD is primarily a dysfunction of the emotion regulation system. Alexithymia has been linked with impaired social functioning, poor emotional regulation and poor impulse control (studies with people with eating disorders). These aspects are all hallmarks of BPD (Nicolo, Semerari, Lysaker, Dimaggio, Conti, D'Angerio, Procacci, Popolo, & Carcione, 2011).

Suppression may be considered an emotion regulation strategy (Gross & John, 2003).Thought suppression is the tendency to deliberately attempt to push unpleasant or unwanted cognitions out of awareness. Thought suppression has been found to be significantly associated with BPD (Baer, Peters, Eisenlohr-Moul, Geiger & Sauer, 2012).

The present study aims to investigate the presence of alexithymia and thought suppression along with the relationship of these constructs to emotional dysregulation in an adult BPD sample. Participants will complete a questionnaire.

The findings of this study would be very useful in understanding the processes involved for individuals with BPD in terms of emotion processing and emotion regulation. This could then provide information for designing and delivering the most effective therapeutic interventions for this group of people.

A6-2. Summary of main issues. *Please summarise the main ethical, legal, or management issues arising from your study and say how you have addressed them.*

Not all studies raise significant issues. Some studies may have straightforward ethical or other issues that can be identified and managed routinely. Others may present significant issues requiring further consideration by a REC, R&D office or other review body (as appropriate to the issue). Studies that present a minimal risk to participants may raise complex organisational or legal issues. You should try to consider all the types of issues that the different reviewers may need to consider.

Purpose and design: The study aims to test hypotheses generated by previous research regarding the presence of alexithymia and thought suppression and their relationship to emotional dysregulation in an adult BPD sample. It is hoped that the study will consolidate previous research in this area and lead to improvements in psychological interventions for people with BPD. The study also has educational value and will contribute towards one of the researchers' Doctorate in Clinical Psychology.

The research methodology was carefully selected by the research team. A cross-sectional between subjects design was deemed feasible in terms of recruitment and time-scale restrictions.

Recruitment: The use of a relatively short questionnaire at one time point will allow for ease of data collection (for researcher and participants) within the time schedule available and maximise participant numbers so that adequate conclusions can be drawn from the study. Participants will be recruited from sites where they are already engaged in some therapuetic intervention within the NHS. Participation in the reserach study will bear no impact on the therapuetic intervention that participants are receiving.

Inclusion/ exclusion: Adults with a history of BPD will be included in the study.

Consent: Mental Health Professionals involved in recruitment of participants will be asked not to refer potential participants if capacity is in doubt. The researcher will not attempt to recruit anyone whose ability to understand the purpose and procedure of the study is in question. Potential participants will have the option to not take part or withdraw from the study.

Risks, burdens and benefits: Although no distress is anticipated due to the procedures and materials used in the study, inquiring about emotional experiences might be upsetting for some participants. Should distress occur completion of the questionnaire will be discontinued immediately. At this stage, the researcher will attempt to reassure the distressed participant. If a participant cannot be reassured, with their permission, their Mental Health Professional (or in the case of healthy controls, the academic supervisor who will be able to provide advice about available help) will be alerted. It will be stressed at the beginning of taking part in the research study, that these individuals are available for participants to talk to should any issues arise from participation in the study. The qualified mental health professional will be responsible for the wellbeing of the participant during the time of the intervention, as routinely provided by the NHS service.

In addition to the points above, to mitigate any potential discomfort, the following measures will be taken: (1) Participants will be fully informed about the purpose of the study and procedures that are involved if they agree to participate; (2) Informed consent will be obtained from the participants; (3) From the first point of contact, participants will be informed about their right to withdraw at any time from research participation.

Confidentiality: To maintain participants' confidentiality any identifiable data will be anonymised where possible. Prior to data collection, all the participants will be assigned a participant identification number and all the data obtained from participants will carry this number rather than identifiable information. Coding of questionnaires for individual identification will be for researcher knowledge alone, in order to ensure that, in reporting, participants are not identifiable. Hardcopy data in the form of research questionnaires will be stored in a locked cabinet. Electronic data will be saved as secure computer files and password protected. All data will be disposed of in a safe way (e.g. shredded). There are times when confidentiality should be broken (e.g. when a threat to children is disclosed or participant is at serious risk). Should this occur, the researcher will attempt to obtain consent from the participant to share the information with the relevant authorities. If consent cannot be obtained, the researcher will inform the participant that it is her duty to share the information with the relevant authorities and will act immediately. Supervision will be available from the academic supervisor (who is also a qualified clinical psychologist).

Conflict of interest: It is not anticipated that the researchers interests as a researcher will conflict with her responsibilities as a health professional.
At the end of the study, feedback to participants will be in the form of an information summary of the results of the project. The project may also be disseminated on completion, through presentation at relevant conferences and publication of an empirical paper.

A6-3. Proportionate review of REC application *The initial project filter has identified that your study may be suitable for proportionate review by a REC sub-committee. Please consult the current guidance notes from NRES and indicate whether you wish to apply through the proportionate review service or, taking into account your answer to A6-2, you consider there are ethical issues that require consideration at a full REC meeting.*

○ Yes - proportionate review ◉ No - review by full REC meeting

Further comments (optional):

Note: This question only applies to the REC application.

3. PURPOSE AND DESIGN OF THE RESEARCH

A7. Select the appropriate methodology description for this research. *Please tick all that apply*:

- ☐ Case series/ case note review
- ☐ Case control
- ☐ Cohort observation
- ☐ Controlled trial without randomisation
- ☐ Cross-sectional study
- ☐ Database analysis
- ☐ Epidemiology
- ☐ Feasibility/ pilot study
- ☐ Laboratory study
- ☐ Metanalysis

- [ ] Qualitative research
- [x] Questionnaire, interview or observation study
- [ ] Randomised controlled trial
- [ ] Other (please specify)

A10. What is the principal research question/objective? *Please put this in language comprehensible to a lay person.*

This research study will investigate emotional awareness and an emotion-related regulation strategy in adults with Borderline Personality Disorder (BPD).

A11. What are the secondary research questions/objectives if applicable? *Please put this in language comprehensible to a lay person.*

The research study will also investigate the relationship between the emotion-related constructs, i.e alexithymia, emotional dysregulation and thought suppression in adults with BPD.

A12. What is the scientific justification for the research? *Please put this in language comprehensible to a lay person.*

Some previous studies have linked the constructs under investigation in the current study in varying groups of people. To our knowledge, few studies have been carried out on the topic. Four previous studies reported significant associations between alexithymia and BPD (Berenbaum, 1996; Zlotnick, Mattia & Zimmerman, 2001; Modestin, Furrer & Malti, 2004; Loas et al., 2012) and two reported non-significant associations (Bach, de Zwann, Ackard, Nutzingzer & Mitchell, 1994; Nicolo et al., 2011). Hence, the results are mixed.

A recent study investigating the relationship of alexithymia to emotional dysregulation in people with alcohol dependence disorder, found higher scores of alexithymia were associated with poorer emotion regulation skills (Stasiewicz, Bradizza, Gudleski, Coffey, Schlauch, Bailey et al., 2012). Similarly, in a review of emotion-related cognitive processes in BPD, thought suppression was found to be significantly associated with BPD (Baer, Peters, Eisenlohr-Moul, Geiger & Sauer, 2012). These results suggest that individuals may attempt to manage negative emotional situations by suppressing or restricting their feelings (Stasiewicz et al., 2012). However, few studies have included individuals that fulfil BPD criteria, therefore further investigation is warranted.

The current project will aim to assess the following research questions:
(a) Is alexithymia more prevalent in adults with BPD compared to controls? (while controlling for the presence of anxiety and depression)

(b) Is thought suppression as an emotion related cognitive strategy more common in individuals with BPD compared to healthy controls?

(c) Are alexithymia, emotional dysregulation and thought suppression linked in adults with BPD?

To our knowledge no previous study has investigated the relationship between alexithymia, emotional dysregulation and thought suppression in people with BPD. The findings of this study would be very useful in understanding the processes involved for individuals with BPD in terms of emotion processing and emotion regulation. This could then provide information for designing and delivering the most effective therapeutic interventions for this group of people that targets these specific tendencies in this group of people.

The study also has educational value and will contribute towards one of the researchers' Doctorate in Clinical Psychology.

References:

Bach, M., de Zwann, M., Ackard, D., Nutzingzer, D.O. & Mitchell, J.E. (1994). Alexithymia: relationship to personality disorders. Comprehensive Psychiatry, 35, 239- 243.

Baer, R.A., Peters, J.R., Eisenlohr-Moul, T.A., Geiger, P.J., & Sauer, S.E. (2012). Emotion-related cognitive processes in borderline personality disorder: A review of the empirical literature. Clinical Psychology Review, 32, 359- 369.

Berenbaum, H. (1996). Childhood abuse, alexithymia and personality disorder. Journal of Psychosomatic Research, 41, 585- 595.

Loas, G., Speranza, M., Pham-Scottez, A., Perez-Diaz, F. & Corcos, M. (2012). Alexithymia in adolescents with borderline personality disorder. Journal of Psychosomatic Research, 72, 147- 152.

Modestin, J., Furrer, R. & Malti, T. (2004). Study on alexithymia in adult non- patients. Journal of Psychosomatic Research, 56, 707- 709.

Nicolo,G., Semerari, A., Lysaker, P.H., Dimaggio,G., Conti, L., D'Angerio, S., Procacci, M., Popolo, R., & Carcione, A. (2011). Alexithymia in personality disorders: correlations with symptoms and interpersonal functioning. Psychiatry Research, 190, 37- 42.

Stasiewicz, P.R., Bradizza, C.M., Gudleski, G.D., Coffey, S.F., Schlauch, R.C., Bailey, S.T., Bole, C.W. & Gulliver, S.B. (2012). The relationship of alexithymia to emotional dysregulation within an alcohol dependent treatment sample. Addictive Behaviours, 37, 469- 476.

Zlotnick, C., Mattia, J.I. & Zimmerman, M. (2001). The relationship between posttraumatic stress disorder, childhood trauma and alexithymia in an outpatient sample. Journal of Trauma and Stress, 14, 177- 188.

A13. Please summarise your design and methodology. *It should be clear exactly what will happen to the research participant, how many times and in what order. Please complete this section in language comprehensible to the lay person. Do not simply reproduce or refer to the protocol. Further guidance is available in the guidance notes.*

Two groups of participants will be recruited for the study.

Group 1: 30 adult participants with a DSMIV diagnosis (if available), or clinician rated diagnosis of Borderline Personality Disorder.

Group 2: 30 adult healthy controls with no significant past or current psychiatric symptoms/disorder.

The proposed study investigates the presence of alexithymia, emotional dysregulation and thought suppression in adults with BPD, therefore the inclusion of participants with BPD is necessary. The involvement of healthy controls is necessary in order to compare the psychological ratings of participants with BPD to participants with no psychiatric symptoms/ disorder.

After consenting to take part in the study, participants will meet with the researcher on one occasion at a mutually agreed location (e.g. CMHT group meeting, CMHT interview room, university room). If this is not achieved the researcher will post the questionnaire to participants. The researcher will administer the following measures as part of a questionnaire:

- In order to confirm the participant's diagnosis (in the case of participants with BPD) the researcher willl adminiser the Borderline Evaluation of Severity over Time(BEST: Pfohl, Blum, St John, McCormack, Allen & Black, 2009). The BEST is a self-report measure of severity in BPD. It consists of 15 items; 12 negative items modelled on the PBD criteria and 3 positive coping behaviours. Items are rated for the past 7 or 30 days (or other time period). Items are scored on a 1-5 ordinal scale from 'non/ slight' to 'extreme' for negative items and from 1-5; from 'almost never' to 'almost always' for positive behaviours. BEST scores can range from 12 to 72, with higher scores reflecting greater BPD symptom severity, and a clinical cut-off score of 36.

- The Toronto Alexithymia Scale (TAS-20) will be used to assess alexithymia in individuals with BPD. This has been previously used with a wide range of clinical samples and with individuals with BPD (Nicolo et al., 2011; Loas et al., 2012). The TAS-20 (Bagby, Parker & Taylor, 1994a) is a self-report scale containing 20 items that participant's rate on a 5-point scale. Scores for the 20 items are totalled with scores of 0 to 51 indicating nonalexithymic, 52 to 60 indicating neither nonalexithymic nor alexithymic and scores of 61 and above indicating alexithymic. The measure assesses three components encompassing the alexithymia construct: (1) difficulty identifying feelings (DIF); (2) difficulty describing feelings (DDF); and (3) externally oriented thinking (EOT). Higher scores on each of its subscales are indicative of increased alexithymia.

- The Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer,
2004) is a 37-item measure that assesses self-reported emotion regulation difficulties. The DERS has six subscales including: non-acceptance of emotions, difficulties engaging in goal-directed behaviour when distressed, impulse control difficulties, lack of emotional awareness, limited access to emotion regulation strategies and lack of emotional clarity.

- The White Bear Suppression Inventory (WBSI; Wegner & Zanakos, 1994) is a self report measure of thought suppression. It consists of 15 items that subjects rate from 'strongly disagree' to 'strongly agree'.

- Additional measures of anxiety and depression will be administered; the HADS (Zigmond & Snaith, 1983). The HADS consists of two subscales, anxiety and depression. It consists of 14 items, 7 of which measure depression and the other 7 anxiety. Subjects underline the reply that most closely matches how they have felt during the past week. Each item is scored from 0 to 3 so the total scores range from 0 to 21 for both the anxiety and depression subscales.

- Demographics such as age, sex and education will also be assessed.

It is estimated that recruitment of participants will commence immediately after the NHS Research Ethics Committee approval and the R&D approvals from the relevant health boards have been obtained. It is also estimated that participant recruitment and data collection will be completed by April 2014. The statistical analysis of the findings and the writeup of the final report will take place before the end of June 2014. The sponsor will carry out regular monitoring reviews of the conduct of the research. Progress reports will be carried out throughout the project.

Null and alternative hypotheses: There will be no differences between participants with BPD and healthy controls for the measures of alexithymia, emotional dysregulation and thought suppression. There will be no relationship between alexithymia, emotional dysregulation and thought suppression.

Procedures to detect/compensate for any possible researcher effects and bias: The majority of the measures are self-report; therefore researcher effects and biases are not likely to be a problem.

References:
Bagby, R.M., Parker, J.D.A., and Taylor, G.J. (1994a). The Twenty-Item Toronto Alexithymia Scale- I. Item selection and cross validation of the factor structure. Journal of Psychosomatic Research, 38, 23-32.

Gratz, K. L., & Roemer, L. (2004). Multidimensional assessment of emotion regulation and dysregulation: Development, factor structure, and initial validation of the Difficulties in Emotion Regulation Scale. Journal of Psychopathology and Behavioral Assessment, 26, 41–54.

Loas, G., Speranza, M., Pham-Scottez, A., Perez-Diaz, F. & Corcos, M. (2012). Alexithymia in adolescents with borderline personality disorder. Journal of Psychosomatic Research, 72, 147- 152.

Nicolo,G., Semerari, A., Lysaker, P.H., Dimaggio,G., Conti, L., D'Angerio, S., Procacci, M., Popolo, R., & Carcione, A. (2011). Alexithymia in personality disorders: correlations with symptoms and interpersonal functioning. Psychiatry Research, 190, 37- 42.

Pfohl, B., Blum, N., St John, D., McCormack, B., Allen, J & Black, D.W. (2009). Reliability and validity of the Borderline Evaluation of Severity over Time (BEST): A self- rated scale to measure severity and change in persons with Borderline Personality Disorder. Journal of Personality Disorders, 23,3,281- 293.

Wegner, D.M. & Zanakos, S. (1994). Chronic thought suppression. Journal of Personality, 62, 4, 615- 640.

Zigmond, A. S., & Snaith, R. P. (1983). The Hospital Anxiety and Depression Scale. Acta Psychiatrica Scandinavica, 67, 361-370.

A14-1. In which aspects of the research process have you actively involved, or will you involve, patients, service users, and/or their carers, or members of the public?

- [x] Design of the research
- [ ] Management of the research
- [ ] Undertaking the research
- [ ] Analysis of results
- [ ] Dissemination of findings
- [ ] None of the above

Give details of involvement, or if none please justify the absence of involvement.
The questionnaire has been piloted with healthy volunteers to assess its suitability.

4. RISKS AND ETHICAL ISSUES

RESEARCH PARTICIPANTS

A17-1. Please list the principal inclusion criteria (list the most important, max 5000 characters).

The following inclusion criteria for participants will apply:

Group 1: 30 participants with a DSM-IV diagnosis (if available) or clinician rated diagnosis of BPD. Participants will need to achieve a total score of > 36 on the BEST measure.

Group 2: 30 healthy controls with no significant past or current psychiatric symptoms/disorder. Participants will need to achieve a total score of < 36 on the BEST measure. Participants must also report that they have never been in treatment for previous severe psychiatric illness.

A17-2. Please list the principal exclusion criteria (list the most important, max 5000 characters).

The following exclusion criteria for participants will apply:

- Age less than 18 (younger individuals may not be able to understand the study procedure and/or fully appreciate the potential consequences of their participation).

- Any evidence of organic impairment.

- A severe cognitive dysfunction.

- Insufficient command of English to complete the psychological tests. This restriction will be necessary as only the English language versions of some of the measures used in the questionnaire in the study have been validated.

- Already involved in ongoing research such that additional participation will constitute a burden that is unacceptable to the individual.

RESEARCH PROCEDURES, RISKS AND BENEFITS

A18. Give details of all non-clinical intervention(s) or procedure(s) that will be received by participants as part of the research protocol. *These include seeking consent, interviews, non-clinical observations and use of questionnaires.*

Please complete the columns for each intervention/procedure as follows:

1. Total number of interventions/procedures to be received by each participant as part of the research protocol.
2. If this intervention/procedure would be routinely given to participants as part of their care outside the research, how many of the total would be routine?
3. Average time taken per intervention/procedure (minutes, hours or days)
4. Details of who will conduct the intervention/procedure, and where it will take place.

Intervention or procedure	1	2	3	4
Seeking informed consent: the aims of the study and what it involves will be described. A copy of the participant information sheet and consent form will be given to the participant.	1		5-10 mins	Louise Vickers, Trainee Clinical Psychologist. To take place at a mutually agreed location (e.g. CMHT group meeting, CMHT interview room, university room).
Measure: The Toronto Alexithymia Scale (TAS-20; Bagby, Parker & Taylor, 1994a) is a self-report scale containing 20 items to measure alexithymia.	1		4 mins	Louise Vickers, Trainee Clinical Psychologist. To take place at a mutually agreed location (e.g. CMHT group meeting, CMHT interview room, university room).
Measure: The Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer,2004) is a 37-item measure that assesses self-reported emotion regulation difficulties.	1		5-7 mins	Louise Vickers, Trainee Clinical Psychologist. To take place at a mutually agreed location (e.g. CMHT group meeting, CMHT interview room, university room).
Measure: Borderline Evaluation of Severity over Time (BEST: Pfohl, Blum, St John, McCormack, Allen & Black, 2009) is a self-report measure of severity in	1		4 mins	Louise Vickers, Trainee Clinical Psychologist. To take place at a mutually agreed location (e.g. CMHT group meeting, CMHT interview

BPD. It consists of 15 items.			room, university room).
Measure: The White Bear Suppression Inventory (WBSI; Wegner & Zanakos, 1994) is a self report measure of thought suppression. It consists of 15 items.	1	4 mins	Louise Vickers, Trainee Clinical Psychologist. To take place at a mutually agreed location (e.g. CMHT group meeting, CMHT interview room, university room).
Measure: The Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1983) measure of anxiety and depression. It consists of 14 items.	1	4 mins	Louise Vickers, Trainee Clinical Psychologist. To take place at a mutually agreed location (e.g. CMHT group meeting, CMHT interview room, university room).
Demographics such as age, sex and education will also be assessed.	1	4 mins	Louise Vickers, Trainee Clinical Psychologist. To take place at a mutually agreed location (e.g. CMHT group meeting, CMHT interview room, university room).

A21. How long do you expect each participant to be in the study in total?

Following gaining consent and providing suficient information about the study to participants (5-10 minutes), it is estimated that completion of the questionnaire pack containing the research measures will take approximately 20- 25 minutes. This may be somewhat less or more depending on individual participants.

A22. What are the potential risks and burdens for research participants and how will you minimise them?

For all studies, describe any potential adverse effects, pain, discomfort, distress, intrusion, inconvenience or changes to lifestyle. Only describe risks or burdens that could occur as a result of participation in the research. Say what steps would be taken to minimise risks and burdens as far as possible.

Although no distress is anticipated due to the procedures and materials used in the study, inquiring about emotions and BPD symptoms might be upsetting for some participants. Should distress occur completion of the questionnaire will be discontinued immediately. At this stage, the researcher will attempt to reassure the distressed participant. If a participant cannot be reassured, with their permission, their mental health professional (or in the case of healthy controls, the academic supervisor who will be able to provide advice about available help) will be alerted. The qualified mental health professional will be responsible for the wellbeing of the participant during the time they are within their service.

In addition to the points above, to mitigate any potential discomfort, the following measures will also be taken: (1) Participants will be fully informed about the purpose of the study and procedures that are involved if they agree to participate; (2) Informed consent will be obtained from the participants; (3) From the first point of contact, participants will be informed about their right to withdraw at any time from research participation; (4) At the end of the study, participants (control participants) will be given a contact number to avail of should they experience any distress following participation in the research study.

A clear information sheet will be given to participants before commencing the study that details the above points.

At the end of the study control participants will be given a contact number to avail of should they experience any distress following participation in the research study. They will be informed to talk to the reserarcher if they experience distress folowing completion of the questionnaire. The questionnaire will be completed anonymously. In this way the researcher will not be aware of individual cases, should a mental health issue be disclosed.

The sponsor will carry out regular monitoring reviews of the conduct of the research.

A23. Will interviews/ questionnaires or group discussions include topics that might be sensitive, embarrassing or upsetting, or is it possible that criminal or other disclosures requiring action could occur during the study?

(●) Yes ( ) No

If Yes, please give details of procedures in place to deal with these issues:

Due to the nature of the proposed study no criminal or other disclosures requiring action are anticipated. However, should disclosure of significant information occur, administration of the questionnaire will be discontinued immediately and the researcher will attempt to obtain consent from the participant to share the information with the relevant authorities. If consent cannot be obtained, the researcher will inform the participant that it is her duty to share the information with the relevant authorities and will act immediately. Supervision will be available from the academic

supervisor (who is also a clinical psychologist) who can be contacted by phone.

A24. What is the potential for benefit to research participants?

This research may lead to improvement in understanding of the processess involved in terms of emotions for individuals with BPD and ultimately lead to improved treatment interventions.

A summary of the research findings will be available to participants at the end of the study.

A26. What are the potential risks for the researchers themselves? *(if any)*

No adverse effects, risks or discomfort to the researcher is anticipated. However, to minimise risks to the researcher, the following steps will be taken:

-Appropriate participants will be selected by mental health professionals who are familiar with the clients. All participants will be receiving treatment from a qualified mental health professional during the course of data collection. Participants will be seen by the researcher prior to, during and at the end of an intervention given within the NHS by a qualified mental health professional.

- The researcher will familiarise themselves with, and ensure safety of, the environment before testing.

-The researcher will endeavor to carry out interviews in locations with reasonable access to other staff members.

-The researcher will ensure that the academic supervisors are informed of location and activity on data collection days,and the researcher will call in safe to the academic supervisors after each interview. The researcher will carry a mobile
phone with them on data collection days. The academic supervisors will have the number for the mobile phone and this will allow for contact should the researcher not call in safe within an allocated time.

- The researcher will make use of lone worker policy and policies relating to violence and aggression in the workplace in the community settings.

-Supervision will be available from the academic supervisor (clinical psychologist).

RECRUITMENT AND INFORMED CONSENT

In this section we ask you to describe the recruitment procedures for the study. Please give separate details for different study groups where appropriate.

A27-1. How will potential participants, records or samples be identified? Who will carry this out and what resources will be used?*For example, identification may involve a disease register, computerised search of GP records, or review of medical records. Indicate whether this will be done by the direct healthcare team or by researchers acting under arrangements with the responsible care organisation(s).*

Identification and recruitment of clinical group:

Participants with borderline personality disorder will be recruited from outpatient community mental health services in Betsi Cadwaladr University Health Board.
The researcher will not identify potential participants directly.

- Outpatient community mental health services: The researcher will contact local mental health professional's in CMHT's to identify suitable participants. The mental health professional will ask the patient if he/she would be happy to meet the researcher in order to discuss their potential participation in the study. If the patient/s agrees the mental health professional will introduce the potential participant to the researcher. This may be on an individual basis or group basis. A meeting can then be arranged with the researcher in a mutually convenient place (i.e. CMHT interview room, group meeting) to discuss the research study. If a mental health professional (group leader) prefers to present the study to the group members themselves, the researcher will describe the procedures involved in the study to them and they will then be able to describe the study to the members of their group. Following this the researcher can meet with participants that agree to participate in the research study to comlpete the questionnaire.

If for some reason the participant (whom has agreed to participate in the study) is unable to meet the researcher at an

agreed location, the researcher will post the questionairre to the participant for completion.

Healthy control participants will be recruited from the Bangor University, School of Psychology Community Panel. These individuals will have already consented to having their names and contact details listed on the database, and to being approached about possible participation in future research projects.

- The researcher will follow the procedure recommended by the Bangor University, School of Psychology Community panel in recruitment of participants. Participants will be informed of the details of the study by the researcher before their participation in the study. A meeting can then be arranged with the researcher in a mutually convenient place (i.e. university interview room) to discuss the research study and/ or complete the questionnaire.

A27-2. Will the identification of potential participants involve reviewing or screening the identifiable personal information of patients, service users or any other person?

(●) Yes ( ) No

Please give details below:
In the case of participants with borderline personality disorder recruited from outpatient community mental health team services, the mental health professional of the clinical care team (e.g. clinical psychologist, nurse, mental health practitioner) will identify and approach potential participants on the basis of their clinical knowledge or from patient records. The researcher will not have access to potential participants' patient records, and the researcher will not approach any potential participants directly without approval from the mental health professional.

Healthy controls will be recruited from the Bangor University, School of Psychology Community Panel. These individuals will have already consented to having their names and contact details listed on the database, and to being approached about possible participation in a research study.

A27-4. Will researchers or individuals other than the direct care team have access to identifiable personal information of any potential participants?

(●) Yes ( ) No

A27-5. Has prior consent been obtained or will it be obtained for access to identifiable personal information?

(●) Yes ( ) No

If Yes, please give details below.

The researcher will meet with potential participants to explain the procedure involved in participation in the research study. The participants will give consent to the use of personal information but they will not be identifiable from this information. Coding of questionnaires for individual identification will be for researcher knowledge alone, in order to ensure that, in reporting, participants are not identifiable.

A28. Will any participants be recruited by publicity through posters, leaflets, adverts or websites?

( ) Yes (●) No

A29. How and by whom will potential participants first be approached?

In the case of participants with borderline personality disorder recruited through outpatient mental health teams, an involved mental health professional (e.g. clinical psychologist, nurse, mental health practitioner) will be asked to approach (verbally or in writing) the potential participant/s to inquire whether they would be willing to speak with the researcher about their participation in the study (the researcher will not approach potential participants). If the potential participant/s agrees, the mental health professional will record this in their clinical notes and a meeting will be arranged with the researcher in a mutually convenient place (e.g. CMHT interview room, group meeting) in order to discuss the research. At the meeting the researcher will explain the purpose of the research and hand over the participant information sheet and consent form. The researcher will provide their contact details to the attendees of the meeting in case any of them would like to discuss their potential participation. If a mental health professional (group leader) prefers to present the study to the group members themselves, the researcher will describe the procedures involved in the study to them and they will then be able to describe the study to the members of their group.

Following this, an arrangement will be made to contact the potential participant/s again, in a face-to-face meeting or via telephone. Once consent from the participant has been obtained, an arrangement will be made to meet the participant/s for completion of the questionnaire, again, at a mutually agreed location.

Healthy controls will be recruited from the Bangor University, School of Psychology Community Panel. These individuals will have already consented to be approached by the panel administrator about possible participation in research projects currently carried out at School of Psychology, Bangor University. Potential participants will be first contacted by e-mail or phone and, if interested, will be invited to attend a meeting at the School of Psychology (interview room) where informed consent will be obtained as above. Following this, an arrangement can be made with the participant to meet in the same locaton to complete the questionnaire.

A30-1. Will you obtain informed consent from or on behalf of research participants?

◉ Yes ○ No

If you will be obtaining consent from adult participants, please give details of who will take consent and how it will be done, with details of any steps to provide information (a written information sheet, videos, or interactive material). Arrangements for adults unable to consent for themselves should be described separately in Part B Section 6, and for children in Part B Section 7.

If you plan to seek informed consent from vulnerable groups, say how you will ensure that consent is voluntary and fully informed.

The researcher will obtain informed consent from the participants. The researcher is experienced in the process of taking consent in clinical studies. At the initial meeting with the potential participant, the researcher will provide a detailed explanation of the study. Following this, potential participants will be given a copy of the participant information sheet. Participants will have the opportunity to ask questions if they are unclear about anything in relation to the study. The researcher will be mindful that participants fully understand the information given to them. Information will be presented clearly and in simple familiar language where possible. Participants will be informed that their consent to participation in the study is voluntary and will not affect any services they receive from the NHS. They will also be informed that they are free to withdraw from the study at any time. Participants will be given up to one week to decide whether or not they wish to participate in the study.

Referring mental health professionals will be asked not to refer potential participants if capacity is in doubt. The researcher will not attempt to recruit anyone whose ability to understand the purpose and the procedure of the study is in question.

If you are not obtaining consent, please explain why not.

Not applicable

Please enclose a copy of the information sheet(s) and consent form(s).

A30-2. Will you record informed consent (or advice from consultees) in writing?

◉ Yes ○ No

A31. How long will you allow potential participants to decide whether or not to take part?

Participants will have up to one week to decide whether they wish to take part in the study. In some cases this may be considerable longer, if the involved mental health professional wishes to approach potential participants and explain the study.

A33-1. What arrangements have been made for persons who might not adequately understand verbal explanations or written information given in English, or who have special communication needs?*(e.g. translation, use of interpreters)*

A sufficient command of the English language is a pre-requisite and exclusion criteria for participation in the current study. This is due to the fact that only the English language versions of the measures used in the questionnaire questionnaires in this study have been validated. Therefore, no special arrangements have been made for participants without a sufficient command of the English language.

A33-2. What arrangements will you make to comply with the principles of the Welsh Language Act in the provision of

information to participants in Wales?

The participant information sheet, consent form and any correspondence (e.g. letters) will be translated into the Welsh language as Wales is the recruitment site for this study. These will be offered to participants who wish to receive the information in the Welsh language.

A35. What steps would you take if a participant, who has given informed consent, loses capacity to consent during the study? *Tick one option only.*

- (●) The participant and all identifiable data or tissue collected would be withdrawn from the study. Data or tissue which is not identifiable to the research team may be retained.
- ( ) The participant would be withdrawn from the study. Identifiable data or tissue already collected with consent would be retained and used in the study. No further data or tissue would be collected or any other research procedures carried out on or in relation to the participant.
- ( ) The participant would continue to be included in the study.
- ( ) Not applicable – informed consent will not be sought from any participants in this research.
- ( ) Not applicable – it is not practicable for the research team to monitor capacity and continued capacity will be assumed.

Further details:

In the case of a participant's psychiatric illness suddenly worsening to the point that they would lose capacity to consent, the researcher would not attempt to collect any more data from that point (i.e. no further procedures would be carried out with the participant). However, given that the participant, when able to meaningfully consent, had actually consented to the use of their data, the data already collected at this point, would be retained and used for the purposes for which consent was given in anonymised form.

CONFIDENTIALITY

In this section, personal data means any data relating to a participant who could potentially be identified. It includes pseudonymised data capable of being linked to a participant through a unique code number.

Storage and use of personal data during the study

A36. Will you be undertaking any of the following activities at any stage (including in the identification of potential participants)? *(Tick as appropriate)*

- [ ] Access to medical records by those outside the direct healthcare team
- [ ] Electronic transfer by magnetic or optical media, email or computer networks
- [ ] Sharing of personal data with other organisations
- [ ] Export of personal data outside the EEA
- [x] Use of personal addresses, postcodes, faxes, emails or telephone numbers
- [ ] Publication of direct quotations from respondents
- [ ] Publication of data that might allow identification of individuals
- [ ] Use of audio/visual recording devices
- [x] Storage of personal data on any of the following:
  - [x] Manual files including X-rays
  - [ ] NHS computers
  - [x] Home or other personal computers
  - [ ] University computers
  - [ ] Private company computers
  - [ ] Laptop computers

Further details:
Personal data used/stored during the study will be kept to a minimum where possible. Any identifiable data will be anonymised and assigned a participant identification number where possible. Only the researcher and research supervisor will have access to the research data collected during the study.

-Personal addresses, postcodes, emails and/or telephone numbers will be used when approaching potential participants and arranging meetings to explain the study and complete the questionnaire. Personal data (e.g. contact details) will be stored in hardcopy form in a locked cabinet on secure premises and separately from other research data (which will have been anonymised).

- Manual files will be stored in a securely locked cabinet also.

-Any electronic data will be password protected/encrypted and stored securely on a personal computers.

A38. How will you ensure the confidentiality of personal data? *Please provide a general statement of the policy and procedures for ensuring confidentiality, e.g. anonymisation or pseudonymisation of data.*

The NHS code of confidentiality will be followed in order to ensure confidentiality of the data. Where possible, personal data will be anonymised. Before commencing data collection, all the participants will be assigned a participant identification number and all the data obtained from the participant will carry this number rather than their name.

A40. Who will have access to participants' personal data during the study? *Where access is by individuals outside the direct care team, please justify and say whether consent will be sought.*

Only the researcher and the researcher's supervisor will have access to the data collected during the research study with consent from the participant. The researcher will not have access to individual participant patient files.

Storage and use of data after the end of the study

A43. How long will personal data be stored or accessed after the study has ended?

- ○ Less than 3 months
- ◉ 3 – 6 months
- ○ 6 – 12 months
- ○ 12 months – 3 years
- ○ Over 3 years

INCENTIVES AND PAYMENTS

A46. Will research participants receive any payments, reimbursement of expenses or any other benefits or incentives for taking part in this research?

◉ Yes ○ No

If Yes, please give details. For monetary payments, indicate how much and on what basis this has been determined.
Healthy control participants will receive £6 (in accordance with the Bangor University, School of Psychology Community Panel procedures) for their participation in the study. This amount is based on the demands that control participants may incur for participation in the study.

A47. Will individual researchers receive any personal payment over and above normal salary, or any other benefits or incentives, for taking part in this research?

○ Yes ◉ No

A48. Does the Chief Investigator or any other investigator/collaborator have any direct personal involvement (e.g. financial, share holding, personal relationship etc.) in the organisations sponsoring or funding the research that may give rise to a possible conflict of interest?

○ Yes ◉ No

NOTIFICATION OF OTHER PROFESSIONALS

A49-1. Will you inform the participants' General Practitioners (and/or any other health or care professional responsible for their care) that they are taking part in the study?

◉ Yes ○ No

If Yes, please enclose a copy of the information sheet/letter for the GP/health professional with a version number and date.

A49-2. Will you seek permission from the research participants to inform their GP or other health/ care professional?

◉ Yes ○ No

It should be made clear in the participant's information sheet if the GP/health professional will be informed.

PUBLICATION AND DISSEMINATION

A50. Will the research be registered on a public database?

○ Yes ◉ No

Please give details, or justify if not registering the research.
The researcher is not aware that a suitable register exists.

Registration of research studies is encouraged wherever possible.
You may be able to register your study through your NHS organisation or a register run by a medical research charity, or publish your protocol through an open access publisher. If you are aware of a suitable register or other method of publication, please give details. If not, you may indicate that no suitable register exists. Please ensure that you have entered registry reference number(s) in question A5-1.

A51. How do you intend to report and disseminate the results of the study? *Tick as appropriate:*

- ☑ Peer reviewed scientific journals
- ☐ Internal report
- ☑ Conference presentation
- ☐ Publication on website
- ☐ Other publication
- ☐ Submission to regulatory authorities
- ☐ Access to raw data and right to publish freely by all investigators in study or by Independent Steering Committee on behalf of all investigators
- ☐ No plans to report or disseminate the results
- ☑ Other (please specify)

The results of the study will also appear in the Bangor University library as they will form part of the reseaarcher's Doctorate in Clinical Psychology thesis.

Feedback to participants will be in the form of an information summary of the results of the project.

A53. Will you inform participants of the results?

(●) Yes ( ) No

Please give details of how you will inform participants or justify if not doing so.
Participants wil be asked at the end of completion of the questionnaire, if they wish to receive feedback on the study. For those who express an interest in this, feedback will be in the form of an information summary of the results of the project, detailing the research findings and the implications of the study, in a language comprehensible to the lay person. This summary may be sent directly to the participant or given to the community service that they attend. In addition, the participant will be informed that he/she could contact the researchers at the contact details provided on the participant information sheet, in case they wish to ask any question about the progress of the study.

5. Scientific and Statistical Review

A54. How has the scientific quality of the research been assessed? *Tick as appropriate:*

- [ ] Independent external review
- [ ] Review within a company
- [ ] Review within a multi–centre research group
- [x] Review within the Chief Investigator's institution or host organisation
- [x] Review within the research team
- [x] Review by educational supervisor
- [ ] Other

Justify and describe the review process and outcome. If the review has been undertaken but not seen by the researcher, give details of the body which has undertaken the review:
The research study has been reviewed by the Chief Investigator and educational supervisor and the School of Psychology at Bangor University. The research study has also been reviewed by the Ethics panel at the School of Psychology at Bangor University.

For all studies except non-doctoral student research, please enclose a copy of any available scientific critique reports, together with any related correspondence.

For non-doctoral student research, please enclose a copy of the assessment from your educational supervisor/ institution.

A56. How have the statistical aspects of the research been reviewed? *Tick as appropriate:*

- [ ] Review by independent statistician commissioned by funder or sponsor
- [ ] Other review by independent statistician
- [ ] Review by company statistician
- [ ] Review by a statistician within the Chief Investigator's institution
- [ ] Review by a statistician within the research team or multi–centre group
- [x] Review by educational supervisor
- [x] Other review by individual with relevant statistical expertise
- [ ] No review necessary as only frequencies and associations will be assessed – details of statistical input not required

In all cases please give details below of the individual responsible for reviewing the statistical aspects. If advice has been provided in confidence, give details of the department and institution concerned.

	Title	Forename/Initials	Surname
	Dr	Vaso	Totsika
Department	North Wales Clinical Psychology Programme, School of Psychology		
Institution	Bangor University		

Work Address	43 College Road, Bangor Gwynedd
Post Code	LL572DG
Telephone	01248388706
Fax	01248383718
Mobile	
E-mail	v.totsika@bangor.ac.uk

Please enclose a copy of any available comments or reports from a statistician.

A57. What is the primary outcome measure for the study?

The primary outcome measure:

- Alexithymia (TAS-20 measure)

- Emotional dysregulation (DERS measure)

- Thought suppression (WBSI measure)

A58. What are the secondary outcome measures? *(if any)*

The secondary outcome measure is:

- The relaionship between alexithymia, emotional dysregulation and thought suppression; the three primary outcome measures.

A59. What is the sample size for the research? *How many participants/samples/data records do you plan to study in total? If there is more than one group, please give further details below.*

Total UK sample size: 60
Total international sample size (including UK):
Total in European Economic Area:

Further details:
The study plans to recruit two groups of people; a clinical gourp and a control group. It is planned to recruit 30 participants for each group, with a total sample size of 60.

A60. How was the sample size decided upon? *If a formal sample size calculation was used, indicate how this was done, giving sufficient information to justify and reproduce the calculation.*

A power calculation was completed for the present study, using information gained from a previous, similar study in the area using an adolescent sample (Loas et al., 2012). This was completed in G*Power 3, for an independent t-test comparing two groups. The effect size was based on the previous study that assessed alexithymia in adolescents with BPD, using the same measure (TAS-20). The two groups are clinical BPD group and healthy control group. Results indicated that for a two- tailed test for 80% power, with alpha at 0.05, 16 participants in each group is required, because the expected effect size is very large. Results of this analysis indicated that 16 people were required in each group to have sufficient power. With a total sample size of 32. In order to increase the robustness of the findings of the study it is hoped to recuit more than the required power calculation number.

Reference:
Loas, G., Speranza, M., Pham-Scottez, A., Perez-Diaz, F. & Corcos, M. (2012). Alexithymia in adolescents with borderline personality disorder. Journal of Psychosomatic Research, 72, 147- 152.

A61. Will participants be allocated to groups at random?

○ Yes ◉ No

A62. Please describe the methods of analysis (statistical or other appropriate methods, e.g. for qualitative research) by which the data will be evaluated to meet the study objectives.

Hypothesis one: Overall, an Independent T-test will be used to compare the two groups for alexithymia. Multivariate analysis of variance (MANOVA), followed by univariate analysis of variance (ANOVA) will also be used to assess the groups for the alexithymia measure (including subscales as dependent variables). These analyses will then be repeated controlling for anxiety and depression (MANCOVA, ANCOVA).

Hypothesis two: Independent T-test will be used to assess this hypothesis by comparing the two groups for levels of thought suppression.

Hypothesis three: Correlation and multiple regression will be used to assess the relationship between alexithymia, emotional dysregulation, thought suppression and severity of BPD.

6. MANAGEMENT OF THE RESEARCH

A63. Other key investigators/collaborators. *Please include all grant co−applicants, protocol co−authors and other key members of the Chief Investigator's team, including non-doctoral student researchers.*

Title Forename/Initials Surname

Post
Qualifications
Employer
Work Address

Post Code
Telephone
Fax
Mobile
Work Email

A64. Details of research sponsor(s)

A64-1. Sponsor

Lead Sponsor

Status:
- ○ NHS or HSC care organisation
- ◉ Academic
- ○ Pharmaceutical industry
- ○ Medical device industry
- ○ Local Authority
- ○ Other social care provider (including voluntary sector or private organisation)
- ○ Other

Commercial status: Non-Commercial

If Other, please specify:

Contact person

Name of organisation	Bangor University, School of Psychology
Given name	Charles E.
Family name	Leek
Address	School of Psychology, Adeilad Brigantia,
Town/city	Penrallt Road, Gwynedd
Post code	LL572AS
Country	UNITED KINGDOM
Telephone	01248 382948
Fax	01248 38 2599
E-mail	e.c.leek@bangor.ac.uk

Is the sponsor based outside the UK?

○ Yes ◉ No

Under the Research Governance Framework for Health and Social Care, a sponsor outside the UK must appoint a legal representative established in the UK. Please consult the guidance notes.

A65. Has external funding for the research been secured?

☐ Funding secured from one or more funders

☐ External funding application to one or more funders in progress

☑ No application for external funding will be made

What type of research project is this?

○ Standalone project

○ Project that is part of a programme grant

○ Project that is part of a Centre grant

◉ Project that is part of a fellowship/ personal award/ research training award

○ Other

Other – please state:

A67. Has this or a similar application been previously rejected by a Research Ethics Committee in the UK or another country?

○ Yes ◉ No

Please provide a copy of the unfavourable opinion letter(s). You should explain in your answer to question A6-2 how the reasons for the unfavourable opinion have been addressed in this application.

A68. Give details of the lead NHS R&D contact for this research:

	Title	Forename/Initials	Surname
	Dr	Rossella	Roberts
Organisation	Betsi Cadwaladr University Health Board		

Address	Ysbyty Gwynedd Bangor
Post Code	LI572PW
Work Email	rossella.roberts@wales.nhs.uk
Telephone	01248384877
Fax	
Mobile	

Details can be obtained from the NHS R&D Forum website: http://www.rdforum.nhs.uk

A69-1. How long do you expect the study to last in the UK?

Planned start date: 07/01/2013
Planned end date: 30/06/2014
Total duration:
Years: 1 Months: 5 Days: 23

A71-2. Where will the research take place? *(Tick as appropriate)*

- ☐ England
- ☐ Scotland
- ☑ Wales
- ☐ Northern Ireland
- ☐ Other countries in European Economic Area

Total UK sites in study 6

Does this trial involve countries outside the EU?
○ Yes ○ No

A72. What host organisations (NHS or other) in the UK will be responsible for the research sites? *Please indicate the type of organisation by ticking the box and give approximate numbers of planned research sites:*

☐ NHS organisations in England	
☐ NHS organisations in Wales	
☐ NHS organisations in Scotland	
☐ HSC organisations in Northern Ireland	
☐ GP practices in England	
☐ GP practices in Wales	
☐ GP practices in Scotland	
☐ GP practices in Northern Ireland	
☐ Social care organisations	
☐ Phase 1 trial units	
☐ Prison establishments	
☐ Probation areas	
☐ Independent hospitals	
☑ Educational establishments	1
☐ Independent research units	
☐ Other (give details)	

Total UK sites in study:	1

A76. Insurance/ indemnity to meet potential legal liabilities

***Note:** in this question to NHS indemnity schemes include equivalent schemes provided by Health and Social Care (HSC) in Northern Ireland*

A76-1. What arrangements will be made for insurance and/or indemnity to meet the potential legal liability of the sponsor(s) for harm to participants arising from the management of the research? *Please tick box(es) as applicable.*

Note: Where a NHS organisation has agreed to act as sponsor or co-sponsor, indemnity is provided through NHS schemes. Indicate if this applies (there is no need to provide documentary evidence). For all other sponsors, please describe the arrangements and provide evidence.

- ☐ NHS indemnity scheme will apply (NHS sponsors only)
- ☑ Other insurance or indemnity arrangements will apply (give details below)

Cover is available via UMAL, the Bangor University insurers.

Please enclose a copy of relevant documents.

A76-2. What arrangements will be made for insurance and/ or indemnity to meet the potential legal liability of the sponsor(s) or employer(s) for harm to participants arising from the design of the research? *Please tick box(es) as applicable.*

Note: Where researchers with substantive NHS employment contracts have designed the research, indemnity is provided through NHS schemes. Indicate if this applies (there is no need to provide documentary evidence). For other protocol authors (e.g. company employees, university members), please describe the arrangements and provide evidence.

- ☑ NHS indemnity scheme will apply (protocol authors with NHS contracts only)
- ☑ Other insurance or indemnity arrangements will apply (give details below)

Cover is available via UMAL, the Bangor University insurers.

Please enclose a copy of relevant documents.

A76-3. What arrangements will be made for insurance and/ or indemnity to meet the potential legal liability of investigators/collaborators arising from harm to participants in the conduct of the research?

Note: Where the participants are NHS patients, indemnity is provided through the NHS schemes or through professional indemnity. Indicate if this applies to the whole study (there is no need to provide documentary evidence). Where non-NHS sites are to be included in the research, including private practices, please describe the arrangements which will be made at these sites and provide evidence.

- ☑ NHS indemnity scheme or professional indemnity will apply (participants recruited at NHS sites only)
- ☑ Research includes non-NHS sites (give details of insurance/ indemnity arrangements for these sites below)

Cover is available via UMAL, the Bangor University insurers.

Please enclose a copy of relevant documents.

PART C: Overview of research sites

Please enter details of the host organisations (Local Authority, NHS or other) in the UK that will be responsible for the research sites. *For NHS sites, the host organisation is the Trust or Health Board. Where the research site is a primary care site, e.g. GP practice, please insert the host organisation (PCT or Health Board) in the Institution row and insert the research site (e.g. GP practice) in the Department row.*

Research site		Investigator/ Collaborator/ Contact	
Institution name	Bangor University	Title	Miss
Department name	North Wales Clinical Psychology Programme	First name/ Initials	Louise
Street address	43 College Road	Surname	Vickers
Town/city	Bangor		
Post Code	LL572DG		
Institution name	Betsi Cadwaladr University Health Board	Title	Miss
Department name		First name/ Initials	Louise
Street address		Surname	Vickers
Town/city			
Post Code			
Institution name		Title	
Department name		First name/ Initials	
Street address		Surname	
Town/city			
Post Code			

PART D: Declarations

D1. Declaration by Chief Investigator

1. The information in this form is accurate to the best of my knowledge and belief and I take full responsibility for it.

2. I undertake to abide by the ethical principles underlying the Declaration of Helsinki and good practice guidelines on the proper conduct of research.

3. If the research is approved I undertake to adhere to the study protocol, the terms of the full application as approved and any conditions set out by review bodies in giving approval.

4. I undertake to notify review bodies of substantial amendments to the protocol or the terms of the approved application, and to seek a favourable opinion from the main REC before implementing the amendment.

5. I undertake to submit annual progress reports setting out the progress of the research, as required by review bodies.

6. I am aware of my responsibility to be up to date and comply with the requirements of the law and relevant guidelines relating to security and confidentiality of patient or other personal data, including the need to register when necessary with the appropriate Data Protection Officer. I understand that I am not permitted to disclose identifiable data to third parties unless the disclosure has the consent of the data subject or, in the case of patient data in England and Wales, the disclosure is covered by the terms of an approval under Section 251 of the NHS Act 2006.

7. I understand that research records/data may be subject to inspection by review bodies for audit purposes if required.

8. I understand that any personal data in this application will be held by review bodies and their operational managers and that this will be managed according to the principles established in the Data Protection Act 1998.

9. I understand that the information contained in this application, any supporting documentation and all correspondence with review bodies or their operational managers relating to the application:

    - Will be held by the REC (where applicable) until at least 3 years after the end of the study; and by NHS R&D offices (where the research requires NHS management permission) in accordance with the NHS Code of Practice on Records Management.
    - May be disclosed to the operational managers of review bodies, or the appointing authority for the REC (where applicable), in order to check that the application has been processed correctly or to investigate any complaint.
    - May be seen by auditors appointed to undertake accreditation of RECs (where applicable).
    - Will be subject to the provisions of the Freedom of Information Acts and may be disclosed in response to requests made under the Acts except where statutory exemptions apply.

10. I understand that information relating to this research, including the contact details on this application, may be held on national research information systems, and that this will be managed according to the principles established in the Data Protection Act 1998.

11. Where the research is reviewed by a REC within the UK Health Departments Research Ethics Service, I understand that the summary of this study will be published on the website of the National Research Ethics Service (NRES), together with the contact point for enquiries named below. Publication will take place no earlier than 3 months after issue of the ethics committee's final opinion or the withdrawal of the application.

Contact point for publication *(Not applicable for R&D Forms)*

NRES would like to include a contact point with the published summary of the study for those wishing to seek further information. We would be grateful if you would indicate one of the contact points below.

- (●) Chief Investigator
- ( ) Sponsor

- ○ Study co-ordinator
- ○ Student
- ○ Other – please give details
- ○ None

Access to application for training purposes *(Not applicable for R&D Forms)*

Optional – please tick as appropriate:

☑ I would be content for members of other RECs to have access to the information in the application in confidence for training purposes. All personal identifiers and references to sponsors, funders and research units would be removed.

Signature: .....

Print Name: Louise Vickers

Date: 21/03/2013 *(dd/mm/yyyy)*

D2. Declaration by the sponsor's representative

If there is more than one sponsor, this declaration should be signed on behalf of the co−sponsors by a representative of the lead sponsor named at A64-1.

I confirm that:

1. This research proposal has been discussed with the Chief Investigator and agreement in principle to sponsor the research is in place.
2. An appropriate process of scientific critique has demonstrated that this research proposal is worthwhile and of high scientific quality.
3. Any necessary indemnity or insurance arrangements, as described in question A76, will be in place before this research starts. Insurance or indemnity policies will be renewed for the duration of the study where necessary.
4. Arrangements will be in place before the study starts for the research team to access resources and support to deliver the research as proposed.
5. Arrangements to allocate responsibilities for the management, monitoring and reporting of the research will be in place before the research starts.
6. The duties of sponsors set out in the Research Governance Framework for Health and Social Care will be undertaken in relation to this research.
7. Where the research is reviewed by a REC within the UK Health Departments Research Ethics Service, I understand that the summary of this study will be published on the website of the National Research Ethics Service (NRES), together with the contact point for enquiries named in this application. Publication will take place no earlier than 3 months after issue of the ethics committee's final opinion or the withdrawal of the application.

Signature: .....

Print Name: Professor Charles E. Leek

Post: Head of School of Psychology

Organisation: Bangor University

Date: 21/03/2013 *(dd/mm/yyyy)*

D3. Declaration for student projects by academic supervisor(s)

1. I have read and approved both the research proposal and this application. I am satisfied that the scientific content of the research is satisfactory for an educational qualification at this level.

2. I undertake to fulfil the responsibilities of the supervisor for this study as set out in the Research Governance Framework for Health and Social Care.

3. I take responsibility for ensuring that this study is conducted in accordance with the ethical principles underlying the Declaration of Helsinki and good practice guidelines on the proper conduct of research, in conjunction with clinical supervisors as appropriate.

4. I take responsibility for ensuring that the applicant is up to date and complies with the requirements of the law and relevant guidelines relating to security and confidentiality of patient and other personal data, in conjunction with clinical supervisors as appropriate.

Academic supervisor 1

Signature:	.....
Print Name:	Dr Michaela Swales
Post:	Consultant Clinical Psychologist
Organisation:	Bangor University
Date:	21/03/2013 *(dd/mm/yyyy)*

Eligibility Screening Tool for Clinicians

Study title: Alexithymia, emotional dysregulation and thought suppression in adults with Borderline Personality Disorder (BPD).

Please use this information as an aide in deciding whether a patient is suitable to be approached for the study. If you are satisfied that a patient meets these criteria they can then be approached about participation in the study.

Inclusion criteria for the study: **(Please circle Yes or No)**

- A DSM-IV diagnosis (if available) or clinician rated (opinion) diagnosis of BPD. Yes/ No

(note: this will also be assessed as part of the questionnaire as participants will need to achieve a total score of > 36 on the BEST measure).

- Patients are aware that they may have received a diagnosis of BPD or fulfill features of BPD presently or in the past. Yes/ No

Exclusion criteria for the study:

- Patient is not aware that they may have a diagnosis of BPD or fulfill BPD features. Yes/ No
- Age less than 18 years. Yes/ No
- Any evidence of organic impairment. Yes/No
- A severe cognitive dysfunction. Yes/ No
- Insufficient command of English to complete the questionnaire. Yes/No
- Patient is already involved in ongoing research such that additional participation will constitute a burden that is unacceptable to the individual. Yes/ No

Further information and contact details

Should you have any questions regarding this study, please contact the researcher: Louise Vickers (Trainee Clinical Psychologist) at pspef9@bangor.ac.uk or *(insert temporary mobile phone number)* or the academic supervisor: Dr Michaela Swales (Consultant Clinical Psychologist) at Michaela.Swales@wales.nhs.uk or 01248 382552.

Thank you for your time.

PROFESSIONALS INFORMATION SHEET

Study title: Alexithymia, emotional dysregulation and thought suppression in adults with Borderline Personality Disorder (BPD).

We would like to invite you to consider potential participants to take part in our research study. The purpose of the study is to assess the presence of alexithymia, emotional dysregulation and thought suppression in adults with BPD compared to healthy control participants. It is hoped that the study will help us understand the processes involved for individuals with BPD in terms of emotion processing and emotion regulation. This could then provide information for designing and delivering the most effective therapeutic interventions for this group of people.

Background to the study

The term alexithymia, literally means 'a lack of words for emotion'. The alexithymia construct is composed of the following features:
(i) difficulty identifying feelings and linking feelings to bodily sensations;
(ii) difficulty describing feelings to other people;
(iii) constricted imaginal processes, as evidenced by a lack of fantasies; and
(iv) a stimulus-bound, externally oriented cognitive style.
(Nemiah, Freyberger & Sifneos, 1976; Taylor, Bagby & Parker, 1991).

Suppression may be considered an emotion regulation strategy (Gross & John, 2003). Thought suppression is the tendency to deliberately attempt to push unpleasant or unwanted cognitions out of awareness. Thought suppression has been found to be significantly associated with BPD (Baer, Peters, Eisenlohr-Moul, Geiger & Sauer, 2012). Some previous studies have linked the constructs under investigation in the current study in varying groups of people. To our knowledge, few studies have been carried out on the topic, therefore further investigation is warranted.

The present study aims to investigate the presence of alexithymia and thought suppression in adults with BPD, along with the relationship of these constructs to emotional dysregulation in this sample.

What will be expected of me if I agree to identify participants?

The researcher will ask you to identify (on the basis of your clinical knowledge or patient records) and approach potentially suitable participants. You will need to ask the potential participant/s if they would be happy to meet with the researcher in order to discussion their participation in the study. If the individual agrees, you will need to record this in their clinical notes and then introduce him/her to the

researcher. This can be on an individual or group basis. If you would prefer to present the study to group members yourself, you may do so.

What are the inclusion criteria for the study?

Participants will be included in this study if they have a DSM-IV diagnosis of BPD (if available) or clinician rated diagnosis of BPD. Participants will additionally be asked to complete a measure of BPD.

What are the exclusion criteria for the study?

Participants will be excluded from this study only if they match the following exclusion criteria:

- Any evidence of organic impairment.
- A severe cognitive dysfunction.
- Age less than 18.
- Insufficient command of English to complete the psychological tests.
- Already involved in ongoing research such that additional participation will constitute a burden that is unacceptable to the individual.

What will happen to the participant if they take part?

The participant will meet with the researcher at a mutually agreed location (e.g. Community Mental Health Team). At the meeting the researcher will explain the purpose of the research and hand over the participant information sheet and consent form. The participant will be offered the opportunity of taking up to one week to decide whether or not they wish to take part. Once consent has been obtained, an arrangement will be made to meet the participant for completion of the questionnaire. The questionnaire will take approximately 20-25 minutes to complete.

Firstly, participants will be asked to complete some short details regarding their age, gender and education. Participants will then be asked to complete the questionnaire pack. Participants will be asked to complete a short questionnaire about their BPD symptoms, then a questionnaire about awareness of emotions and ability to describe them. Following this, participants will answer questions regarding their ability to regulate emotions and possible tendency to engage in thought suppression. Finally participants will answer questions that assess for the presence of depression and anxiety.

What are the possible disadvantages and risks of taking part?

Although no distress is anticipated due to the procedures and materials used in the study, inquiring about negative experiences might be upsetting for some people. Should participants become distressed, completion of the questionnaire will be discontinued immediately and if necessary (and with the participant's permission) their mental health professional responsible for their care will be informed. In addition, if completion of the questionnaire is found to be tiring, frequent breaks may also be taken.

Who has reviewed the study?

The study has been reviewed by the School of Psychology, Ethics Panel at Bangor University and REC West Research Ethics Committee of the NHS. The study has been approved by these two bodies.

Further information and contact details

Should you have any questions regarding this study, please contact the researcher: Louise Vickers (Trainee Clinical Psychologist) at pspef9@bangor.ac.uk or 07516986051 or the academic supervisor: Dr Michaela Swales (Consultant Clinical Psychologist) at Michaela.Swales@wales.nhs.uk or 01248 382552.

Thank you for your time.

PARTICIPANT INFORMATION SHEET- Controls

Study title: Emotional awareness, emotion regulation and thought suppression in adults with Borderline Personality Disorder (BPD) compared to those without BPD.

We would like to invite you to take part in our research study. Before you decide we would like you to understand why the research is being done and what it would involve for you. The researcher will go through the information sheet with you and answer any questions you have. Please do not hesitate to ask if there is anything that is not clear.

The first part of the information sheet tells you about the purpose of the study and what will happen to you if you take part. The second part gives you more detailed information about the study. You will receive a copy of the information sheet.

PART 1

What is the purpose of the study?

The purpose of the study is to explore awareness of emotions, and how we describe them (sometimes referred to as alexithymia), how people manage emotions (emotion regulation) and a strategy that people may use to regulate their emotions (thought suppression). It is hoped that the study will help us know if these tendencies are more common in people with BPD than other people in the general population. This may eventually lead to better treatments and interventions for people with BPD. The study also has educational value and will contribute towards one of the researchers' Doctorate in Clinical Psychology.

Why have I been invited?

You have been invited to take part in our research study because you are a member of the Bangor University Community Panel. The involvement of participants who do not experience features of BPD is necessary in order to provide comparison information for people who do experience BPD features. We expect that, in total, about 60 people will take part in our study; 30 people with BPD and 30 people without these issues from the general public.

Do I have to take part?

It is your choice if you wish to take part in this study. If you agree to take part, we will then ask you to sign a consent form. You are free to withdraw from the study at any time, without giving a reason. This would not affect your relationship with Bangor University.

What will happen to me if I take part?

If you agree to take part in the study, you will meet with the researcher on one occasion at an agreed location (Bangor University room). The researcher will ask you to complete a questionnaire. The questionnaire will take approximately 20-25 minutes to complete.

Firstly, you will be asked to complete some short details regarding your age, gender and education. You will then be asked to complete the questionnaire pack. You will be asked to complete a short questionnaire about any possible BPD symptoms, then a questionnaire about your awareness of emotions and ability to describe them. Following this, you will answer questions regarding your ability to manage emotions and thoughts. Finally you will answer questions that assess for the presence of depression and anxiety.

Expenses and payments

If you decide to take part in the study, you will receive a payment of £6, in concordance with the Bangor University Community Panel protocol. It is not anticipated that you will incur any expenses for participation in the study.

What are the possible disadvantages and risks of taking part?

Although no distress is anticipated, inquiring about negative experiences might be upsetting for some people. Should you become distressed, completion of the questionnaire will be discontinued immediately and if necessary (and with your permission) a clinical psychologist will be informed. Frequent breaks may also be taken if participants find completion of the questionnaire tiring.

What are the possible benefits of taking part?

There are no anticipated potential benefits to you of taking part in this study. Your participation is valued however; as we hope that the information we get from this study may lead to greater understanding of people with BPD. This may then lead to better treatments and interventions for people with BPD.

If the information in the first part of the information sheet has interested you and you are considering participation, please read the additional information in the second part before making any decision.
PART 2

What will happen if I don't want to carry on with the study?

You are free to withdraw from the study at any time. If you withdraw from the study, we will destroy all your identifiable data, but we will need to use the data collected up to your withdrawal. The information will be transferred onto a computer in such a way that it cannot be linked to named individuals and the names will be destroyed when the study is finished. The data will be anonymous so that it will not be possible to identify the data as yours.

What if there is a problem?

If you have a concern about any aspect of this study, you should ask to speak to the researcher who will do their best to answer your questions (see contact details below). If you remain unhappy and wish to complain formally, you can do this. Please contact School Manager, School of Psychology, Bangor University, Bangor, Gwynedd, LL57 2AS, or e-mail h.francis@bangor.ac.uk.

Will my taking part in this study be kept confidential?

Yes. All information given by participants will be kept strictly confidential and will remain anonymous. Only the researcher and her supervisor will have access to the data collected from the study. Any identifiable data will be anonymised where possible (i.e. all identifiable data, such as names, addresses etc., will be removed from the information that is collected about you during the study). Prior to completion of the questionnaire, you will be assigned a participant identification number and all the data obtained from you will carry this number, rather than identifiable information.

Questionnaires will be stored in a locked cabinet and electronic data will be password protected. When the analysis has been completed and all aspects in relation the project completed, such as viva examinations, research participant questionnaires will be destroyed. This is estimated to be the end of September 2014. The anonymised data file will be kept by the researcher until after publication of all relevant empirical papers derived from the study.

There are some times when confidentiality may be broken. For example, if you disclosed information that indicated that you or another person was at serious risk, the researcher has a duty to share this information with relevant authorities with or without your consent.

What will happen to the results of the research study?

It is hoped that the results of the study will be presented at conferences and published in peer-reviewed scientific journals. The results will also appear in the Bangor University library, as they will form a part of one of the researchers' Doctorate in Clinical Psychology thesis. We can also send you a short summary of the findings of the study if you wish. You will not be identifiable in any publication, thesis or report, which arises from this study.

Who is organising and funding the research?

The study is sponsored by Bangor University, School of Psychology.

Who has reviewed the study?

This study has been reviewed by the School of Psychology, Ethics Panel at Bangor University and REC West Research Ethics Committee of the NHS. The study has been approved by these two bodies.

Further information and contact details

Should you have any questions regarding this study, please contact the researcher: Louise Vickers (Trainee Clinical Psychologist) at pspef9@bangor.ac.uk or 07516986051 or the academic supervisor: Dr Michaela Swales (Consultant Clinical Psychologist) at Michaela.Swales@wales.nhs.uk or 01248 382552.

If you wish to take part in this study, please read and sign the consent form (you will receive a copy of the signed consent form).

Thank you for your time

TAFLEN WYBODAETH I RAI SY'N CYMRYD RHAN: Grŵp Cymharu

Teitl yr astudiaeth: Emotional awareness, emotion regulation and thought suppression in adults with Borderline Personality Disorder (BPD) compared to those without BPD.

Hoffem eich gwahodd i gymryd rhan yn ein hastudiaeth ymchwil. Cyn i chi benderfynu, mae'n bwysig eich bod yn deall pam mae'r ymchwil yn cael ei gwneud a'r hyn fydd yn digwydd. Bydd yr ymchwilydd yn darllen y daflen wybodaeth hon gyda chi ac yn ateb unrhyw gwestiynau fydd gennych. Holwch os oes unrhyw beth nad ydych yn ei ddeall yn iawn.

Mae rhan gyntaf y daflen wybodaeth yn egluro pwrpas yr astudiaeth a beth fydd yn digwydd i chi os byddwch yn cymryd rhan. Mae'r ail ran yn rhoi gwybodaeth fanylach am sut caiff yr astudiaeth ei chynnal. Byddwch yn cael copi o'r daflen wybodaeth.

RHAN 1

Beth yw diben yr astudiaeth?

Diben yr astudiaeth yw edrych ar ymwybyddiaeth o emosiynau a sut rydym yn eu disgrifio, sut mae pobl yn rheoli emosiynau, a strategaeth y gall pobl ei defnyddio i reoleiddio eu hemosiynau. Gobeithir y bydd yr astudiaeth yn ein helpu i wybod a yw'r tueddiadau hyn yn fwy cyffredin mewn pob gyda BPD nag ymysg y boblogaeth yn gyffredinol. Efallai y gall hyn arwain yn y pen draw at well triniaethau ac ymyriadau i bobl gyda BPD. Mae gwerth addysgol i'r astudiaeth hefyd a bydd yn cyfrannu at Ddoethuriaeth un o'r ymchwilwyr mewn Seicoleg Glinigol.

Pam ydw i wedi cael fy ngwahodd?

Rydych wedi cael gwahoddiad i gymryd rhan yn ein hastudiaeth ymchwil oherwydd eich bod yn aelod o Banel Cymunedol Prifysgol Bangor. Rhaid cael cyfranwyr nad oes ganddynt nodweddion BPD er mwyn rhoi gwybodaeth y gellir ei chymharu â phobl sydd â nodweddion BPD. Rydym yn disgwyl y bydd tua 60 o bobl i gyd yn cymryd rhan yn yr astudiaeth; 30 o bobl gyda BPD a 30 o bobl heb BPD o blith y cyhoedd yn gyffredinol.

Oes raid imi gymryd rhan?

Chi sydd i benderfynu a ydych am gymryd rhan ai peidio yn yr astudiaeth hon. Os cytunwch i gymryd rhan byddwn yn gofyn i chi lofnodi ffurflen gydsynio. Gellwch dynnu'n ôl o'r astudiaeth unrhyw bryd, heb roi rheswm. Ni fyddai hyn yn effeithio ar eich perthynas â Phrifysgol Bangor.

Beth fydd yn digwydd i mi os byddaf yn cymryd rhan?

Os cytunwch i gymryd rhan yn yr astudiaeth, byddwch yn cyfarfod â'r ymchwilydd unwaith mewn man y cytunwyd arno (ystafell ym Mhrifysgol Bangor). Bydd yr ymchwilydd yn gofyn i chi lenwi holiadur. Bydd yr holiadur yn cymryd rhyw 20-25 munud i'w lenwi.

Yn gyntaf, gofynnir i chi roi rhai manylion byr am eich oed, gender ac addysg. Yna, gofynnir i chi lenwi'r pecyn holiadur. Gofynnir i chi lenwi holiadur byr ynghylch unrhyw symptomau BPD posibl, yna holiadur yn ymwneud â'ch ymwybyddiaeth o emosiynau a'ch gallu i'w disgrifio. Yn dilyn hyn byddwch yn ateb cwestiynau'n ymwneud â'ch gallu i reoli emosiynau a meddyliau. Yn olaf, byddwch yn ateb cwestiynau sy'n asesu a ydych yn dioddef o iselder neu bryder.

Costau a thaliadau

Os penderfynwch gymryd rhan yn yr astudiaeth byddwch yn derbyn taliad o £6, yn unol â threfn Panel Cymunedol Prifysgol Bangor. Nid ydym yn rhagweld y byddwch yn cael unrhyw gostau wrth gymryd rhan yn yr astudiaeth.

Beth yw anfanteision neu risgiau posibl cymryd rhan?

Er nad ydym yn disgwyl y bydd y dulliau a'r deunyddiau a ddefnyddir yn yr astudiaeth yn peri unrhyw ofid i'r cyfranwyr, gallai holi am brofiadau negyddol darfu ar rai pobl. Os byddwch yn dechrau ypsetio, caiff yr holiadur ei ddirwyn i ben ar unwaith ac, os bydd angen, rhoddir gwybod i seicolegydd clinigol (gyda'ch caniatâd). Gallwch gymryd seibiannau cyson hefyd os byddwch yn gweld bod llenwi'r holiaduron yn eich blino.

Beth yw manteision posib cymryd rhan?

Nid oes unrhyw fanteision uniongyrchol o gymryd rhan yn yr astudiaeth hon. Fodd bynnag, gwerthfawrogir eich cyfraniad gan ein bod yn gobeithio y gall y wybodaeth a gawn o'r astudiaeth hon arwain at well dealltwriaeth o bobl gyda BPD. Efallai y gall hyn arwain yn y pen draw at well triniaethau ac ymyriadau i bobl gyda BPD.

Os yw'r wybodaeth yn rhan gyntaf y daflen wybodaeth wedi ennyn eich diddordeb a'ch bod yn ystyried cymryd rhan, ewch ymlaen i ddarllen y wybodaeth ychwanegol yn yr ail ran cyn i chi ddod i benderfyniad.

RHAN 2

Beth fydd yn digwydd os nad wyf eisiau parhau â'r astudiaeth?

Gellwch dynnu'n ôl o'r astudiaeth unrhyw bryd. Os byddwch yn tynnu'n ôl o'r astudiaeth, byddwn yn dinistrio'r holl ddata sy'n nodi pwy ydych chi, ond bydd angen i ni ddefnyddio'r data a gasglwyd hyd nes i chi adael. Trosglwyddir y wybodaeth ar gyfrifiadur mewn ffordd na ellir ei chysylltu ag unigolion penodol a chaiff yr enwau eu dinistrio pan fydd yr astudiaeth wedi gorffen. Bydd y data'n ddi-enw ac felly bydd yn amhosib dweud bod y data'n sôn amdanoch chi.

Beth os bydd yna broblem?

Os ydych yn bryderus ynghylch unrhyw agwedd ar yr astudiaeth hon, dylech ofyn am gael siarad â'r ymchwilydd a fydd yn gwneud ei gorau i ateb eich cwestiynau (gweler y manylion cyswllt isod). Os ydych yn dal yn anhapus ac yn dymuno cwyno'n ffurfiol, gallwch wneud hynny. Cysylltwch â Rheolwr yr Ysgol Seicoleg, Prifysgol Bangor, Gwynedd, LL57 2AS neu anfon e-bost at h.francis@bangor.ac.uk

Fydd fy nghyfraniad i'r astudiaeth hon yn cael ei gadw'n gyfrinachol?

Bydd. Bydd yr holl wybodaeth yn cael ei chadw'n hollol gyfrinachol ac yn ddi-enw. Dim ond yr ymchwilydd a'i goruchwyliwr fydd yn cael gweld y data a gesglir o'r astudiaeth. Byddwn yn dileu manylion personol o unrhyw ddata lle bo'n bosib (h.y. bydd yr holl ddata a allai ddangos pwy ydych chi, megis enwau, cyfeiriadau etc. yn cael ei ddileu o'r wybodaeth a gesglir amdanoch yn ystod yr astudiaeth). Cyn i chi lenwi'r holiadur, fe gewch rif adnabod cyfrannwr a bydd yr holl ddata a gafwyd gennych yn dwyn y rhif hwn yn hytrach na gwybodaeth sy'n dangos pwy ydych.

Cedwir holiaduron mewn cwpwrdd dan glo a bydd data electronig wedi ei ddiogelu gan gyfrinair. Pan fydd y dadansoddi wedi'i gwblhau a phob agwedd yn ymwneud â'r project, megis arholiadau viva, wedi'i chwblhau, caiff holiaduron y rhai a gymerodd ran yn yr ymchwil eu dinistrio. Amcangyfrifir mai diwedd Medi 2014 fydd hynny. Bydd yr ymchwilydd yn cadw'r ffeil data dienw nes bydd yr holl bapurau cyffredinol yn deillio o'r astudiaeth wedi cael eu cyhoeddi.

Mae rhai adegau pan all fod yn rhaid torri cyfrinachedd. Er enghraifft pe baech yn datgelu gwybodaeth oedd yn dangos eich bod chi neu unigolyn arall yn wynebu risg difrifol, byddai'n ddyletswydd ar yr ymchwilydd i rannu'r wybodaeth hon gydag awdurdodau perthnasol gyda'ch caniatâd neu hebddo.

Beth fydd yn digwydd i ganlyniadau'r astudiaeth ymchwil?

Y gobaith yw y caiff canlyniadau'r astudiaeth eu cyflwyno mewn cynadleddau a'u cyhoeddi mewn cyfnodolion gwyddonol safonol. Bydd y canlyniadau'n ymddangos hefyd yn llyfrgell Prifysgol Bangor, gan y byddant yn rhan o draethawd doethurol un o'r ymchwilwyr mewn Seicoleg Glinigol. Hefyd gallwn anfon crynodeb byr o ganfyddiadau'r astudiaeth atoch os dymunwch. Ni fyddwch yn cael eich enwi mewn unrhyw gyhoeddiad, traethawd ymchwil neu adroddiad fydd yn deillio o'r astudiaeth hon.

Pwy sy'n trefnu a chyllido'r ymchwil?

Noddir yr astudiaeth hon gan Ysgol Seicoleg Prifysgol Bangor.

Pwy sydd wedi adolygu'r astudiaeth?

Mae'r astudiaeth wedi ei hadolygu a'i chymeradwyo gan Banel Moeseg Ysgol Seicoleg Prifysgol Bangor a Phwyllgor Moeseg Ymchwil y GIG REC west. Mae'r astudiaeth wedi cael ei chymeradwyo gan y ddau gorff hyn.

Gwybodaeth bellach a manylion cysylltu

Os bydd gennych unrhyw gwestiynau am yr astudiaeth hon, cysylltwch â'r ymchwilydd: Louise Vickers (Seicolegydd Clinigol dan Hyfforddiant) yn pspef9@bangor.ac.uk, 07516986051 neu'r goruchwyliwr academaidd: Dr Michaela Swales, (Seicolegydd Clinigol Ymgynghorol) yn Michaela.Swales@wales.nhs.uk neu 01248 382552.

Os ydych yn dymuno cymryd rhan yn yr astudiaeth, darllenwch a llofnodwch y ffurflen gydsynio (byddwch yn derbyn copi o'r ffurflen gydsynio wedi ei llofnodi).

Diolch i chi am eich amser

PARTICIPANT INFORMATION SHEET

Study title: Emotional awareness, emotion regulation and thought suppression in adults with Borderline Personality Disorder (BPD).

We would like to invite you to take part in our research study. Before you decide we would like you to understand why the research is being done and what it would involve for you. The researcher will go through the information sheet with you and answer any questions you have. Please do not hesitate to ask if there is anything that is not clear.

The first part of the information sheet tells you about the purpose of the study and what will happen to you if you take part. The second part gives you more detailed information about the study. You will receive a copy of the information sheet.

PART 1

What is the purpose of the study?

The purpose of the study is to explore awareness of emotions and how we describe them (sometimes referred to as alexithymia), how people manage emotions (emotion regulation) and a strategy that people may use to regulate their emotions (thought suppression). It is hoped that the study will help us know if these tendencies are more common in people with BPD than other people in the general population. This may eventually lead to better treatments and interventions for people with BPD. The study also has educational value and will contribute towards one of the researchers' Doctorate in Clinical Psychology.

Why have I been invited?

You have been invited to take part in our research study because a member of your clinical care team of your community mental health service has reported to us that you experience features of BPD and have or are receiving treatment for these issues. We expect that, in total, about 60 people will take part in our study; 30 people with BPD and 30 people without BPD from the general public.

Do I have to take part?

It is your choice if you wish to take part in this study. If you agree to take part, we will then ask you to sign a consent form. You are free to withdraw from the study at any time, without giving a reason. This would not affect any intervention you receive from the NHS.

What will happen to me if I take part?

If you agree to take part in the study, you will meet with the researcher on one occasion at an agreed location (e.g. Community Mental Health Team, group meeting). The researcher will ask you to complete a questionnaire. The questionnaire will take approximately 20-25 minutes to complete.

Firstly, you will be asked to complete some short details regarding your age, gender and education. You will then be asked to complete the questionnaire pack. You will be asked to complete a short questionnaire about your BPD symptoms, then a questionnaire about your awareness of emotions and ability to describe them. Following this, you will answer questions regarding your ability to manage emotions and thoughts. Finally you will answer questions that assess for the presence of depression and anxiety.

Expenses and payments

There is no payment for participation in the study and participation is voluntary. It is not anticipated that you will incur any expenses for participation in the study.

What are the possible disadvantages and risks of taking part?

Although no distress is anticipated, inquiring about negative experiences might be upsetting for some people. Should you become distressed, completion of the questionnaire will be discontinued immediately and if necessary (and with your permission) a member of your clinical care team or a clinical psychologist will be informed.

What are the possible benefits of taking part?

There are no anticipated potential benefits to you of taking part in this study. Your participation is valued however; as we hope that the information we get from this study may lead to greater understanding of people with BPD. This may then lead to better treatments and interventions for people with BPD.

If the information in the first part of the information sheet has interested you and you are considering participation, please read the additional information in the second part before making any decision.

PART 2

What will happen if I don't want to carry on with the study?

You are free to withdraw from the study at any time. If you withdraw from the study, we will destroy all your identifiable data, but we will need to use the data collected up to your withdrawal. The information will be transferred onto a computer in such a way that it cannot be linked to named individuals and the names will be destroyed when the study is finished. The data will be anonymous so that it will not be possible to identify the data as yours.

What if there is a problem?

If you have a concern about any aspect of this study, you should ask to speak to the researcher who will do their best to answer your questions (see contact details below). If you remain unhappy and wish to complain formally, you can do this. Please contact School Manager, School of Psychology, Bangor University, Bangor, Gwynedd, LL57 2AS, or e-mail h.francis@bangor.ac.uk.

Will my taking part in this study be kept confidential?

Yes. All information given by participants will be kept strictly confidential and will remain anonymous. Only the researcher and her supervisor will have access to the data collected from the study. Any identifiable data will be anonymised where possible (i.e. all identifiable data, such as names, addresses etc., will be removed from the information that is collected about you during the study). Prior to completion of the questionnaire, you will be assigned a participant identification number and all the data obtained from you will carry this number, rather than identifiable information.

Questionnaires will be stored in a locked cabinet and electronic data will be password protected. When the analysis has been completed and all aspects in relation the project completed, such as viva examinations, research participant questionnaires will be destroyed. This is estimated to be the end of September 2014. The anonymised data file will be kept by the researcher until after publication of all relevant empirical papers derived from the study.

The healthcare professional responsible for your care will be informed of your participation in the study.

There are some times when confidentiality may be broken. For example, if you disclosed information that indicated that you or another person was at serious risk, the researcher has a duty to share this information with relevant authorities with or without your consent.

What will happen to the results of the research study?

It is hoped that the results of the study will be presented at conferences and published in peer-reviewed scientific journals. The results will also appear in the Bangor University library, as they will form part of one of the researchers' Doctorate in Clinical Psychology thesis. We can also send you a short summary of the findings of the study. You will not be identifiable in any publication, thesis or report, which arises from this study.

Who is organising and funding the research?

The study is sponsored by Bangor University, School of Psychology.

Who has reviewed the study?

All research in the NHS is looked at by an independent group of people, called a Research Ethics Committee, to protect your interests. This study has been reviewed by the School of Psychology,

Ethics Panel at Bangor University and REC west Research Ethics Committee of the NHS. The study has been approved by these two bodies.

Further information and contact details

Should you have any questions regarding this study, please contact the researcher: Louise Vickers (Trainee Clinical Psychologist) at pspef9@bangor.ac.uk or 07516986051 or the academic supervisor: Dr Michaela Swales (Consultant Clinical Psychologist) at Michaela.Swales@wales.nhs.uk or 01248 382552.

If you wish to take part in this study, please read and sign the consent form (you will receive a copy of the signed consent form).

Thank you for your time

TAFLEN WYBODAETH I RAI SY'N CYMRYD RHAN

Teitl yr astudiaeth: Emotional awareness, emotion regulation and thought suppression in adults with Borderline Personality Disorder (BPD).

Hoffem eich gwahodd i gymryd rhan yn ein hastudiaeth ymchwil. Cyn i chi benderfynu, mae'n bwysig eich bod yn deall pam mae'r ymchwil yn cael ei gwneud a'r hyn fydd yn digwydd. Bydd yr ymchwilydd yn darllen y daflen wybodaeth hon gyda chi ac yn ateb unrhyw gwestiynau fydd gennych. Holwch os oes unrhyw beth nad ydych yn ei ddeall yn iawn.

Mae rhan gyntaf y daflen wybodaeth yn egluro pwrpas yr astudiaeth a beth fydd yn digwydd i chi os byddwch yn cymryd rhan. Mae'r ail ran yn rhoi gwybodaeth fanylach am sut caiff yr astudiaeth ei chynnal. Byddwch yn cael copi o'r daflen wybodaeth.

RHAN 1

Beth yw diben yr astudiaeth?

Diben yr astudiaeth yw edrych ar ymwybyddiaeth o emosiynau a sut rydym yn eu disgrifio, sut mae pobl yn rheoli emosiynau, a strategaeth y gall pobl ei defnyddio i reoleiddio eu hemosiynau. Gobeithir y bydd yr astudiaeth yn ein helpu i wybod a yw'r tueddiadau hyn yn fwy cyffredin mewn pobl gyda BPD nag ymysg y boblogaeth yn gyffredinol. Efallai y gall hyn arwain yn y pen draw at well triniaethau ac ymyriadau i bobl gyda BPD. Mae gwerth addysgol i'r astudiaeth hefyd a bydd yn cyfrannu at Ddoethuriaeth un o'r ymchwilwyr mewn Seicoleg Glinigol.

Pam ydw i wedi cael fy ngwahodd?

Rydych chi wedi cael gwahoddiad i gymryd rhan yn yr astudiaeth ymchwil oherwydd bod aelod o'ch tîm gofal clinigol yn y gwasanaeth iechyd meddwl cymunedol wedi rhoi gwybod i ni bod gennych nodweddion BPD a'ch bod wedi cael triniaeth am y materion hyn, neu'n cael triniaeth ar hyn o bryd. Rydym yn disgwyl y bydd tua 60 o bobl i gyd yn cymryd rhan yn yr astudiaeth; 30 o bobl gyda BPD a 30 o bobl heb BPD o blith y cyhoedd yn gyffredinol.

Oes raid imi gymryd rhan?

Chi sydd i benderfynu a ydych am gymryd rhan ai peidio yn yr astudiaeth hon. . Os cytunwch i gymryd rhan byddwn yn gofyn i chi lofnodi ffurflen gydsynio. Gellwch dynnu'n ôl o'r astudiaeth unrhyw bryd, heb roi rheswm. Ni fyddai hynny'n effeithio ar unrhyw ofal rydych yn ei gael gan y GIG.

Beth fydd yn digwydd i mi os byddaf yn cymryd rhan?

Os cytunwch i gymryd rhan yn yr astudiaeth, byddwch yn cyfarfod â'r ymchwilydd unwaith mewn man y cytunwyd arno (e.e. Tîm Iechyd Meddwl Cymunedol, cyfarfod grŵp). Bydd yr ymchwilydd yn gofyn i chi lenwi holiadur. Bydd yr holiadur yn cymryd rhyw 20-25 munud i'w lenwi.

Yn gyntaf, gofynnir i chi roi rhai manylion byr am eich oed, gender ac addysg. Yna, gofynnir i chi lenwi'r pecyn holiadur. Gofynnir i chi lenwi holiadur byr am eich symptomau BPD, yna holiadur yn ymwneud â'ch ymwybyddiaeth o emosiynau a'ch gallu i'w disgrifio. Yn dilyn hyn byddwch yn ateb cwestiynau'n ymwneud â'ch gallu i reoli emosiynau a meddyliau. Yn olaf, byddwch yn ateb cwestiynau sy'n asesu a ydych yn dioddef o iselder neu bryder.

Costau a thaliadau

Nid oes tâl am gymryd rhan yn yr astudiaeth a byddwch yn cymryd rhan o'ch gwirfodd. Nid ydym yn rhagweld y byddwch yn cael unrhyw gostau wrth gymryd rhan yn yr astudiaeth.

Beth yw anfanteision neu risgiau posibl cymryd rhan?

Er nad ydym yn disgwyl y bydd y dulliau a'r deunyddiau a ddefnyddir yn yr astudiaeth yn peri unrhyw ofid i'r cyfranwyr, gallai holi am brofiadau negyddol darfu ar rai pobl. Os byddwch yn dechrau ypsetio, caiff yr holiadur ei ddirwyn i ben ar unwaith ac os bydd angen, rhoddir gwybod i aelod o'ch tîm gofal clinigol neu seicolegydd clinigol (gyda'ch caniatâd).

Beth yw manteision posib cymryd rhan?

Nid oes unrhyw fanteision uniongyrchol o gymryd rhan yn yr astudiaeth hon. Fodd bynnag, gwerthfawrogir eich cyfraniad gan ein bod yn gobeithio y gall y wybodaeth a gawn o'r astudiaeth hon arwain at well dealltwriaeth o bobl gyda BPD. Efallai y gall hyn arwain yn y pen draw at well triniaethau ac ymyriadau i bobl gyda BPD.

Os yw'r wybodaeth yn rhan gyntaf y daflen wybodaeth wedi ennyn eich diddordeb a'ch bod yn ystyried cymryd rhan, ewch ymlaen i ddarllen y wybodaeth ychwanegol yn yr ail ran cyn i chi ddod i benderfyniad.

RHAN 2

Beth fydd yn digwydd os nad wyf eisiau parhau â'r astudiaeth?

Gellwch dynnu'n ôl o'r astudiaeth unrhyw bryd. Os byddwch yn tynnu'n ôl o'r astudiaeth, byddwn yn dinistrio'r holl ddata sy'n nodi pwy ydych chi, ond bydd angen i ni ddefnyddio'r data a gasglwyd hyd nes i chi adael. Trosglwyddir y wybodaeth ar gyfrifiadur mewn ffordd na ellir ei chysylltu ag unigolion penodol a chaiff yr enwau eu dinistrio pan fydd yr astudiaeth wedi gorffen. Bydd y data'n ddienw ac felly bydd yn amhosib dweud bod y data'n sôn amdanoch chi.

Beth os bydd yna broblem?

Os ydych yn bryderus ynghylch unrhyw agwedd ar yr astudiaeth hon, dylech ofyn am gael siarad â'r ymchwilydd a fydd yn gwneud eu gorau i ateb eich cwestiynau (gweler y manylion cyswllt isod). Os ydych yn dal yn anhapus ac yn dymuno cwyno'n ffurfiol, gallwch wneud hynny. Cysylltwch â Rheolwr yr Ysgol Seicoleg, Prifysgol Bangor, Gwynedd, LL57 2AS neu anfon e-bost at h.francis@bangor.ac.uk

Fydd fy nghyfraniad i'r astudiaeth hon yn cael ei gadw'n gyfrinachol?

Bydd. Bydd yr holl wybodaeth yn cael ei chadw'n hollol gyfrinachol ac yn ddienw. Dim ond yr ymchwilydd a'i goruchwyliwr fydd yn cael gweld y data a gesglir o'r astudiaeth. Byddwn yn dileu manylion personol o unrhyw ddata lle bo'n bosib (h.y. bydd yr holl ddata a allai ddangos pwy ydych chi, megis enwau, cyfeiriadau etc. yn cael ei ddileu o'r wybodaeth a gesglir amdanoch yn ystod yr astudiaeth). Cyn i chi lenwi'r holiadur, fe gewch rif adnabod cyfrannwr a bydd yr holl ddata a gafwyd gennych yn dwyn y rhif hwn yn hytrach na gwybodaeth sy'n dangos pwy ydych.

Cedwir holiaduron mewn cwpwrdd dan glo a bydd data electronig wedi ei ddiogelu gan gyfrinair. Pan fydd y dadansoddi wedi'i gwblhau a phob agwedd yn ymwneud â'r project, megis arholiadau viva, wedi'i chwblhau, caiff holiaduron y rhai a gymerodd ran yn yr ymchwil eu dinistrio. Amcangyfrifir mai diwedd Medi 2014 fydd hynny. Bydd yr ymchwilydd yn cadw'r ffeil data dienw nes bydd yr holl bapurau cyffredinol yn deillio o'r astudiaeth wedi cael eu cyhoeddi.

Bydd y gweithiwr gofal iechyd sy'n gyfrifol am eich gofal yn cael gwybod eich bod yn cymryd rhan yn yr astudiaeth.

Mae rhai adegau pan all fod yn rhaid torri cyfrinachedd. Er enghraifft pe baech yn datgelu gwybodaeth oedd yn dangos eich bod chi neu unigolyn arall yn wynebu risg difrifol, byddai'n ddyletswydd ar yr ymchwilydd i rannu'r wybodaeth hon gydag awdurdodau perthnasol gyda'ch caniatâd neu hebddo.

Beth fydd yn digwydd i ganlyniadau'r astudiaeth ymchwil?

Y gobaith yw y caiff canlyniadau'r astudiaeth eu cyflwyno mewn cynadleddau a'u cyhoeddi mewn cyfnodolion gwyddonol safonol. Bydd y canlyniadau'n ymddangos hefyd yn llyfrgell Prifysgol Bangor, gan y byddant yn rhan o draethawd doethur un o'r ymchwilwyr mewn Seicoleg Glinigol. Hefyd gallwn anfon crynodeb byr o ganfyddiadau'r astudiaeth atoch. Ni fyddwch yn cael eich enwi mewn unrhyw gyhoeddiad, traethawd ymchwil neu adroddiad fydd yn deillio o'r astudiaeth hon.

Pwy sy'n trefnu a chyllido'r ymchwil?

Noddir yr astudiaeth hon gan Ysgol Seicoleg Prifysgol Bangor.

Pwy sydd wedi adolygu'r astudiaeth?

Edrychir ar bob ymchwil yn y GIG gan grŵp annibynnol o bobl, sef y Pwyllgor Moeseg Ymchwil, i warchod eich buddiannau. Mae'r astudiaeth wedi ei hadolygu a'i chymeradwyo gan Banel Moeseg Ysgol Seicoleg Prifysgol Bangor a Phwyllgor Moeseg Ymchwil REC west y GIG. Mae'r astudiaeth

wedi cael ei chymeradwyo gan y ddau gorff hyn.

Gwybodaeth bellach a manylion cysylltu

Os bydd gennych unrhyw gwestiynau am yr astudiaeth hon, cysylltwch â'r ymchwilydd: Louise Vickers (Seicolegydd Clinigol dan Hyfforddiant) yn pspef9@bangor.ac.uk, 07516986051 neu'r goruchwyliwr academaidd: Dr Michaela Swales, (Seicolegydd Clinigol Ymgynghorol) yn Michaela.Swales@wales.nhs.uk neu 01248 382552.

Os ydych yn dymuno cymryd rhan yn yr astudiaeth, darllenwch a llofnodwch y ffurflen gydsynio (byddwch yn derbyn copi o'r ffurflen gydsynio wedi ei llofnodi).

Diolch i chi am eich amser

:

Study Number:

Patient Identification Number for this trial:

CONSENT FORM

Title of Project: Alexithymia, emotional dysregulation and thought suppression in adults with Borderline Personality Disorder (BPD).

Name of Researcher: **Louise Vickers** Please initial all boxes

1. I confirm that I have read and understand the information sheet dated (23/04/13 version 2) for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐

2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason or legal rights being affected. ☐

3. I understand that a report may be written but I will not be identifiable by name in this report. ☐

4. I agree to take part in the above study. ☐

Name of Participant	Date	Signature
Louise Vickers		
Name of Person taking consent	Date	Signature

:

Rhif yr Astudiaeth:

Rhif Adnabod y Claf ar gyfer yr arbrawf hwn:

FFURFLEN GYDSYNIO

Teitl y Project: Alexithymia, emotional dysregulation and thought suppression in adults with Borderline Personality Disorder (BPD).

Enw'r Ymchwilydd: **Louise Vickers** Llofnodwch y bocsys

1. Cadarnhaf fy mod wedi darllen a deall y daflen wybodaeth, dyddiedig (23/04/13 fersiwn 2), ar gyfer yr astudiaeth uchod. Rydw i wedi cael cyfle i ystyried y wybodaeth a gofyn cwestiynau ac wedi cael atebion boddhaol. ☐

2. Rydw i'n deall fy mod yn cymryd rhan yn wirfoddol ac y gallaf dynnu'n ôl unrhyw bryd, heb roi rheswm a heb i hynny effeithio ar fy hawliau cyfreithiol. ☐

3. Rydw i'n deall y gall adroddiad gael ei ysgrifennu ond na chaf fy enwi yn yr adroddiad hwn. ☐

4. Rydw i'n cytuno i gymryd rhan yn yr astudiaeth uchod. ☐

Enw'r sawl sy'n cymryd rhan	Dyddiad:	Llofnod
Louise Vickers		
Enw'r sawl sy'n derbyn y caniatâd	Dyddiad:	Llofnod

:

Study Number:

Patient Identification Number for this trial:

CONSENT FORM

Title of Project: Alexithymia, emotional dysregulation and thought suppression in adults with Borderline Personality Disorder (BPD).

Name of Researcher: **Louise Vickers** Please initial all boxes

1. I confirm that I have read and understand the information sheet dated (23/04/13 version 2) for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐
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. ☐
3. I understand that a report may be written but I will not be identifiable by name in this report. ☐
4. I agree to my healthcare professional being informed of my participation in the study and giving their opinion whether I appear to experience BPD (if applicable). ☐
5. I agree to the researcher breaking confidentiality if they feel necessary in the case of disclosures made by me. ☐
6. I agree to take part in the above study. ☐

Name of Participant	Date	Signature
Louise Vickers		
Name of Person taking consent	Date	Signature

:

Rhif yr Astudiaeth:

Rhif Adnabod y Claf ar gyfer yr arbrawf hwn:

FFURFLEN GYDSYNIO

Teitl y Project: Alexithymia, emotional dysregulation and thought suppression in adults with Borderline Personality Disorder (BPD).

Enw'r Ymchwilydd: **Louise Vickers** Llofnodwch y bocsys

1. Cadarnhaf fy mod wedi darllen a deall y daflen wybodaeth, dyddiedig (23/04/13 fersiwn 2), ar gyfer yr astudiaeth uchod. Rydw i wedi cael cyfle i ystyried y wybodaeth a gofyn cwestiynau ac wedi cael atebion boddhaol. ☐
2. Rydw i'n deall fy mod yn cymryd rhan yn wirfoddol ac y gallaf dynnu'n ôl unrhyw bryd, heb roi rheswm a heb i hynny effeithio ar fy ngofal meddygol neu hawliau cyfreithiol. ☐
3. Rydw i'n deall y gall adroddiad gael ei ysgrifennu ond na chaf fy enwi yn yr adroddiad hwn. ☐
4. Rydw i'n cytuno i'm gweithiwr proffesiynol gofal iechyd gael gwybod fy mod yn cymryd rhan yn yr astudiaeth a rhoi eu barn a ydyw'n ymddangos bod BPD arnaf (os yw'n berthnasol) ☐
5. Rydw i'n cytuno y gall yr ymchwilydd dorri cyfrinachedd os yw'n teimlo bod angen hynny o ganlyniad i bethau a gaiff eu datgelu gennyf. ☐
6. Rydw i'n cytuno i gymryd rhan yn yr astudiaeth uchod. ☐

Enw'r sawl sy'n cymryd rhan	Dyddiad:	Llofnod
Louise Vickers		
Enw'r sawl sy'n derbyn y caniatâd	Dyddiad:	Llofnod

Demographics

Please give your: Age: _____ Sex: Male ☐ Female ☐

Education level:

What is the highest level of education (full-time or part-time) that you have completed to date? Tick one box only.

No formal education ☐

Primary school education only ☐

Second Level:

Lower secondary education:
(Junior/Intermediate/Group certificate, 'O' Levels/GCSEs, NCVA Foundation Certificate**,** Basic Skills Training Certificate.) ☐

Upper secondary:
(Leaving Certificate, including Applied and Vocational Programmes, 'A' levels, NCVA Level 1 Certificate or equivalent. ☐

Technical or Vocational qualification:
Completed apprenticeship, NCVA Level 2/3 certificate, Certificate/Diploma or equivalent. ☐

Both Upper Secondary and Technical or Vocational qualification ☐

Third Level:

Non Degree:
National Certificate, Diploma, NCEA/Institute of Technology or equivalent Nursing Diploma. ☐

Primary Degree (Third level Bachelor Degree) ☐

Professional qualification (of Degree status at least) ☐

Both a Degree and a Professional qualification ☐

Postgraduate Certificate or Diploma ☐

Postgraduate Degree (Masters) ☐

Doctorate (PhD) ☐

What intervention/ service have you received before from the NHS:?

Individual therapy ☐
Group Therapy (which group? _____) ☐
Other (Please specify) _____

How long have you received that intervention/ service for? _____

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

Name:_____ ID# _____

Total Score:_____ Date:_____

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 behaviors) 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

B. Behaviors (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 behavior (<u>not</u> including suicide attempts or injuring yourself on purpose) Examples are: over-spending, risky sexual behavior, 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 behaviors

C. Behaviors (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

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)

T A S – 20

Using the scale provided as a guide, indicate how much you agree or disagree with each of the following statements, by circling the corresponding number. Give only one answer for each statement.

Circle 1 if you STRONGLY DISAGREE
Circle 2 if you MODERATELY DISAGREE
Circle 3 if you NEITHER DISAGREE NOR AGREE
Circle 4 if you MODERATELY AGREE
Circle 5 if you STRONGLY AGREE

	Strongly Disagree	Moderately Disagree	Neither Disagree Nor Agree	Moderately Agree	Strongly Agree
1. I am often confused about what emotion I am feeling.	1	2	3	4	5
2. It is difficult for me to find the right words for my feelings.	1	2	3	4	5
3. I have physical sensations that even doctors don't understand.	1	2	3	4	5
4. I am able to describe my feelings easily.	1	2	3	4	5
5. I prefer to analyse problems rather than just describe them.	1	2	3	4	5
6. When I'm upset, I don't know if I am sad, frightened, or angry.	1	2	3	4	5
7. I am often puzzled by sensations in my body.	1	2	3	4	5
8. I prefer to just let things happen rather than to understand why they turned out that way.	1	2	3	4	5
9. I have feelings that I can't quite identify.	1	2	3	4	5
10. Being in touch with emotions is essential.	1	2	3	4	5
11. I find it hard to describe how I feel about people.	1	2	3	4	5
12. People tell me to describe my feelings more.	1	2	3	4	5
13. I don't know what's going on inside me	1	2	3	4	5
14. I often don't know why I am angry.	1	2	3	4	5

	Strongly Disagree	Moderately Disagree	Neither Disagree Nor Agree	Moderately Agree	Strongly Agree
15. I prefer talking to people about their daily activities rather than their feelings.	1	2	3	4	5
16. I prefer to watch "light" entertainment shows rather than psychological dramas.	1	2	3	4	5
17. It is difficult for me to reveal my innermost feelings, even to close friends.	1	2	3	4	5
18. I can feel close to someone, even in moments of silence.	1	2	3	4	5
19. I find examination of my feelings useful in solving personal problems.	1	2	3	4	5
20. Looking for hidden meanings in movies or plays distracts from their enjoyment.	1	2	3	4	5

Difficulties in Emotion Regulation Scale (DERS)

Please indicate how often the following statements apply to you by writing the appropriate number from the scale below on the line beside each item.

1	2	3	4	5
almost never (0-10%)	sometimes (11-35%)	about half the time (36-65%)	most of the time (66-90%)	almost always (91-100%)

_____ 1) I am clear about my feelings.

_____ 2) I pay attention to how I feel.

_____ 3) I experience my emotions as overwhelming and out of control.

_____ 4) I have no idea how I am feeling.

_____ 5) I have difficulty making sense out of my feelings.

_____ 6) I am attentive to my feelings.

_____ 7) I know exactly how I am feeling.

_____ 8) I care about what I am feeling.

_____ 9) I am confused about how I feel.

_____ 10) When I'm upset, I acknowledge my emotions.

_____ 11) When I'm upset, I become angry with myself for feeling that way.

_____ 12) When I'm upset, I become embarrassed for feeling that way.

_____ 13) When I'm upset, I have difficulty getting work done.

_____ 14) When I'm upset, I become out of control.

_____ 15) When I'm upset, I believe that I will remain that way for a long time.

_____ 16) When I'm upset, I believe that I will end up feeling very depressed.

_____ 17) When I'm upset, I believe that my feelings are valid and important.

_____ 18) When I'm upset, I have difficulty focusing on other things.

_____ 19) When I'm upset, I feel out of control.

_____ 20) When I'm upset, I can still get things done.

_____ 21) When I'm upset, I feel ashamed at myself for feeling that way.

1	2	3	4	5
almost never (0-10%)	sometimes (11-35%)	about half the time (36-65%)	most of the time (66-90%)	almost always (91-100%)

_____ 22) When I'm upset, I know that I can find a way to eventually feel better.

_____ 23) When I'm upset, I feel like I am weak.

_____ 24) When I'm upset, I feel like I can remain in control of my behaviors.

_____ 25) When I'm upset, I feel guilty for feeling that way.

_____ 26) When I'm upset, I have difficulty concentrating.

_____ 27) When I'm upset, I have difficulty controlling my behaviors.

_____ 28) When I'm upset, I believe there is nothing I can do to make myself feel better.

_____ 29) When I'm upset, I become irritated at myself for feeling that way.

_____ 30) When I'm upset, I start to feel very bad about myself.

_____ 31) When I'm upset, I believe that wallowing in it is all I can do.

_____ 32) When I'm upset, I lose control over my behavior.

_____ 33) When I'm upset, I have difficulty thinking about anything else.

_____ 34) When I'm upset I take time to figure out what I'm really feeling.

_____ 35) When I'm upset, it takes me a long time to feel better.

_____ 36) When I'm upset, my emotions feel overwhelming.

SUBSCALE SCORING:**

1. Nonacceptance of emotional responses (NONACCEPT): 11, 12, 21, 23, 25, 29
2. Difficulty engaging in Goal-directed behavior (GOALS): 13, 18, 20R, 26, 33
3. Impulse control difficulties (IMPULSE): 3, 14, 19, 24R, 27, 32
4. Lack of emotional awareness (AWARENESS): 2R, 6R, 8R, 10R, 17R, 34R
5. Limited access to emotion regulation strategies (STRATEGIES): 15, 16, 22R, 28, 30, 31, 35, 36
6. Lack of emotional clarity (CLARITY): 1R, 4, 5, 7R, 9

Total score: sum of all subscales

**"R" indicates reverse scored item

REFERENCE:

Gratz, K. L. & Roemer, L. (2004). Multidimensional assessment of emotion regulation and dysregulation: Development, factor structure, and initial validation of the Difficulties in Emotion Regulation Scale. *Journal of Psychopathology and Behavioral Assessment, 26,* 41-54.

WBSI

This survey is about thoughts. There are no right or wrong answers, so please respond honestly to each of the items below. Be sure to answer every item by circling the appropriate letter beside each.

A	B	C	D	E
Strongly Disagree	**Disagree**	**Neutral or don't know**	**Agree**	**Strongly Agree**

1. There are things I prefer not to think about. A B C D E

2. Sometimes I wonder why I have the thoughts I do. A B C D E

3. I have thoughts that I cannot stop. A B C D E

4. There are images that come to mind that I cannot erase. A B C D E

5. My thoughts frequently return to one idea. A B C D E

6. I wish I could stop thinking of certain things. A B C D E

7. Sometimes my mind races so fast I wish I could stop it. A B C D E

8. I always try to put problems out of mind. A B C D E

9. There are thoughts that keep jumping into my head. A B C D E

10. There are things that I try not to think about. A B C D E

11. Sometimes I really wish I could stop thinking. A B C D E

12. I often do things to distract myself from my thoughts. A B C D E

13. I have thoughts that I try to avoid. A B C D E

14. There are many thoughts that I have that I don't tell anyone. A B C D E

15. Sometimes I stay busy just to keep thoughts from intruding on my mind. A B C D E

HOSPITAL ANXIETY AND DEPRESSION SCALE (HADS)

(NOTE: Original green version used, NOT this version, provided here for information only)

Clinicians are aware that emotions play an important part in most illnesses. If your clinician knows about these feelings he or she will be able to help you more.

This questionnaire is designed to help your clinician to know how you feel. Read each item below and **underline this reply** which comes closest to how you have been feeling in the past week. Ignore the numbers printed at the edge of the questionnaire. Don't take too long over your replies, your immediate reaction to each item will probably be more accurate than a long, thought-out response.

I feel tense or wound up.

3 Most of the time
2 A lot of the time
1 From time to time, occasionally
0 Not at all

I still enjoy the things I used to enjoy

0 Definitely as much
1 Not quite so much
2 Only a little
3 Hardly at all

I get a sort of frightened feeling as if Something awful is about to happen

3 Very definitely and quite badly
2 Yes, but not too badly
1 A little, but it doesn't worry me
0 Not at all

I can laugh and see the funny side of things

0 As much as I always could
1 Not quite so much now
2 Definitely not so much now
3 Not at all

Worrying thoughts go through my mind

3 A great deal of the time
2 A lot of the time
1 Not too often
0 Very little

I feel cheerful

3 Never
2 Not often
1 Sometimes
0 Most of the time

I can sit at ease and feel relaxed

0 Definitely
1 Usually
2 Not often
3 Not at all

I feel as if I am slowed down

Nearly all the time 3
Very often 2
Sometimes 1
Not at all 0

I get a sort of frightened feeling like 'butterflies in my stomach'

Not at all 0
Occasionally 1
Quite often 2
Very often 3

I have lost interest in my appearance

Definitely 3
I don't take as much care as I should 2
I may not take quite as much care 1
I take just as much care as ever 0

I feel restless as if I have to be on the move

Very much indeed 3
Quite a lot 2
Not very much 1
Not at all 0

I look forward with enjoyment to things

As much as I ever did 0
Rather less than I used to 1
Definitely less than I used to 2
Hardly at all 3

I get sudden feelings of panic

Very often indeed 3
Quite often 2
Not very often 1
Not at all 0

I can enjoy a good book or radio or television programme

Often 0
Sometimes 1
Not often 2
Very seldom 3

Part of the research infrastructure for Wales funded by the National Institute for Social Care and Health Research, Welsh Government.
Yn rhan o seilwaith ymchwil Cymru a ariannir gan y Sefydliad Cenedlaethol ar gyfer Ymchwil Gofal Cymdeithasol ac Iechyd, Llywodraeth Cymru

NISCHR RES
Gwasanaeth Moeseg Ymchwil | Research Ethics Service

Pwyllgor Moeseg Ymchwil Gogledd Cymru - Y Orllewin
North Wales Research Ethics Committee - West

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13 May 2013

Dear Miss Vickers,

Study title:	**Alexithymia, emotional dysregulation and thought suppression in adults with Borderline Personality Disorder**
REC reference:	**13/WA/0036**
IRAS project ID:	**121140**

Thank you for your letter of 10 May 2013, responding to the Committee's request for further information on the above research and submitting revised documentation.

The further information has been considered on behalf of the Committee by the Chairman.

We plan to publish your research summary wording for the above study on the NRES website, together with your contact details, unless you expressly withhold permission to do so. Publication will be no earlier than three months from the date of this favourable opinion letter. Should you wish to provide a substitute contact point, require further information, or wish to withhold permission to publish, please contact the Coordinator, Dr Rossela Roberts, at rossela.roberts@wales.nhs.uk

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised, subject to the conditions specified below.

Ethical review of research sites

The favourable opinion applies to all NHS sites taking part in the study, subject to management permission being obtained from the NHS/HSC R&D office prior to the start of the study (see "Conditions of the favourable opinion" below).

Conditions of the favourable opinion

The favourable opinion is subject to the following conditions being met prior to the start of the study.
Management permission or approval must be obtained from each host organisation prior to the start of the study at the site concerned.

Management permission ("R&D approval") should be sought from all NHS organisations involved in the study in accordance with NHS research governance arrangements.

Guidance on applying for NHS permission for research is available in the Integrated Research Application System or at http://www.rdforum.nhs.uk.

For non-NHS sites, site management permission should be obtained in accordance with the procedures of the relevant host organisation.

Sponsors are not required to notify the Committee of approvals from host organisations

It is the responsibility of the sponsor to ensure that all the conditions are complied with before the start of the study or its initiation at a particular site (as applicable).

Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

Document	*Version*	*Date*
REC application (submission 121140/427636/1/782)		25 March 2013
Protocol	2	23 April 2013
Participant Information Sheet: Patients	2	23 April 2013
Participant Information Sheet: Controls	2	23 April 2013
Participant Information Sheet: Patients (Welsh Language translation)	2	23 April 2013
Participant Information Sheet: Controls (Welsh Language translation)	2	23 April 2013
GP/Consultant Information Sheets	1	04 February 2013
GP/Consultant Information Sheets	1	21 March 2013
Participant Consent Form: Patients	2	23 April 2013
Participant Consent Form: Controls	1	04 February 2013
Participant Consent Form: Patients (Welsh Language translation)	2	23 April 2013
Participant Consent Form: Controls (Welsh Language translation)	1	04 February 2013
Other: Debrief Form	1	06 March 2013
Other: Eligibility Screening Tool	1	23 April 2013
Questionnaire: TAS 20		
Questionnaire: HADS		
Questionnaire: BEST BPD		
Questionnaire: DERS		
Questionnaire: WBSI		
Investigator CV		21 March 2013
Other: Academic Supervisor CV		21 March 2013
Letter from Sponsor		21 March 2013
Evidence of insurance or indemnity	UMAL	09 July 2012
Response to Request for Further Information		10 May 2013

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

After ethical review

Reporting requirements

The attached document *"After ethical review – guidance for researchers"* gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments
- Adding new sites and investigators
- Notification of serious breaches of the protocol
- Progress and safety reports
- Notifying the end of the study

The NRES website also provides guidance on these topics, which is updated in the light of changes in reporting requirements or procedures.

Feedback

You are invited to give your view of the service that you have received from the National Research Ethics Service and the application procedure. If you wish to make your views known please use the feedback form available on the website.

Further information is available at National Research Ethics Service website > After Review

13/WA/0036	**Please quote this number on all correspondence**

We are pleased to welcome researchers and R & D staff at our NRES committee members' training days – see details at http://www.hra.nhs.uk/hra-training/

With the Committee's best wishes for the success of this project.

Yours sincerely

Rossela Roberts

Mr Derek James Crawford, MBChB, FRCS
Chair

E-mail: rossela.roberts@wales.nhs.uk

Enclosure: "After ethical review – guidance for researchers"

Copy:

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Panel Arolygu Mewnol Y&D - Y Dwyrain
R&D Internal Review Panel - East

Betsi Cadwaladr University Health Board
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LL57 2PW

Chairman/Cadeirydd – Dr Nefyn Williams PhD, FRCGP
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Miss Louise Vickers
North Wales Clinical Psychology Programme
School of Psychology, Bangor University
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20 May 2013

Dear Miss Vickers

Re: Confirmation that R&D governance checks are complete / R&D approval granted

Study Title	Alexithymia, emotional dysregulation and thought suppression in adults with Borderline Personality Disorder (version 1)
IRAS reference	121140

Thank you for your letter of 15 May 2013 and the amended documents which have been approved by the Research Ethics Committee.

The Documents received were as follows:

Document:	Version	Date
RD letter- changes from REC scan	-	15/05/2013
Research Protocol	2	23/04/2013
Eligibility Screening Tool - Patients	1	23/04/2013
Participant Information Sheet - Controls	2	23/04/2013
Participant Information Sheet – Controls - translated	2	23/04/2013
Participant Information Sheet – Patients	2	23/04/2013
Participant Information Sheet – Patients - translated	2	23/04/2013
Consent Form - Patients	2	23/04/2013
Consent Form – Patients - translated	2	23/04/2013
Consent Form – Controls - translated	1	04/02/2013

The Chairman considered the response on behalf of the Internal Review Panel and is satisfied with the scientific validity of the project, the risk assessment, the review of the NHS cost and resource implications and all other research management issues pertaining to the revised application.

The Internal Review Panel is pleased to confirm that all governance checks are now complete and to grant approval to proceed at Betsi Cadwaladr University Health Board sites as described in the application.

The final list of approved documentation for the study is therefore as follows:

Document:	Version	Date
R&D Form – 121140/427642/14/769	-	21/03/2013
SSI Form – 121140/428835/6/249/185045/268343	-	25/03/2013
R&D Checklist	-	-
SSI Checklist	-	-
Protocol	2	23/04/2013
Sponsor Letter Bangor University	-	21/03/2013
Employers' Liability Insurance	-	09/07/2013
Email: University Review letter of approval	-	18/03/2013
Eligibility Screening Tool - Patients	1	23/04/2013
Professionals Information Sheet	1	04/02/2013

Participant Information Sheet - Patients	2	23/04/2013
Participant Information Sheet – Patients - translated	2	23/04/2013
Participant Information Sheet - Controls	2	23/04/2013
Participant Information Sheet – Controls - translated	2	23/04/2013
Letter to GP v1 dated 21-03-2013	1	21/03/2013
Consent Form - Patients	2	23/04/2013
Consent Form – Patients - translated	2	23/04/2013
Consent Form - Control	1	04/02/2013
Consent Form – Controls - translated	1	04/02/2013
Debrief statement	1	06/03/2013
Non-validated questionnaire - Demographics v1 dated 04-02-2013	1	04/02/2013
BESTBPDSeverityScale	1.7	-
T A S - 20	1	04/02/2013
DERS with scoring	1	04/02/2013
WBSI scale	1	04/02/2013
HADS scale	1	04/02/2013
CV – M Swales	1	21/03/2013
CV – L Vickers	1	21/03/2013
Response letter to R&D Chair – Dr N. Williams	-	01/05/2013
RD letter- changes from REC scan	-	15/05/2013

All research conducted at the Betsi Cadwaladr University Health Board sites must comply with the Research Governance Framework for Health and Social Care in Wales (2009).
An electronic link to this document is provided on the BCUHB R&D WebPages.
Alternatively, you may obtain a paper copy of this document via the R&D Office.

Attached you will find a set of approval conditions outlining your responsibilities during the course of this research. Failure to comply with the approval conditions will result in the withdrawal of the approval to conduct this research in the Betsi Cadwaladr University Health Board.

If your study is adopted onto the NISCHR Clinical Research Portfolio (CRP), it will be a condition of this NHS research permission, that the Chief Investigator will be required to regularly upload recruitment data onto the portfolio database.
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If you would like further information on any other points covered by this letter please do not hesitate to contact me.

On behalf of the Panel, may I take this opportunity to wish you every success with your research.

Yours sincerely,

Dr Nefyn Williams PhD, FRCGP
Associate Director of R&D
Chairman Internal Review Panel

Section 3:

Literature Review

CLINICAL PSYCHOLOGY REVIEW

AUTHOR INFORMATION PACK

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DESCRIPTION

Clinical Psychology Review publishes substantive reviews of topics germane to **clinical psychology**. Papers cover diverse issues including: psychopathology, psychotherapy, behavior therapy, cognition and cognitive therapies, behavioral medicine, community mental health, assessment, and child development. Papers should be cutting edge and advance the science and/or practice of clinical psychology.

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Childhood adversity and attachment in Borderline Personality Disorder: A developmental pathway?

Running Head: Childhood Adversity and Attachment in BPD

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Abstract

Adverse early environments have been proposed as a risk factor for the development of Borderline Personality Disorder (BPD). An adverse early environment involving trauma, separation or maltreatment is likely to impact on the attachment relationship between child and caregiver. This review systematically explores research that has examined a link between an early adverse attachment environment and BPD. Methodological characteristics and study findings are reviewed and discussed. In spite of a lack of research that directly assessed attachment in childhood, the evidence from prospective and retrospective studies suggest that individuals with BPD report significantly more childhood adversity than comparison groups. Findings from this review highlight the role of the parent, particularly the mother in the parent-child relationship, as potentially influential on the development of BPD. The majority of studies found greater prevalence of childhood sexual abuse in BPD samples, but some research suggests that it is the combination of childhood sexual abuse and some form of parental neglect, such as a lack of care, that is of importance, suggesting influence of attachment worthy of further investigation. Implications of these findings for theory, future research and clinical practice are discussed.

1. Introduction

Borderline personality disorder (BPD) is characterised by a pervasive instability of emotional dysregulation, behavioural impulsivity leading to self-harm and suicidality and disturbed interpersonal functioning (Skodol et al., 2002). Often described as a severe and chronic disorder, BPD is reported to be prevalent in an estimated 1% to 6% of the general adult population (Grant et al., 2008; Torgersen, Kringlen & Cramer, 2001). Current diathesis-stress theories of the origins of BPD have proposed a central role for the interaction between a child's genetic vulnerability and adverse or harsh treatment in childhood (Crowell, Beauchaine & Linehan, 2009; Fonagy, Target & Gergely, 2000; Gunderson & Lyons-Ruth, 2008). However, the exact nature and causes of the childhood antecedents of BPD remains unclear. Previous studies have suggested a role for mother-child interactions in the development of BPD. Therefore, attachment theory may be highly relevant.

Attachment theory centres on the idea that a child exhibits pre-programmed behaviour patterns in the first few months of life that act to maintain close proximity to a primary caregiver. This formation of a secure base is the basis from which the child explores the world, and impacts on subsequent development (Bowlby, 1988). Despite the apparent relevance of attachment theory to the development of BPD, there is currently little consensus on the relationship and the question whether an adverse early attachment environment is a risk factor for the development of BPD remains. This paper therefore systematically reviews the empirical studies that have examined the potential relationship between insecure attachment and the development of BPD. This will be addressed through examination of studies that assess both childhood experiences that involve adversity, and likely impact on the attachment relationship, and the later development of BPD in adults.

1.1 Attachment theory

Bowlby's (1973, 1977, 1980) attachment theory proposed a lifelong attachment behavioural system which promotes proximity and feelings of security. Beginning with an infant's innate tendency to seek closeness and maintain a bond and safety with a caregiver, attachment behaviours become organised around care giving figures and are elicited at times of physical or emotional distress (Karen, 1994). Through interactions with those around them, the theory proposes that children form a set of assumptions or "working models" about themselves and their capabilities, and about what they can expect from others (Sable, 1997). These internal representations are a set of conscious or unconscious rules for the organisation of information relevant to attachment, which lead to individual difference and impact on feelings and behaviour, as well as attention, memory and cognition (Main, Kaplan & Cassidy, 1985). Cognitive and affective internal representations persist throughout the lifespan and are used to assess conditions of the moment, direct and shape future relationships and how one relates to the world (Bowlby, 1988).

When caregivers are accessible, sensitive and responsive to their child's needs, internal working models will likely reflect security and confidence in the reliability of others as well as feelings of oneself as competent and worthy of care and comfort. With this secure base as a foundation, children can explore new experiences and relationships in the world with confidence and return to an attachment figure for comfort if required (Bowlby, 1988; Karen, 1994; Sable, 1994). The attachment system is part of an evolution-based functional biological system that increases the likelihood of protection from dangers and predation, and comfort during times of stress (Levy, 2005). In fact, some theorists argue that the fundamental survival gain of attachment lies not only in eliciting a protective caregiver response, but also in the experience of psychological containment of aversive affect states required for the development of a coherent and symbolizing self (e.g. Fonagy, 2001).

Bowlby (1988) described a range of care giving behaviours, from child abuse and/or neglect, lack of affirmation of the child's perceptions or feelings, to threats to abandon or withhold love, which can undermine the development of secure attachment (Sable, 1997). Ainsworth, Blehar, Waters and Wall (1978) identified three distinct patterns or styles of infant–mother attachment; secure, avoidant and anxious–ambivalent. Later, a fourth category specified as disorganised was also added (Ainsworth & Eichberg, 1991; Hesse & Main, 2000; Main & Solomon, 1986, 1990).

1.2 BPD

BPD is a chronic and debilitating problem for individuals. Although considered relatively prevalent in the general population, prevalence of BPD is even higher among psychiatric populations. Approximately 10% of psychiatric outpatients, 20% of inpatients and 6% of primary care patients are estimated to meet the Diagnostic and Statistical Manual of Mental Disorders (DSM, 4th ed., text revision; DSM-IV-TR; American Psychiatric Association, 2000) criteria for BPD (Gross et al., 2002; Lenzenweger, Loranger, Korfine & Neff, 1997; Torgersen, Kringlen, & Cramer, 2001). There is a reported three to one, female to male gender ratio in BPD (APA, 2000). BPD also shows extensive co morbidity with a range of other disorders such as mood and anxiety disorders, bipolar disorder and schizotypal and narcissistic personality disorder (Grant et al., 2008). Self-injurious behaviours are particularly prevalent in individuals with BPD, occurring in an estimated 69-75% of cases (Kjellander, Bongar & King, 1998). Patients with BPD are often at high risk of suicide with a completed suicide rate of between 3% and 9.5% (McGlashan, 1986; Paris, 1999). Thus, BPD represents a serious, public health problem, particularly for mental health services and for those individuals who experience the features.

1.3 Potential risk factors for the development of BPD- early adverse environment

Recent research suggests that effective prevention and early intervention for BPD are possible, but improved means to identify children at risk are needed (Chanen, Jovev, McCutcheon, Jackson &

McGorry, 2008). The aetiology of BPD still remains unclear. Although a diagnosis of BPD has typically been reserved for individuals who are 18 years or older[1], literature has suggested a link with childhood experiences (Harman, 2004).

A limited number of empirical studies in recent years have attempted to identify potential risk factors for the development of BPD. Factors include biological vulnerability and environmental factors. Incidents of sexual abuse have frequently been reported in adults with BPD and are perhaps one of the most researched factors. Recalled sexual abuse and neglect by patients with BPD is very high; above 90% in some studies (Hill, Swales & Byatt, 2005). Laporte and Guttman, (1996) reviewed 751 psychiatric records of female patients aged 15 to 45 years with a diagnosis of personality disorder (PD) and found that compared with 74% of the women with other PD's, over 93% of the women with BPD experienced at least one form of separation or abuse in childhood. Further analyses revealed that the most important risk factors for the development of BPD were verbal, physical and sexual abuse and a history of adoption. Laporte and Guttman (1996) examined separation and abuse variables separately, and then developed a composite score of traumatic childhood experiences. Of course, separation in childhood can occur without the presence of abuse and vice versa, so it is important for studies to clarify the exact nature of adverse experiences reported. Furthermore, Zanarini et al., (2002) examined the severity of sexual abuse reported by 290 BPD inpatients and the relationship between childhood sexual abuse, other forms of childhood abuse and neglect and severity of BPD symptoms. Results showed that childhood sexual abuse severity was significantly related to symptom severity and overall severity of BPD and psychosocial impairment, as was severity of childhood neglect and other forms of childhood abuse.

[1] The latest version of DSM-5 (APA, 2013) has removed the distinction between Axis I and Axis II disorders, to a single axis system. BPD can sometimes be diagnosed before age 18, in which case the features must have been present and consistent for at least one year.

While it is likely that childhood trauma such as abuse and neglect have a role in the development of BPD, very little is known regarding their importance compared with other risk factors or of possible causal mechanisms. A meta-analysis of 21 studies assessing possible associations between childhood sexual abuse and BPD found only a moderate pooled effect size (Fossati, Madeddu & Maffei, 1999). It seems that sexual abuse alone is not sufficient to cause BPD, so it is likely that more specific aspects of childhood adversities and other vulnerability factors need to be identified. Levy et al., (2006) have suggested that among patients reporting abuse (physical and sexual), those who scored low on reflective function (RF: quality of mentalisation; the capacity to evoke and reflect on one's own experience to make inferences about behaviour in oneself and others) were more likely to be diagnosed with BPD than those who were abused but scored high on RF. Thus, Levy et al., (2006) suggest that higher RF may be a possible buffer against the development of BPD in individuals who have experienced abuse.

Other potential risk factors for the development of BPD from a limited number of studies include attachment style, individual temperament, adolescent eating disorders, anxiety and depression, and attention deficit hyperactivity disorder (ADHD) and oppositional defiant disorder (ODD) (Harman, 2004; Stepp, 2012). Burke and Stepp (2011) in a prospective study of 177 boys found that childhood symptoms of ODD and ADHD as well as marijuana use predicted BPD symptoms at age 24. Stepp, Burke, Hipwell and Loeber (2012) found that ADHD and ODD symptoms at age eight predicted BPD symptoms at age 14 in a longitudinal study of girls. Such studies highlight a potential developmental pathway from childhood ADHD and ODD to BPD in adolescence. Recently, a growing body of research has begun to focus on possible developmental trajectories associated with BPD, in order to ascertain the factors involved in the aetiology of BPD. Consequently, the role of attachment in the development of BPD has gained focus, likely due to the relevance of attachment to early life and potential to impact later development. This aspect and the potential risk factors associated with it will be the focus of the current review.

1.4 Attachment and BPD

The developmental psychopathology framework within attachment theory offers a unique window for exploring the development and maintenance of the behaviours, symptoms, and dynamics that characterize people with BPD. Researchers and theorists have begun to understand fundamental aspects of BPD such as unstable, intense interpersonal relationships, feelings of emptiness, bursts of rage, chronic fears of abandonment and intolerance for aloneness, and lack of a stable sense of self as potentially stemming from impairments in the underlying attachment organization (Blatt, Auerbach, & Levy, 1997; Fonagy et al., 1996; Gunderson, 1996; Levy & Blatt, 1999; Yeomans & Levy, 2002). Many of such difficulties are interpersonal in nature. Change in attachment representations as a social-cognitive and affective construct has been hypothesised as a potential mechanism by which patients with BPD improve (Levy et al., 2006). However, this pathway is not yet clearly demonstrated in the literature. Research has found that subsets of maltreated children are able to form secure attachments to one of their parents or a substitute caregiver (Cicchetti & Barnett, 1991; Crittendon, 1992).

Additionally, many previous studies do not sufficiently use designs that allow for consideration of childhood experiences and later development of BPD. A previous review of borderline patients and attachment found 13 studies on the topic (Agrawal, Gunderson, Holmes and Lyons-Ruth, 2004). This review however included studies that used diverse samples (in and outpatients, college students), varied attachment assessment methods (self-reports and interviews), various comparison groups and a range of diagnostic methods. Ball and Links (2009) review assessed evidence for a causal relationship between childhood trauma and BPD, specifically applying Hill's (1984) criteria for demonstrating causal relationships. These criteria included strength of association, temporality, dose-response, specificity, consistency, epidemiologic and biological plausibility and analogy. Results suggested that childhood trauma plays a role in a multi-factorial model of the aetiology of BPD. However, this review did not quantify strength of association through the use of meta-analytic procedures and did not describe an

inclusion or exclusion criteria for studies in the review. Many of the studies included were studies that examined childhood sexual abuse, but many other factors may also constitute 'trauma'. Similarly, Levy, Beeney and Temes (2011), review of attachment in BPD did not describe systematic procedures and focused on attachment only. Therefore, previous research has not conclusively addressed the role of attachment in the development of BPD and there is much about this pathway that is unknown.

1.5 Aim of this review

Given the paucity of reviews outlining the evidence that an early adverse attachment environment is a risk factor for BPD, and that this area constitutes a relatively new and emerging area of interest, there is a need for the current evidence to be consolidated in the form of a systematic review. The current review involves rigorous inclusion criteria and will allow for examination of research designs that consider both adverse childhood experiences (that impact the attachment relationship) and an adult diagnosis of BPD in order to address the research question. This narrative review will specifically aim to answer the research question; is an adverse early attachment environment a risk factor for the development of BPD in adulthood? The current review differs significantly to the previous review conducted (Agrawal, et al., 2004), as studies that assess current attachment style in adults with BPD using only a cross-sectional design will not be considered. In this review adversity in childhood that may impact attachment relationships will be considered. This review also differs to the Levy et al., (2011) review of attachment literature and BPD, as both literature investigating early childhood trauma and attachment will be considered. The results of this review can thus inform and guide future research and clinical practice in this promising area of inquiry for individuals with BPD.

2. Method

2.1 Search strategy

A comprehensive electronic search was conducted for studies published using the PsychInfo, Web of Science and PubMed databases. The search was restricted to English language articles published in peer reviewed journals from 1984 to 2014. The search strategy was conducted for all three databases using the subject terms, adverse childhood environment OR attachment relationships OR maternal relationships AND borderline personality disorder OR BPD.

This initial search yielded 699 papers which were published between 1984 and 2014. Two hundred and thirty studies were duplicates.

2.2 Inclusion/ exclusion criteria

The following inclusion criteria were used: a) the article was published in English, b) use of quantitative research methods only, c) use of a design that allows for investigation of childhood experiences that involve adversity (such as trauma, separation, maltreatment) and BPD symptoms later in life (either retrospectively or using a prospective, longitudinal design), d) the study must use a sample that is over 16 years of age that have met the criteria for a clinical or sub clinical diagnosis of BPD. If an adolescent sample was used the study must have used a reliable and valid assessment tool to assess for the presence of BPD symptoms, e) the study must have included a measure of BPD features using either the DSM criteria or the International Classification of Diseases (ICD) classification systems, or other non self- report validated measure to assess presence of BPD.

Exclusion criteria were a) studies that included samples with significant diagnostic co-morbidities such as forensic diagnoses (e.g. violent offending) and substance use disorder, and b) studies that assessed for current attachment style in an adult BPD sample cross-sectionally, without assessing for prior experiences.

Self-reported attachment scales often focus on close relationships in adolescence and adulthood, and thus differ from measures that focus on the parent-child relationship studied in the attachment literature (Bartholomew & Shaver, 1998). Therefore, self-reported attachment assessments were excluded.

The electronic searches of the literature identified 699 papers (see Figure 1). Following screening of the titles and abstracts of these papers the number of eligible studies that met the inclusion criteria was 21. The first author screened out 230 papers for duplication. The remaining 448 papers were excluded for the following reasons; a non-relevant study, an inappropriate sample, a review or theoretical paper, a book chapter, dissertation article, not being in English, not being a peer reviewed publication and for the paper not being available. Hand searching and citation searching retrieved a further 18 papers that met the inclusion criteria (four from citation searching, 14 from hand searching). This led to 39 full-text articles being accessed and evaluated that were deemed relevant to the topic of investigation. Information was then extracted from each of the studies to enable assessment of the feasibility of inclusion of the paper in the systematic review. The list of information extracted from each of the studies were, author, title, year, sample size and characteristics including mean age of sample, study design, diagnostic criteria for BPD and measures used.

Following this evaluation, a further 13 articles were excluded for use of an inadequate diagnostic assessment *(n*=8), inclusion of significant co-morbidities in a sample (*n*= 2) and a sample under 16 years of age (*n*= 3). Therefore a total of 26 papers remained meeting the inclusion criteria. Figure 1 shows the process for selecting studies and is based upon the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA; Moher, Liberati, Tetzlaff, & Altman, 2009) guidelines.

Insert Figure 1 here

3. Search results

3.1 Descriptive characteristics of studies- Table 1

The majority of studies were retrospective studies (*n*= 21) of childhood adversity, that included assessment of various variables such as abuse, neglect, separation, traumatic events, witnessing violence and parental bonding in adolescents and adults with BPD. One study specifically sought to investigate attachment mental states and inferred pathways of development in BPD (Barone, Fossati, & Guiducci, 2011). This study and another study (Patrick, Hobson, Castle, Howard & Maughan, 1994) used the Adult Attachment Interview (AAI; George, Kaplan & Main, 1985; Main, Goldwyn, & Hesse, 2002) assessment tool. The AAI is a widely used semi-structured interview assessment tool of attachment. While the AAI does elicit information concerning an individual's *current* mental state related to attachment figures (cross-sectional assessment of attachment style is an exclusion criteria for this review), it also generates information related to prior experiences in childhood; which is relevant to this review. The interview inquires about past relationships with significant attachment figures and aspects such as separation and loss, which is then coded and scored. The results of the quantitative aspects of the Barone et al., (2011) study will be included in the current review.

The remaining studies (*n*= 5) were longitudinal, prospective studies. These studies followed subjects over time for assessment. Participants in the Lyons-Ruth, Bureau, Holmes, Easterbrook and Hall-Brooks (2013) study were from families that had participated in a longitudinal study since infancy (18 months). The authors assessed the participants again in late adolescence to assess whether observed quality of parent-child interaction in infancy and middle childhood contributed to the prediction of borderline symptoms in late adolescence (mean 19.9 years). Similarly, Carlson, Egeland and Sroufe (2009) participants were drawn from a longitudinal study of parents and children from birth and followed-up for assessment of BPD features at age 28 years. Other variables were also assessed throughout infancy, childhood, adolescence and at age 16 years.

Widom, Czaja and Paris (2009) study sample constituted a large group of children with documented childhood physical and sexual abuse and neglect compared to a matched comparison group who were followed up into adulthood. Due to the matching procedure, the subjects were assumed to differ only in the risk factor of having experienced childhood abuse or neglect. Participants were assessed at two time points in adulthood, at mean age 29.2 years and 39.5 years respectively.

In the Stepp, Olino, Klein, Seeley and Lewinsohn (2013) study, participants completed two assessments during adolescence (ages 14-16 years) and were followed-up for a third and fourth evaluation when participants were on average 24 years and 30 years old, respectively, in order to assess adolescent antecedents on adult BPD features. Crawford, Cohen, Chen, Anglin and Ehrensaft (2009) specifically focused on early maternal separation as a risk factor for BPD features in early adolescence to middle adulthood. This study assessed participants at two or more differing time-points spanning a full decade. Mothers provided data about early separations for the child before the age of 5 years.

A variety of comparison groups were included in the studies. The majority of studies compared subjects with BPD to subjects with other psychiatric diagnoses (*n*= 10). A small number of studies (*n*= 5) used an overall PD sample and then compared different personality diagnoses for the variables assessed. Some studies (*n*= 4) used healthy subjects as a comparison group. Two studies included both comparison subjects with psychiatric diagnoses and healthy individuals. One study compared children that had not been separated from their mother before the age of 5 years, to those who had experienced separation. Four studies did not include a comparison group.

Of the studies that reported the gender of participants in their final sample (*n*= 24), studies used predominately female participants and four studies analysed data from a female population only. The mean age range of participants in the studies was between 16.1 years and 43.2 years. Most studies

reported including participants from a range of relationship statuses (i.e. single, married, and divorced) and a range of ethnic backgrounds. Results from 21 retrospective studies include a total of 5,353 participants, with 1,506 participants with BPD included in studies and 1,120 participants included in comparison groups. Of particular note is the level of attrition in those studies that used longitudinal designs. The number of participants recruited in each study ranged from 56 to 1,196. However, out of the total 3,909 participants recruited across longitudinal studies, data from 3,013 participants was fully analysed. Table 1 provides a descriptive account of each of the studies included in the systematic review.

Insert Table 1 here

3.2 Measurement of adverse childhood experiences and/or attachment

Various measures of childhood adversity were included in the studies and one widely used standard measure for assessing childhood adversity was not apparent. A number of studies used assessment tools that specifically assessed for childhood trauma (*n*= 10) and used measures such as the Childhood Trauma Questionnaire (CTQ; Bernstein & Fink, 1998) (*n*= 3), which is a retrospective self-report instrument that assesses for childhood maltreatment. Seven other studies assessed for maltreatment and/ or abuse variables. The remaining studies used assessments of childhood experiences, family environment/ experiences, infant temperament and loss events. Another measure used of note is the Parental Bonding Questionnaire (PBQ; Parker, Tupling & Brown, 1979), which was used in six studies. This is a self-report questionnaire that focuses on perceived parental contribution or parenting style to the parent-child relationship. Two subscales are computed for each parental figure; care/affection and over-protection/control. The majority of studies did not use observational or interview based assessments of attachment.

3.3 Measurement of BPD

The majority of studies included in the review used DSM criteria structured clinical interview schedules for diagnosis of PD. This is considered a valid and reliable assessment measure of a diagnosis of BPD (Hurt & Brown, 1984). Some studies included an additional measure of BPD as well as using DSM criteria, such as the DIB-R; Revised Diagnostic Interview for Borderlines (Gunderson & Zanarini, 1992). The only study that reported not using specific DSM related criteria interviews was the Stepp et al., (2013) study, which used the International Personality Disorder Examination (IPDE; Loranger et al., 1994) which is a semi-structured clinical interview compatible with the International Classification of Diseases (DSM-IV and ICD-10 classification criteria). The samples therefore, could be considered representative of those with a diagnosis of BPD.

4. Study findings summary

Relationship between early adverse environment impacting attachment and BPD

4.1 Prospective studies

Some of the most illuminating findings in this area are likely to arise from prospective studies, since such designs assess participants over time, directly tracking development and minimise the influence of biases associated with retrospective accounts. Stepp et al., (2013) found a significant association between maternal-child discord and maternal support and later development of BPD features, suggesting a role for the quality of the parent-child relationship and attachment for the development of BPD, as well as the wider family environment. Stepp et al., (2013) did not specifically assess for trauma variables and focused on early maladaptive family functioning. A limitation of this study is that low base rates of BPD were found in the sample which meant that BPD diagnosis was unable to be examined and symptom count was used instead. Therefore, results of this study may not be generalisable to patient samples. Although, the authors did note that individuals with elevated BPD symptoms have previously

been shown to have clinical and functional impairments comparable to individuals with a formal BPD diagnosis (Clifton & Pilkonis, 2007).

Carlson et al., (2009) found significant links between BPD features (adulthood) and temperament, attachment disorganisation, maltreatment (physical & sexual abuse), parental hostility, life stress history in early childhood, and with parent-child relationship disturbance. Similarly, Crawford et al., (2009) found significant associations for history of abuse, inconsistent mothering and low maternal satisfaction with child and later BPD features. Interestingly, this study also found an effect for early separation from the mother before age 5 years in predicting elevations in BPD symptoms up to 30 years later. Lyons-Ruth et al., (2013) also found that maternal withdrawal in infancy was a significant predictor of BPD features. Widom et al., (2009) found that significantly more abused and/or neglected children met criteria for BPD as adults, compared to controls. Unusually, individuals with a history of child sexual abuse were not at increased risk of BPD in this study.

What emerges from these findings is the importance of the role of the parent-child relationship and the later development of BPD features. In the above prospective studies, variables such as parental hostility, parent-child relationship disturbance, inconsistent mothering, low maternal satisfaction with child and early separation from the mother were all found to be significantly related to development of BPD. These variables would impact on the parent-child relationship and subsequent attachment, suggesting that this aspect may be particularly influential in the development of BPD features, with a potential influencing role of the mother. The consistent findings from prospective studies that maltreatment and history of abuse or neglect were significantly associated with later development of BPD also provide support for the hypothesis that an early adverse attachment environment is a risk factor for BPD. One could speculate that as a result of experiencing maltreatment or neglect, the parental attachment bond is impacted, either by the perpetrator of the abuse being also the caregiver or by the

failure of the caregiver to provide adequate protection or security to the maltreated child. Results of prospective studies highlight the importance of early experience, particularly adversity and interactions with parents in the development of BPD features.

4.2 Retrospective studies

All 20 retrospective studies found significant associations between childhood adversity, such as trauma, neglect and separation and later development of BPD symptoms. One study (Minzenberg, Poole & Vinogradov, 2006) found that childhood sexual abuse was significantly associated with the motor impulsivity feature of BPD, but did not include analyses that allowed for consideration of overall development of BPD. The main findings of each of the studies included in the review are detailed in Table 1. First, the study with the largest sample of BPD participants included in the review will be discussed. Then the findings surrounding childhood sexual abuse, caregiver separation and participant's perceptions of mother will be discussed, as they emerged as significant findings from the synthesised studies, and are highly relevant to the research question that we set out to address. Finally, a study that included siblings of participants with BPD will be discussed, as this study provides a unique insight into variables that distinguish between individuals that develop BPD and those who do not, but have experienced a similar early environment.

From the retrospective studies, Battle et al., (2004) had the largest sample of participants with BPD and found that only one Axis II PD diagnosis, BPD, predicted any of the seven childhood neglect experiences assessed. BPD diagnosis was also associated with caretaker's physical neglect, emotional withdrawal, denial of patient's feelings, and caretaker's failure to protect the patient from harm. Of interest are the rates of reporting of specific adverse childhood experiences by participants (n= 214) with BPD. Seventy percent of participants reported experiencing caretaker's emotional withdrawal, the most frequent reported individual experience. Ninety percent reported experiencing any type of neglect and

81% reported experiencing any type of abuse. These results regarding abuse, neglect and emotional withdrawal were consistent with Zanarini et al's., (1997) study of 358 adults with BPD. While it seems that adverse childhood experiences such as abuse and neglect are precursors to the development of BPD, caretaker's emotional withdrawal also appears a significant factor. Caretaker's emotional withdrawal would also impact on the attachment relationship between child and caregiver. One could infer that a secure attachment base would be difficult to establish in the presence of consistent emotional withdrawal from a caregiver. Caretaker's emotional withdrawal was reported as the most frequent individual experience by Battle et al., (2004) and significantly reported by participants in the Zanarini et al., (1997) study, along with being treated inconsistently and failure to provide adequate protection. This suggests that caretaker's emotional withdrawal may be an important factor in the early experiences of adults with BPD, potentially leading to disrupted attachment to a caregiver.

Some complexity exists surrounding the role of childhood sexual abuse and development of BPD features, as other factors may be at play when sexual abuse is present. Byrne, Velamoor, Cernovsky and Cortese (1990) found that patients with BPD reported significantly more childhood sexual abuse than patients with schizophrenia, and most frequently reported that the abuse was committed by someone outside the family. Weaver and Clum (1993) corroborated these findings. Ogata et al., (1990) found that patients with BPD reported significantly higher rates of childhood sexual abuse (perpetrated not only by parents) than depressed patients. Van Djike et al., (2011) found significant between group differences for emotional and physical traumatisation by primary caretaker (TPC) but not for sexual TPC in adults with BPD compared with adults with other psychiatric disorders. Findings of increased levels of childhood sexual abuse suggest a possible role for individuals not feeling protected by parents as a potential crucial early life factor, in addition to the experience of sexual abuse in some cases. This suggests more so an emotional abuse/neglect pathway to the development of BPD features. The findings

of the other retrospective studies would be consistent with this view, in terms of caregiver emotional withdrawal, inconsistency and failure to provide adequate protection as significant variables.

Nickell, Waudby and Trull (2002) suggest that childhood sexual abuse may be accounted for in analyses by presence of co-morbid non-BPD PD symptoms, and that this highlights the importance in considering non-BPD PD symptoms in investigations focusing on BPD correlates. Results of this study were supported by Golier et al., (2003) and Lobbesteal, Arntz and Sieswerda (2005). Nickell et al., (2002) found that parental bonding and perception of a lack of caring from one's mother was significantly associated with BPD features beyond that accounted for by gender or childhood adversity (i.e. loss, sexual abuse, physical abuse). These findings suggest that childhood sexual abuse alone is not predictive of later development of BPD, which is consistent with Joyce et al's., (2003) findings that while childhood abuse is an important risk factor for BPD, it is neither necessary nor sufficient. Combining child abuse with parental neglect was a more powerful risk factor (Joyce et al., 2003). The findings regarding childhood sexual abuse and BPD in the current systematic review are consistent with the findings of a previous meta-analytic review of 21 studies by Fossati et al., (1999).

Byrne et al., (1990) found that participants with BPD reported more maternal separation in the first five years of life than the comparison group. In the Helgeland and Torgersen (2004) and Weaver and Clum (1993) studies, separation from caretaker was not significant as a developmental antecedent of BPD. However, Helgeland and Torgersen (2004) used ratings from hospital records to acquire the data, which may not have been as reliable as use of a self-report questionnaire or interview used in other studies. Maternal separation was significant in the Crawford et al., (2009) prospective study. Therefore, results are mixed from studies on maternal separation and BPD.

The association of BPD features with perceptions of mothers being less caring and more overprotective/ high control in childhood is another finding that has emerged from this review (Modestin, Oberson & Erni, 1998; Patrick, Hobson, Castle, Howard & Maughan, 1994; Nickell et al., 2002). Such ratings may reflect an individuals conflicted and contradictory perception of one's mother (not caring but overprotective) and alternating images of a caregiver (Nickell et al., 2002). Perceptions of this nature are likely influential on the development of mental representations of significant caregivers early in life, and with ways to relate to others and the world later in life, which is described in attachment theory. Results of an association of perception of mothers as being less caring and more overprotective/ high control in childhood provide support for the relevance of attachment theory in conceptualising the role of early experiences in adults with BPD.

The findings from this review regarding maternal separation and crucial perceptions of mothers point to an important role of the mother-child relationship in the later development of BPD. No previous study has sought to evaluate this aspect in this way, and the findings of the current review provide preliminary evidence for this. Parental bonding patterns and attachment styles show a unique relationship with borderline features and should be considered in etiological models of BPD (Nickell et al., 2002). Conflicting results come from one study; Hernandez, Arntz, Gaviria, Labad and Gutiérrez-Zotes (2012), which found no relationship between BPD criteria and parental care and overprotection. This finding is interesting in that a significant association was found between childhood emotional and sexual abuse and BPD, in this study. The fact that parenting style was not significant may have been due to differences in variables controlled in the analysis. It is unclear from whom the emotional abuse would be experienced by participants if it were not from parents, which one would expect to impact on reports of parental care. This may have been lost in the analysis when controlling for co-occurring variables.

Laporte, Paris, Guttman and Russell (2011) included siblings of subjects with BPD in their retrospective study. This allowed for consideration of the complexity of influence of temperamental and/or environmental risk and protective factors. The use of siblings provided support for the validity of retrospective data on childhood adversities as recall bias did not seem to be relevant, as siblings provided similar reports of childhood experiences of abuse and neglect and parent-child relationships (Laporte et al., 2011). Therefore, results of this study give a unique insight into the adverse childhood experiences that may be risk factors for BPD. Participants with BPD reported experiencing more emotional abuse and intra-familial sexual abuse than their sisters. Laporte et al., (2011) suggest a role for sensitivity to adverse experiences and personality traits such as affective instability and impulsivity in development of psychopathology. Results of this study may suggest that very specific forms of childhood adversity, such as the experience of perceived emotional abuse, and not all childhood adversity, can lead to the development of psychopathology. The sisters of those with BPD experienced childhood adversity but did not develop psychopathology. Affective instability and impulsivity personality traits may be impacted by early emotional abuse and other forms of abuse. This is an important conclusion that has previously been speculated upon but not been demonstrated in previous studies.

5. Discussion

5.1 Summary of findings

The current review sought to explore links between adverse early attachment environment as a risk factor for the development of BPD. We found an abundance of papers that assessed adversity in childhood in individuals with BPD, but far fewer assessed childhood attachment. Consequently, we reviewed studies on adversity in childhood, and those that assessed attachment; as such studies can provide valuable evidence that allow for inferences about childhood attachment in adults with BPD to be made. This finding is clearly a challenge of conducting research that seeks to assess childhood

attachment as a number of studies included in this review did not directly assess attachment via observational or interview means.

Nonetheless, the findings of the current review suggest a definite role for childhood adversity in the later development of BPD. The majority (*n*= 17) of retrospective studies found significant associations between childhood adversity, such as trauma, neglect and separation and later development of BPD symptoms. A number of studies (*n*= 12) found that patients with BPD reported significantly higher rates of childhood sexual abuse than other clinical or healthy comparisons. However, other studies (*n*= 2) found similar associations between non-BPD PD diagnoses and childhood sexual abuse, as the associations found for BPD patients. These findings suggest that while childhood sexual abuse is an important risk factor in the development of BPD, it is not exclusive to the development of BPD and likely not sufficient to suggest that it is a necessary precursor to the development of BPD. The combination of childhood sexual abuse and some form of parental neglect, such as a lack of care, may be a more potent risk factor for BPD. Indeed, findings supporting a lack of care did emerge from the literature. BPD features were found to be associated with perceptions of mothers being less caring and more overprotective/high control in childhood in studies. This provides for the first time, a new perspective on the role of adversity in the development of BPD.

Prospective studies particularly highlighted the role of the mother in the parent-child relationship as potentially influential on the development of BPD. Variables such as parental hostility, parent-child relationship disturbance, inconsistent mothering, low maternal satisfaction with child and early separation from the mother all have been found to be significantly related to development of BPD. However, due to the nature of the design of the majority of the studies included in this review, it is not possible to draw firm conclusions surrounding a causal role of attachment in the development of BPD. Inferences can be made that attachment seems to be a potential pathway worthy of further investigation.

5.2 Implications for theory and clinical practice

Findings that maternal-child discord and maternal dissatisfaction with the child predicted BPD symptoms in adulthood suggests relevance for a larger context of "invalidation" that the child may experience consistent with Linehan's (1993) biosocial theory. Linehan (1993) proposed that the development of BPD occurs in part due to an invalidating family environment that results in poor emotion regulation abilities. An environment characterised by neglect, physical, emotional or sexual abuse is viewed as invalidating. The findings of this review and previous research that abuse alone is neither necessary nor sufficient for the development of BPD are consistent with Linehan's theory. The combination of childhood abuse with some form of parental neglect may be a more powerful predictor of BPD (Joyce et al., 2003). Parental abuse and neglect also impacts on the formation of a secure attachment relationship, with results of this review consequently lending support to the relevance of attachment theory to the development of BPD.

Extended early separation assessed in some of the studies could be a long-term risk factor for BPD in so far as it reflects a lack of maternal investment in care giving (Crawford et al., 2009). Separations may be difficult for the child to understand, and may lead them to blame themselves for the mothers' absence. Similarly, experiencing a lack of protection or care from a caregiver may result in both outrage at the caregiver and a feeling of being unworthy of love or protection. Cognitions of this nature may influence a child's mental representation of self and others and impact on 'internal working models', such as being unworthy of love and expectations of others to act similarly in rejecting them, described in Bowlby's theory (1973, 1977, 1980). Representations of this nature would undermine attachment security (Crawford et al., 2009) and may be carried into adulthood to manifest in the form of the behavioural and affective features of BPD.

Results of this review may influence choice of intervention used to address the difficulties faced by individuals with BPD. There is commonality of concepts in various therapeutic approaches with some variation in the particular focus. While awareness of the early environment and experiences as a risk factor for BPD appears important, this may not need to be the direct focus of intervention. Debate surrounding the hypothesis that BPD may be a trauma-related disorder or variant of posttraumatic stress disorder (PTSD) (Herman, Perry & van der Kolk, 1989; Gunderson & Sabo, 1993) still remains and whether it is necessary for treatment to specifically address trauma. Golier et al., (2003) suggested that their results did not support the idea that BPD should be singled out from other PD's as a trauma-spectrum disorder or variant of PTSD. Results of this review suggest that trauma in the form of adversity may be particularly influential in the development of BPD, but we did not set out to address whether it is necessary to address trauma in the treatment of adults with BPD.

Both of the most widely used intervention approaches for the treatment of BPD are present-focused in nature and seek to address previously acquired 'internal working models' of individuals that involve hyper-sensitivity. Mentalisation Based Therapy (MBT; Bateman & Fonagy, 2004, 2006) places a particular focus on maintaining a stable attachment relationship between the patient and therapist and views the individual with BPD as being sensitive to overstimulation of their attachment processes, due to neglect in early relationships. Therefore this therapeutic approach integrates elements of attachment theory and mentalisation theory (Fonagy, 1989). The findings of this review would suggest that MBT would be a useful treatment for BPD, particularly with MBT's focus on attachment.

Dialectical Behaviour Therapy (DBT; Linehan, 1993a, 1993b) is currently the most frequently investigated psychosocial intervention for BPD and has been found to be an effective treatment for BPD (Kleim, Kroger & Kosfelder, 2010). DBT focuses primarily on the individual's difficulties in emotion regulation with strong emphasis on behavioural theory to achieve this. DBT as a therapeutic approach

does not directly address childhood trauma or neglect, but clearly elements of the therapy take into account such prior experiences and their potential consequences on functioning. Previous findings have found that child abuse and neglect are associated with affect dysregulation (van Djike et al., 2011; Ford, 2005), suggesting that early-life attachment trauma might impact on affect regulation ability. In the context of DBT's biosocial theory, invalidation is the critical socially mediated etiological process, whereas emotional vulnerability is the key biological factor. Emotional vulnerability refers to a biologically mediated predisposition for heightened sensitivity and reactivity (i.e., quick and strong reactions) to emotionally evocative stimuli, as well as a delayed return to baseline emotional arousal (Lynch, Chapman, Rosenthal, Kuo & Linehan, 2006). One could argue that the dialectical balance between validation and change interventions in DBT is a particularly efficient way of fostering secure attachment experiences within the therapeutic relationship that may generalise to other interpersonal relationships (Prunetti et al., 2008). With this conceptualisation of DBT in mind, it would also be a useful approach for addressing difficulties related to BPD, consistent with the results of this review.

Therefore, results of intervention studies suggest that psychotherapy does not have to specifically focus on prior childhood adversity to be effective, but understanding of the possible causes of BPD and mechanisms through which the core features have developed are integrated into treatment interventions in order to address such features. The results of this review provide support for the usefulness of the concepts of both intervention approaches outlined above; that of validation and dialectical strategies of DBT and hyper-sensitivity of the attachment system of MBT. Further understanding of such developmental pathways can only be beneficial for future research and practice in contributing to much needed further refinement of the mechanisms of change of intervention approaches.

5.3 Limitations of present research

Limitations of the current systematic review involve the design used. A narrative review was conducted in which meta- analytic procedures were not used. A lack of consistency in the measures used across studies impeded meta-analysis. Future research could focus on more consistency in measures used. Some studies (*n*= 4) did not include a comparison group. Without a comparison group, it is not possible to disentangle true effects from the effects of passage of time, measurement artefacts or expectancy effects.

A large number of retrospective studies were included in this review and may be limited in that developmental data can be distorted by memory and reporting biases. The concept of 'effort after meaning' may be relevant to retrospective studies. This concept suggests that when it comes to remembering past occurrences, people attempt to make their recollections conform to cultural expectations, prior background, knowledge, or the current context (Bartlett, 1932). The narrative of events people construct in order to give meaning to their lives or make sense of what was previously experienced can thus be influenced. Memory of events may not be a factual recording of what has occurred but rather individuals may try to fit what they remember with what they really know and understand about the world, thus limiting the accuracy of recall of events. This limitation is not as likely to occur in prospective, longitudinal studies, but few studies of this design are included in the current review. Therefore, results of this review from retrospective studies should be viewed tentatively.

Another limitation involves the adequate assessment of attachment. In so far as this review is an attempt to understand the childhood risk factors for BPD, which draws heavily on attachment theory, the review is limited by the lack of any observational measure of attachment in the parent-child relationship, and relies on recall of such relationships. This means it can be unclear whether attachment insecurity experienced in childhood mediates long-term associations between early adverse experiences and subsequent development of BPD.

Symptom count was used instead of formal diagnosis in some prospective studies (Lyons-Ruth et al., 2013; Stepp et al., 2013). This may limit the generalisability of these results to patient samples. However, one could argue that the use of community participants rather than patients allows for prospective associations observed to be representative of the development of BPD that unfolds in the general population (Stepp et al., 2013).

A potential limitation surrounds co-morbidity. Significant diagnostic co-morbidities in studies were excluded form the current review, in an attempt to gain results regarding a 'pure' sample of adults with BPD. Co-morbidities excluded were violent offending and substance-use disorder. While set as an exclusion criterion from the outset, only one study emerged that included co-morbid substance-use disorder and was excluded for specific reasons. To this effect, inclusion of diagnostic co-morbidity studies would not have impacted greatly on the results of the present review.

5.4 Implications for future research

Future studies may need to take into account maternal separation and/or withdrawal as well as maltreatment variables in future investigations of the developmental trajectory of BPD. Childhood maternal separation and/or withdrawal have not been considered as frequently as maltreatment variables such as childhood sexual abuse in studies with BPD participants. Future research could also include observational methods such as use of the Strange Situation procedure (Ainsworth, Blehar, Waters & Wall, 1978) to assess parent-child interactions and attachment and follow-up participants in adulthood. This would give a more accurate measurement of attachment than retrospective accounts or current assessment of attachment in adulthood, yet may have practical difficulties in linking with later development of BPD features in a given sample. Further longitudinal studies that prospectively assess the effects of childhood adversity variables on the later development of psychopathology and studies

that involve high risk children and twin or adopted children are also required, which may provide valuable insight into the developmental trajectory of BPD.

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* Denotes papers included in the systematic review

Figures and tables

Figure 1: Flow diagram of study selection process

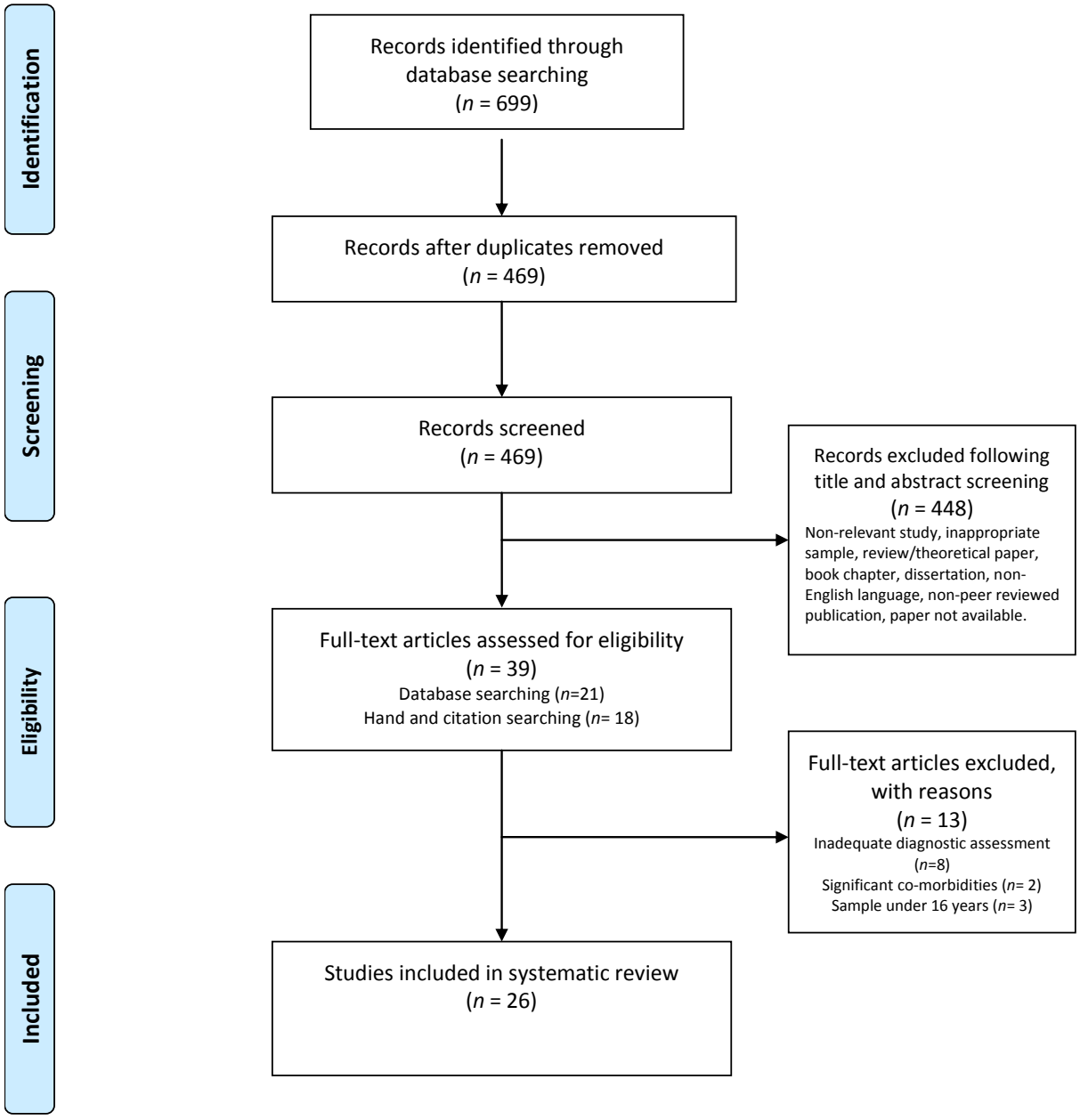

Table 1: Summary table of studies in review

Study number and reference	Study design	Sample population & setting	Diagnostic method	*N*	Comparison group	Measures used	Main findings
1. Carlson et al., 2009	Prospective	Parents & children at risk for parenting problems in community, followed-up at 28 yrs for BPD features. Adult psychiatric outpatients with BPD	DSM SCID/NP Research version	*N*= 162 (80 females, 82 males)	None	DES, SIB, AHS,NBAS, CITQ, maltreatment history, attachment quality,maternal hostility, family disruption, stressful life events	Significant links between BPD features (adulthood) and temperament, attachment disorganisation, maternal history of serious medical problems, maltreatment (physical & sexual abuse), parental hostility, life stress history in early childhood and with parent-child relationship disturbance in middle childhood/early adolescence.
2. Crawford et al., 2009	Prospective, longitudinal	Adolescent & adult community sample from previous childhood study, assessed at mean ages 13.7, 16.1, 22.0 and 33.1 years.	Personality Diagnostic Questionnaire + DSM-IV items	Total= 766 BPD= unclear *N*= 35 for early separation	Children not separated from mother before age 5 years (*N*= unclear)	Maternal separation, child temperament, maternal risk factors, child maltreatment	Maternal separation before age 5 years significantly associated with BPD symptoms in adolescence and adulthood. Temperament, history of abuse, inconsistent mothering and low maternal satisfaction with child were significant predictors of BPD symptoms.
3. Lyons-Ruth et al., 2013	Prospective, longitudinal	Infants and adults in community	SCID for DSM-IV-R for AXIS II	56 adults (female= 41%) BPD= 2% of sample, 41% for 1or more symptom of BPD	None	3 childhood abuse assessments, infant attachment security, mother-infant communication, child behaviour	Maternal withdrawal in infancy and disorganised-controlling child behaviour at age 8 years, significant predictor of borderline symptoms. Maternal withdrawal was independent of, and additive to, severity of childhood abuse.

Study number and reference	Study design	Sample population & setting	Diagnostic method	*N*	Comparison group	Measures used	Main findings
4. Stepp et al., 2013	Prospective, longitudinal	Adolescent community sample assessed at 4 time points (T) from adolescence to adulthood (T4 assessed for BPD features)	International Personality Disorder Examination (clinical interview)	Total= 1,709 T4= 816 (female, 480, male, 336)	None	K-SADS, DSM-III-R/IV for Axis I disorders, and items assessing interactions with family members	Family cohesion, maternal support, and maternal-child discord at T2 associated with later BPD symptoms. Maternal BPD and paternal substance use disorder predicted BPD symptoms in adulthood.
5. Widom et al., 2009	Prospective, longitudinal	Abused and/or neglected children matched with non-victimised children followed prospectively into adulthood, assessed at two time points (T)	SCI for DSM-III-R Adapted from DIPD-R	Total *N*= 1,196 at T1, (female, 582, male 614,) 896 at T2 (female, 457, male, 439) *N*= 500 inc in analysis	396 matched group who have not experienced childhood abuse or neglect	Assessed for other psychiatric disorders only	Significantly more abused and/or neglected children overall met criteria for BPD as adults, compared to controls, as did physically abused and neglected children. Surprisingly, individuals with history of child sexual abuse were not at elevated risk of BPD.
6. Bandelow et al., 2005	Retrospective	Adult psychiatric outpatients with BPD	DSM-IV SCID-II	Total= 175 BPD= 66 (Female 47, male 19)	*N*= 109 healthy controls (female 66, male, 43)	Questionnaire assessing traumatic events in childhood, parental attitudes, birth risk factors	Significantly more patients than controls reported that they had experienced traumatic experiences such as separation from parents, childhood sexual abuse, growing up in foster homes, adoption, criminality or violence in the family, inappropriate parental rearing styles, and lack of loving care.
7. Barone et al., 2011	Retrospective	Adults with BPD (four sub-groups; BPD and anx/MDD used). Inpatient and outpatient psychotherapy waitlist subjects	DSM-IV SCID-II	Total= 140 BPD + Anx/MD= 40 (Female 29, male 11)	None. BPD + substance use, alcohol use & eating disorders	AAI	Significantly higher mean score than other sub-groups for Involving anger (father) and (mother) scale on AAI, suggesting most critical experience for individuals with BPD and risk factor for difficulty in regulating anger.
8. Battle et al., 2004	Retrospective	Adults with PD. Outpatient community; patients seeking treatment at 4 research sites.	DSM-IV PD's + either SNAP or PAF	Total= 517 BPD= 214	*N*= 83 diagnosed with MDD without PD	CEQ-R	Significantly higher rates of all types of abuse than comparison group. BPD more consistently associated with childhood abuse and neglect than other PD diagnoses.

Study Number and reference	Study design	Sample population and setting	Diagnostic method	*N*	Comparison group	Measures used	Main findings
9. Bierer et al., 2003	Retrospective	Adults with PD from outpatient psychiatric clinics	SCI for DSM-III, Revised, PD	Total= 182 (female, 64, male, 118) BPD= 71 (female, 32, male, 39)	None. Other PD's.	CTQ	Global trauma severity was predictive of BPD. Trauma scores not significantly associated with BPD, but significant gender interactions for individual predictors, with emotional abuse being the only significant trauma predictor, only in men.
10. Byrne et al., 1990	Retrospective	Adults with BPD. Inpatients and outpatients from a psychiatric hospital	DSM-III	BPD= 15 (female, 13, male, 2)	*N*= 14 patients with schizophrenia	CLEFCQ, PBI	BPD subjects reported more childhood sexual abuse, more serious physical abuse, more early maternal separation, more paternal criminality, higher paternal overprotection and lower maternal care than comparison group.
11. Golier et al., 2003	Retrospective	Adult outpatients with a diagnosis of PD	SCI for DSM-III-R Personality, Revised	Total =180 (female 63, male 117) BPD= 72	None. Other PD's	Trauma History Questionnaire	Subjects with BPD had significantly higher rates of physical abuse in childhood/adolescence than PD subjects without BPD with gender controlled but the groups did not differ in their rates of sexual abuse or of other types of trauma in childhood/adolescence.
12. Helgeland & Torgersen, 2004	Retrospective	Adult community sample, previously admitted to an adolescent psychiatric unit	SCI for DSM-IV Personality SIDP-IV	*N*=25 (female, 16, male, 9)	107 non BPD clinical control subjects	Medical records rated for 16 variables.	Five significant variables for BPD compared to controls; abuse, neglect, environmental instability, parental psychopathology and having few protective factors.
13. Hernandez et al., 2012	Retrospective	Inpatient & outpatient adults	SCI for DSM-IV Axis II PD (SCID-II)+ DIB-R	Total= 109 (females only) BPD= 32	43 patients with one or more PD, non BPD + 34 clinical non-PD	CTQ, PBI, SCL-90-R	Significant association between emotional and sexual abuse and BPD. No relationship between BPD criteria and parental care and overprotection.

Study Number and reference	Study design	Sample population and setting	Diagnostic method	*N*	Comparison group	Measures used	Main findings
14. Joyce et al., 2003	Retrospective	Adult outpatients with depression evaluated for PD	SCID-PQ + DSM-III-R Axis II SCID-II	Total= 180 (female, 106, male, 74) BPD= 30 (female, 17%, male, 16%)	None. Other PD's	Neglect-PBI, Childhood abuse, temperament-TCI,	While childhood abuse an important risk factor for BPD, it neither necessary nor sufficient. Combining child abuse with parental neglect more powerful risk factor. Also effect for interaction of abuse and/or neglect with borderline temperament.
15. Laporte et al., 2011	Retrospective	Adults with BPD and their sisters from outpatient psychiatric clinics	DSM-IV-TR + DIB-R	56 adults with BPD and their sisters (female only)	56 sisters (3 pairs with BPD, most psychopathology free)	SCL-90, DAPP-BQ, CTI	Both groups reported dysfunctional parent-child relationships and a high prevalence of childhood trauma. BPD group experienced more emotional abuse and intra-familial sexual abuse. Affective instability and impulsivity predicted DIB-R scores above and beyond trauma.
16. Liotti & Pasquini, 2000	Retrospective	Adults with BPD, inpatients and outpatients	DSM-III-R SCID-II	*N*=66 (female 47, male, 19)	146 clinical non-BPD controls (female, 103, male, 43)	DES, QLE, ITI	Losses of mother within 2 years of patient's birth and patients early traumatic experiences predictive of development of BPD.
17. Lobbesteal et al., 2005	Retrospective	Adults with BPD and Antisocial PD (APD) from psychiatric hospitals, community mental health team & correctional institutions.	DSM-IV SCID II	BPD= 16 (Female, 8, male, 8)	16 patients with antisocial PD, 16 healthy controls (Female, 8, male, 8) both groups	Childhood abuse-interview for traumatic events Schema Mode Questionnaire	Groups with BPD and APD reported significantly higher rates of the three kinds of abuse than the non-patient group. Prevalence and severity of abuse did not differ between the two PD groups. Women reported significantly more sexual abuse than men.
18.Minzenberg et al., 2006	Retrospective	Adult outpatients with BPD	DSM-IV SCID-II	*N*= 40 (88.4% female)	Non-clinical healthy controls *N*= unclear	CTQ, IIP	Childhood sexual abuse significantly associated with motor impulsivity (feature of BPD).

Study Number and reference	Study design	Sample population and setting	Diagnostic method	*N*	Comparison group	Measures used	Main findings
19. Modestin et al., 1998	Retrospective	Adult inpatients with PD	DSM-III-R SCID-II-PQ+ PDE	Total = 90 (female, 47, male, 42) BPD= 23	None, other PD's	PBI, CTI	Childhood traumatic experiences of sexual and physical abuse significantly associated with BPD symptoms in women. Maternal low care and high control was also significantly associated with BPD symptoms, mainly in women.
20. Nickell et al., 2002	Retrospective	18 year old non-clinical community sample assessed for BPD	DSM-IV SIDP-IV DIB-R	*N*= 393 (female, 54.3%) BPD= unclear	None	FEI, PBI	Parental bonding and perception of a lack of caring from one's mother significantly associated with BPD features beyond that accounted for by gender or childhood adversity.
21. Ogata et al., 1990	Retrospective	Adult inpatients at a university medical centre	DSM-III DIB	BPD= 24 (female, 19, male, 5)	18 adults with depression (female, 13, male, 5)	Familial Experiences Interview- abuse, neglect, separation etc assessed	Subjects with BPD reported significantly higher rates of childhood sexual abuse than depressed subjects. Sixty-five percent of abused BPD subjects reported multiple abuses and abusers; experiencing both sexual and physical abuse & multiple perpetrators of sexual abuse.
22. Patrick et al., 1994	Retrospective	Adult females on a psychotherapy waitlist for a hospital.	DSM-III-R	Total=24 (females only) BPD= 12	12 adults with Dysthymia	PBI, AAI	BPD features significantly associated with enmeshed and unresolved patterns on AAI, and with low maternal care and high maternal overprotection on PBI.
23. Pietrik et al., 2013	Retrospective	Adult inpatients at a psychiatric centre	ICD-10	Total= 160 BPD= 41 (female, 37, male, 4)	85 healthy control subjects + MDD + schizophrenia patients	Early Trauma Interview, Borderline Symptom List	BPD patients had experienced more adversities across childhood than other clinical subjects. Sexual abuse particularly pronounced in BPD patients. Early (3-5 years) and adolescent (14-16 years) adverse experiences, or sexual abuse and emotional abuse explained variance to BPD diagnosis.

Study Number and reference	Study design	Sample population and setting	Diagnostic method	*N*	Comparison group	Measures used	Main findings
24. van Dijke et al., 20111	Retrospective	Adult psychiatric inpatient and outpatient sample	DSM-IV clinical interview BPDSI	Total= 472 BPD= 120 (female, 80, male, 40)	None. Other psychiatric disorders	SIDES-rev, BVAQ, TEC,	BPD significantly associated with reporting of traumatisation by a primary caregiver (TPC) (70-80% of group). BPD and Somatoform Disorder group reported the most complex trauma histories, with more reports for severe physical TPC and more emotional TPC, for BPD group than other psychiatric groups.
25. Weaver & Clum, 1993	Retrospective	Adult inpatients with depression	Personality Disorder Exam for DSM-III-R criteria	Total = 36 (female only) BPD= 17	19 non BPD clinical group	MFES, LES, FES, early experiences of FEI, incidents of physical abuse & witnessing DV	More BPD subjects significantly reported histories of sexual & physical abuse and witnessed violence than non BPD group. Sexual abuse only significant predictor of dimensional BPD scores. Control dimension of family environment significantly predicted BPD score.
26. Zanarini et al., 1997	Retrospective	Adult psychiatric inpatient sample	SCI for DSM-III-R+ DIB-R	Total= 467 BPD= 358 (female, 276, male, 82) Other PD= 109 (female, 61, male, 48)	Other PD's	Revised Childhood Experiences Questionnaire	91% of BPD subjects reported having been abused and 92% reported being neglected before the age 18 yrs. BPD subjects significantly more likely to report having been emotionally and physically abused by a caretaker and sexually abused by a non-caretaker than other PD group. Significantly more likely to report having a caretaker withdraw from them emotionally, treat them inconsistently, and fail to provide them with needed protection than comparison group.

BPD= Borderline Personality Disorder, DSM= Diagnostic and Statistical Manual for Mental Disorders, MDD= Major depression disorder, ANX= Anxiety, AAI= Adult Attachment Interview, PD= Personality Disorder, SNAP= Schedule for Adaptive and Nonadaptive Personality, PAF= Personality Assessment Form, CTQ= Childhood Trauma Questionnaire, CLEFCQ= Childhood Life Events and Family Characteristics Questionnaire, PBI= Parental Bonding Instrument , SCID/NP= Structured Clinical Interview for DSM Disorders, Research Version, DES= Dissociative Experiences Scale, SIB= Self-injurious Behaviour Questionnaire, AHS= Adult Health Survey, NBAS= Neonatal behavioural Assessment Scale, CITQ= Carey Infant Temperament Questionnaire, SCI= Structured Clinical Interview, SIDP-IV= Structured Interview for DSM-IV Personality, CEQ-R= Childhood Experiences Questionnaire-Revised, DIB-R= Revised Diagnostic Interview for Borderlines, SCL-90-R= Revised Symptom Checklist-90-R, SCID-PQ= Structured Clinical Interview for DSM-III-R- Personality Questionnaire, TCI= Temperament and Character Inventory, DAPP-BQ= Diagnostic Assessment of Personality Pathology, Brief Questionnaire, CTI= Childhood Trauma Interview, DES=Dissociative Experiences Scale, QLE= Questionnaire on Loss Events, ITI= Infancy Trauma Interview, IIP= Inventory of Interpersonal Problems, PDE= Personality Disorder Examination, FEI= Familial Experiences Interview, ICD-10= International Classification of Disorders- 10, K-SADS= Schedule for Affective Disorders and Schizophrenia for School-Age Children, BPDSI= Borderline Personality Disorder Severity Index, SIDES-rev= Structured Interview for Disorders of Extreme Stress Not Otherwise Specified, Revised, BVAQ= Bermond Vorst Alexithymia Questionnaire, TEC= Traumatic Experiences Checklist, MFES= Moos Family Environment Scale, LES= Life Experiences Survey, FES= Family Experiences Survey, DV= Domestic Violence.

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Alexithymia, emotional dysregulation and thought suppression in adults with Borderline Personality Disorder

Running Head: Alexithymia and Emotion Regulation in BPD

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Abstract

The aim of this study was to explore the relationship between alexithymia, emotional dysregulation and thought suppression in adults with borderline personality disorder (BPD). A sample of 20 adult psychiatric outpatients with BPD was compared to a control sample of 26 healthy adults. Alexithymia was measured using the Toronto Alexithymia Scale (TAS-20), while controlling for potential confounding effects of anxiety and depression. The Difficulties in Emotion Regulation Scale (DERS) and the White Bear Suppression Inventory (WBSI) were used to assess emotional dysregulation and thought suppression in all participants. Results revealed that individuals with BPD were significantly more alexithymic than the healthy subjects, independent of presence of anxiety and depression. Individuals with BPD also showed greater levels of emotional dysregulation and thought suppression than controls. These results suggest that individuals with BPD may oscillate between unhelpful strategies that involve both under-regulation (emotional dysregulation) and over-regulation (alexithymia and thought suppression) of affect. Previous research has primarily focused on under-regulation of affect in BPD, but results of this study suggest that it may be beneficial for future investigations and clinical practice to additionally address over-regulation of affect in BPD. Alexithymia and thought suppression may be influential in emotional dysregulation and impulsive behaviours that are characteristic of BPD. Theoretical and clinical implications of these results are discussed.

Keywords: Borderline personality disorder, alexithymia, emotional dysregulation, thought suppression, emotions.

Introduction

Alexithymia, literally meaning ‘a lack of words for emotion’ encompasses a cluster of cognitive and affective characteristics (Sifneos, 1973). The alexithymia construct is composed of the following features:

(v) difficulty identifying feelings and linking feelings to bodily sensations associated with emotional arousal;

(vi) difficulty describing feelings to other people;

(vii) constricted imaginal processes, as evidenced by a lack of fantasies and a stimulus-bound, externally oriented cognitive style.

(Nemiah, Freyberger & Sifneos, 1976; Taylor, Bagby & Parker, 1991).

Alexithymia has been postulated as one of several possible personality risk factors for a variety of medical and psychiatric disorders, including; psychosomatic disorders, somatoform disorders, compulsive behaviours such as binge eating, substance abuse, anorexia nervosa and anxiety and depressive disorders. Alexithymia is a continuous dimensional construct (or personality trait) and is best considered in terms of dimension of severity (Taylor, Bagby & Parker, 1997; Taylor & Bagby, 2013).

Alexithymia may be an influencing factor in the social and emotional functioning of individuals with BPD. Despite the plausibility of a link between alexithymia and BPD, few studies have investigated the area. The majority of previous research using psychiatric outpatient, and non-patient samples reported significant associations of BPD with alexithymia (Berenbaum, 1996; Evren, Cinar & Evren, 2012; Loas, Speranza, Pham-Scottez, Perez-Diaz and Corcos 2012; Modestin, Furrer & Malti, 2004; New et al., 2012; Webb & McMurran, 2008; Zlotnick, Mattia & Zimmerman, 2001). Only two previous studies included adult clinical BPD samples (Karaklic, Thuile, Granger, Secret & Bungener, 2011; New et al., 2012).

BPD is characterised by severe cognitive, behavioural and emotional dysregulation (Kuo, Korslund & Linehan, 2006). Diagnostic criteria for BPD describe a pervasive pattern of instability of interpersonal relationships, self-image and affects, and marked impulsivity beginning by early adulthood (American Psychiatric Association, 2000a). BPD falls within Cluster B Personality Disorder (PD). PD's are grouped into three clusters based on phenotypic similarity: Cluster A (schizoid, schizotypal, paranoid); Cluster B (borderline, antisocial, histrionic, narcissistic); and Cluster C (avoidant, dependent, obsessive– compulsive) (APA, 2000a). The prevalence of BPD is estimated at 0.2% to 1.8% in the general population (Linehan, 1993). The lifetime prevalence of self-injurious acts (up to 75%) and completed suicide (approximately 10%) is extremely high in individuals with BPD (Clarkin, Widiger, Frances, Hurt, & Gilmore, 1983). BPD is also associated with substantial impairment in social, psychological, occupational functioning and quality of life (National Institute for Health and Clinical Excellence, 2009).

Linehan's (1993) biosocial theory posits that BPD is primarily a dysfunction of the emotion regulation system. Emotional dysregulation (under-regulation of affect) in BPD is characterised broadly by difficulty in up- and down- regulating physiological arousal, such that emotions become uncontrolled, are expressed in intense forms and overwhelm reasoning (Lynch, Chapman, Rosenthal, Kuo & Linehan, 2006; Zittel, Conklin, Bradley & Westen, 2006). Despite this underlying premise, remarkably little research has investigated the prevalence and nature of emotional dysregulation in BPD (van Dijke, 2012). Linehan's (1993) model of BPD additionally has suggested that individuals with BPD experience a tendency to continually resort to avoid or inhibit the experience and expression of painful, emotional reactions. 'Inhibited grieving' refers to a pattern of repetitive, significant trauma and loss which can take many forms, together with an inability to fully experience and integrate or resolve theses events, thus continuing a vicious cycle.

Alexithymia and thought suppression may be considered forms of over-regulation of affect, due to their prominent inhibitory tendencies, and may be relevant to Linehan's (1993) inhibited grieving concept. A small body of literature has shown that thought suppression is significantly associated with BPD and may mediate relationships between risk factors for the disorder and symptom severity, but few studies have included individuals that fulfil BPD features (Baer, Peters, Eisenlohr-Moul, Geiger & Sauer, 2012). Van Dijke, et al., (2010) found that BPD was associated with under-regulation of affect, but also one in five patients with BPD reported substantial over-regulation of affect. No empirical study, to our knowledge, has assessed aspects relevant to both under-regulation of affect (emotional dysregulation) and over-regulation of affect (alexithymia and thought suppression) simultaneously in a BPD sample.

Further evidence for a potential role of alexithymia in BPD comes from research on emotional intelligence and facial emotion recognition. Alexithymia has been found to be inversely correlated with emotional intelligence (Parker, Taylor & Bagby 2001). Domes, Grabe, Czieschnek, Heinrichs and Herpertz (2011) study of alexithymic traits and facial emotion recognition in BPD, suggested that as well as individuals with BPD having difficulties with introspection and in describing their emotional states, such patients also seem more likely to show deficits in facial emotion recognition, which in turn might lead to misinterpretations of social signals and contribute to dysfunctional emotional arousal in social situations. This may result in the heightened emotional sensitivity and reactivity observed in individuals with BPD.

Theoretical considerations of alexithymia suggest that the features of alexithymia reflect deficits in both the cognitive processing and regulation of emotions (Taylor et al, 1997). Such deficits underlying alexithymia have been attributed, in part to an arrest in affect development during early childhood (Lane & Schwartz, 1987; Taylor et al., 1997). Lane and Schwartz (1987) integrated Piaget's theory of cognitive development with Werner and Kaplan's (1963) concepts of symbolisation and

language development, and developed a cognitive-developmental model for understanding the organisation of emotional experience that shares the structural characteristics of Piaget's stages of cognitive development. There are five levels of emotion organisation and awareness in the model (1) sensorimotor reflexive, (2) sensorimotor enactive, (3) preoperational, (4) concrete operational and (5) formal operational. The levels range from a simple awareness of undifferentiated bodily sensations only (level 1) to an awareness of blends of feelings and an ability to distinguish nuances of emotion as well as a capacity to comprehend the emotional experience of others (level 5). In normal affect development, the individual progresses through the stages in roughly adolescence to adulthood (Lane & Schwartz, 1987).

Bateman and Fonagy (2004) suggest that BPD is a disorder of mentalisation, i.e. the ability to make inferences about the mental state of the self and others, in order to explain and predict behaviour (Baron-Cohen, Leslie & Frith, 1985; Premack & Woodruff, 1978). There is some overlap of alexithymia with the concept of mentalisation (Taylor & Bagby, 2013). Alexithymia may correspond most closely with the facet of mentalisation which includes identifying, processing and communicating affects (Jurist, 2005). Individuals with alexithymia often have difficulty appreciating the emotional states of others and studies have supported this by demonstrating a negative relationship between measures of alexithymia and empathy (Moriguchi, et al., 2007; Taylor & Bagby, 2000). New et al., (2012) found that individuals with BPD showed normal levels of empathic concern, but were impaired in adopting another person's perspective.

Previous research and clinical findings suggest that alexithymia may be linked with BPD, as there appears to be overlap in presenting features. Unable to identify accurately their own subjective feelings, individuals with alexithymia verbally communicate emotional distress to other people poorly and therefore may fail to enlist others as sources of aid or comfort (Taylor et al., 1997). The alexithymic

deficit in the cognitive processing of emotions and misinterpretation of emotional arousal can lead to excessive focus on the somatic sensations accompanying emotional arousal and/or to action as a response to manage the arousal (Taylor et al., 1997). Such actions can include impulsive behaviours such as substance misuse and binge eating as maladaptive behavioural attempts to regulate emotion; features often observed in individuals with BPD.

Alexithymia has been linked with impaired social functioning and poor emotional regulation (Nicolo et al., 2011). Evidence suggests that the difficulty-identifying-feelings facet of alexithymia is associated with impulsive aggression (Fossati et al., 2009). Studies using eating disorder samples provide consistent data that poor emotional awareness is associated with poor emotional regulation (Harrison, Sullivan, Tchanturia, & Treasure, 2009). Deficits in identifying and describing emotions have been found to be associated with poor tolerance for emotional distress and an increase in acting rashly when negatively aroused (Gaher, Hofman, Simons & Hunsaker, 2013). These aspects are all hallmarks of BPD.

Difficulties in interpersonal functioning have also been linked with alexithymia. Lumley and Norman (1996) found alexithymia to be related to less perceived social support, fewer close relationships and less social skill in healthy, young adults. Interpersonal functioning difficulties in individuals with alexithymia are most likely a consequence of their difficulties in differentiating and expressing feelings and a reduced capacity for the correct interpretation of the emotional content of others. Thus alexithymia characteristics reflect deficits in both the cognitive-experiential domain of emotional responses and at the level of interpersonal regulation of emotion (Taylor, 2000).

Alexithymia could be particularly important in individuals with BPD as alexithymia has been found to impact on the outcome of psychotherapy. Clinical observations and controlled studies

demonstrate that higher levels of alexithymia are related to worse outcome in psychotherapeutic treatment (Grabe et al., 2008; Ogrodniczuk, Piper & Joyce, 2005; Taylor et al., 1997). In a review of the effect of alexithymia on the process and outcome of psychotherapy, alexithymia was associated with poor outcome in both psychodynamic psychotherapy and supportive therapy. This negative effect was found in both individual and group psychotherapies (Ogrodniczuk, Piper & Joyce, 2011).

The present study will assess emotion regulation strategies in the context of BPD. Effective emotion regulation skills include the ability to be aware of emotions, identify and label emotions, correctly interpret emotion-related bodily sensations, and accept and tolerate negative emotions (Berking et al., 2011; Gratz & Roemer, 2004). Research has demonstrated a relationship between alexithymia and maladaptive styles of emotion regulation (see review by Taylor, 2000) and emotional dysregulation (Stasiewicz et al., 2012). Reappraisal and suppression are considered emotion regulation strategies (Gross & John, 2003). Thought suppression is the tendency to deliberately attempt to push unpleasant or unwanted cognitions out of awareness and has been found to have significant relationships with various disorders including depression (Baer et al., 2012). Pettit et al. (2009) found that self-reported thought suppression predicted suicidal ideation several weeks later, after controlling for general depressive symptoms, in a non-clinical sample.

Alexithymic individuals are more likely to use suppressive strategies and less likely to use reappraisal strategies as compared to non-alexithymic individuals (Chen, Xu, Jing, & Chan, 2011; Stasiewicz et al., 2012; Swart, Kortekaas, & Aleman, 2009). These findings suggest that individuals may attempt to manage negative emotional situations by suppressing or restricting their feelings (Stasiewicz et al., 2012). Little is known as to whether thought suppression as an emotion regulation strategy is more prevalent in individuals with BPD than healthy controls. It may be that individuals with BPD do at times, use thought suppression strategies that result in over-regulation of affect which manifest in a

dysfunctional combination of both under and over-regulation of affect. This specific aspect has not been investigated before.

As alexithymia has some potential state variation, the inclusion of measures controlling for the presence of anxiety and depression when assessing alexithymia has been recommended in the literature (Loas et al., 2012; Lumley, 2000). Alexithymia has been previously linked to psychological distress such as anxiety and depression (Hendryx, Haviland & Shaw, 1991). Some previous research has shown, however, that although alexithymia is linked and overlapping with depression (Hintikka, Honkalampi, Lehtonen, & Viinamaki, 2001), alexithymia shows stability over time, thus supporting the view that it is a stable personality trait rather than a state-dependent phenomenon (Honkalampi, Hintikka, Antikainen, Lehtonen, & Viinamaki, 2001; Luminet, Bagby, & Taylor, 2001; Mikolajczak & Luminet, 2006).

The present study aimed to investigate the presence of alexithymia and thought suppression in an adult BPD sample. We also investigated the relationship between the variables. Previous research has linked some of these constructs in varying samples, but to our knowledge no study has investigated the relationship between alexithymia, emotional dysregulation and thought suppression in a BPD sample. The findings of this study would be very useful in understanding individuals with BPD abilities in relation to emotion processing and regulation. This could then provide information for designing and delivering the most effective therapeutic interventions that may target specific tendencies.

The study aimed to address the following research questions:

(a) Is alexithymia (using the three main dimension subscales) more prevalent in adults with BPD compared to healthy controls (while controlling for the presence of anxiety and depression)?

(b) Is thought suppression as an emotion-related cognitive strategy more common in individuals with BPD compared to healthy controls?

(c) Is there a relationship between alexithymia, emotional dysregulation, thought suppression and BPD features?

Method

Participants

The study was approved by both the School of Psychology, Ethics Panel at Bangor University and a Research Ethics Committee of the National Health Service (NHS). Participants constituted one group of adult individuals with BPD and one group of adult healthy control subjects. Fifty one subjects participated in the study; 21 clinical subjects with BPD and 30 controls.

The two groups were similar in terms of age, gender and education level. The mean age of the BPD group was 36.15 (SD = 11.73) and for the control group was 27.04 (SD = 12.44). Similar ratios of males to females were in the two groups, with 17 females and three males in the BPD group and 19 females and seven males in the control group. Table 1 depicts the demographic characteristics of the two groups. Education was recorded as the highest level achieved. An independent t-test revealed that there was a significant difference between the BPD group and the control group for age; [$t(44) = -2.52$, $p < .05$ (two-tailed)], but not for education level; [$t(44) = 1.34$, $p > .05$ (two-tailed)]. The BPD group were slightly older than the control group.

Insert Table 1 here

Procedure

Clinical group participants were recruited from NHS outpatient community-based specialist treatment services for PD and were thus screened and selected for entry into treatment on the basis of the presence of PD. Additional screening for the presence of BPD (classified within Cluster B PD) was

carried out within the study. Participants for the clinical group were eligible for inclusion if they (a) were between 18 and 65 years old, (b) had no current evidence of organic impairment, (c) were receiving treatment for PD or BPD difficulties, and (d) achieved a score of ≥ 36 on the Borderline Evaluation of Severity over Time measure (BEST: Pfohl et al., 2009), a measure for Cluster B features of BPD. Control participants were recruited from a local University community research panel, in which individuals had already consented to having their names available to be contacted about participation in research studies and reported no significant past or current psychiatric symptoms. Twenty one of the 44 eligible clinical group participants agreed to participate in the study, yielding a 48% response rate. All 30 eligible control participants contacted agreed to participate in the study.

Of the 51 participants recruited in the study, four healthy control participants were excluded from the analyses as they achieved scores above the cut-off on the BEST measure to assess presence of BPD features. One participant in the clinical group did not meet the cut-off for BPD features. This left 20 participants in the clinical BPD group and 26 participants in the healthy control group that were included in analyses. One clinical group participant did not complete the HADS questionnaire, but otherwise completed all of the questionnaire battery and was included in analyses.

Participants with BPD were identified and first approached by local mental health professionals working in community-based specialist services, on a group or individual basis, about potential participation in the research study. Once agreement was gained, the researcher (first author) met with potential participants to introduce the study and informed consent was gained prior to completion of the questionnaire and demographic information. The procedure was similar for control participants, with the exception that the study was firstly advertised by the community research panel manager via e-mail, whereby participants then contacted the researcher directly to express interest in participation in the study, and the researcher then arranged individual meetings with participants in a University setting,

where informed consent was taken. Control participants were paid six pounds for their participation, in concordance with the procedures of the community research panel. This amount was based on demands that control participants may have incurred for participation in the study.

A person was identified for all participants to contact should they experience any distress following participation in the research study. No participants reported any distress during or following completion of the questionnaire.

Measures

Five measures were used in the study. The Borderline Evaluation of Severity over Time (BEST; Pfohl et al., 2009) was used as a screening tool to confirm participant's diagnosis of BPD. The BEST is a self-report measure of severity in BPD, consisting of 15 items; 12 negative items modelled on the BPD criteria and 3 positive coping behaviours. Items are rated for the past 7 or 30 days (or other time period). Items are scored on a 1-5 ordinal scale from 'none/ slight' to 'extreme' for negative items and from 1-5, from 'almost never' to 'almost always' for positive behaviours. BEST scores can range from 12 to 72, with higher scores reflecting greater BPD symptom severity, and a clinical cut-off score of 36. The BEST has been recommended as a measure of BPD severity and may refer to acute symptoms present (Zanarini et al., 2010). The BEST has been found to have adequate test-retest reliability, high internal consistency and high discriminant validity (Zanarini et al., 2010). Cronbach's alpha reliability in the present study was .94.

The Toronto Alexithymia Scale (TAS-20; Bagby, Parker & Taylor, 1994a) was used to assess alexithymia. This has been previously used with a wide range of clinical samples and with individuals with BPD (Loas et al., 2012; Nicolo et al., 2011). The TAS-20 is a self-report scale containing 20 items that participants rate on a five-point scale. Higher scores denote greater severity of alexithymia. Scores

for the 20 items can be totalled with scores of zero to 51 indicating non-alexithymia, scores of 52 to 60 reflecting borderline alexithymia and scores of 61 and above indicating alexithymia (Bagby et al., 1994a). For the purposes of comparison between groups based on cut-off scores, borderline alexithymia scores were excluded to reduce chances of 'false positives' or 'false negatives'. The measure assesses the three main components encompassing the alexithymia construct; (1) difficulty identifying feelings (DIF), (2) difficulty describing feelings (DDF), and (3) externally oriented thinking (EOT). Higher scores on each of its subscales are indicative of increased alexithymia. The TAS-20 has demonstrated good internal consistency (Cronbach's alpha = 0.81) and test-retest reliability over a three-week interval with adult populations (r = 0.77) (Bagby, et al., 1994a). Cronbach's alpha reliability in the present study was .93.

The Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004) is a 37-item measure that assesses self-reported emotion regulation difficulties. Items are rated on a five-point scale from 'almost never' to 'almost always'. The DERS has six subscales including: non-acceptance of emotions, difficulties engaging in goal directed behaviour when distressed, impulse control difficulties, lack of emotional awareness, limited access to emotion regulation strategies and lack of emotional clarity. Higher scores reflect greater emotion regulation difficulties. The DERS demonstrates good test-retest reliability and adequate construct and predictive validity (Gratz & Roemer, 2004); Cronbach's alpha in the present study was .98.

The White Bear Suppression Inventory (WBSI; Wegner & Zanakos, 1994) is a self report measure of thought suppression, consisting of 15 items that subjects rate on a five-point scale from 'strongly disagree' to 'strongly agree'. Higher scores on the WBSI indicate greater tendencies to suppress thoughts. The WBSI has been found to be a reliable and valid instrument in terms of internal

consistency and test-retest stability (Muris, Merckelbach, Horselenberg, 1996); Cronbach's alpha in the present study was .95.

The Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1983) consists of two subscales, anxiety and depression. Seven items measure depression and the other seven measure anxiety, rated from zero to three by subjects. Total scores range from zero to 21 for both the anxiety and depression subscales. The total sum score of the HADS is an indicator of general emotional distress. Cronbach's alpha reliability in this study was .96. Concurrent validity has been assessed (anxiety, r = 0.54; depression, r = 0.79) (Zigmond & Snaith, 1983). The construct validity of the scale has also been confirmed by Moorey et al., (1991).

All participants completed the above measures.

Results

Statistical analyses

Firstly, an independent samples t-test was used to compare the two groups (BPD group and healthy control group) for alexithymia. Rates of alexithymia according to cut-off scores (alexithymia: TAS-20 $\geq$ 61; non-alexithymia $\leq$ 61) that are recommended for the scale, were compared between groups using chi-square analysis. Multivariate analysis of variance (MANOVA), followed by univariate analysis of variance (ANOVA) was used to assess the groups for the alexithymia measure (including subscales of TAS-20 as dependent variables). These analyses were then repeated controlling for total scores for anxiety and depression on the HADS (MANCOVA, ANCOVA).

Secondly, independent samples t-tests were used to compare the two groups for levels of thought suppression and emotional dysregulation. Lastly, Pearson's correlation assessed the relationship between

alexithymia, emotional dysregulation, thought suppression and severity of BPD. Statistical analyses were performed using IBM SPSS Statistics version 20. Statistical significance was set at $\alpha = .05$, except in cases of a Bonferroni adjustment, where α was set at .013. All tests performed were two-tailed.

Alexithymia in adults with BPD compared with healthy controls

The variables were assessed for normality and outliers. The scores were normally distributed. First an independent samples t-test was used to compare the two groups for alexithymia. The BPD group had significantly higher scores (M= 71.40, SD= 11.25) than the control group (M= 40.85, SD= 8.22); t(44) =-10.65, p< .001 (two-tailed). The magnitude of the difference in the means (mean difference = -30.55, 95% CI: -36.33 to -24.77) was very large (eta squared = -0.84), according to Cohen's (1988) criteria for effect sizes.

Table 2 presents the prevalence of alexithymia, as measured by the TAS-20, among individuals with BPD and the controls. Numbers of participants who reached alexithymia clinical cut-off scores were significantly higher in the BPD group (*n*= 17, 85%) than in the control group (*n*= 0, 0 %), x^2 (df= 1, n =46) = 31.50, p < .001, phi = -0.87.

Insert Table 2 here

Given the significant findings from the independent samples t-test, multivariate analysis of variance (MANOVA) was then performed to investigate levels of alexithymia in individuals with BPD compared with healthy controls. Four dependent variables were used; scores for each of the TAS-20 subscales, DIF, DDF, and EOT, and total TAS-20 scores. The independent variable was group. Preliminary assumption testing was conducted with no serious violations noted. A statistically significant difference was found between the two groups on the combined dependent variables using

Pillai's Trace criterion [f (3,42) = 48.26, p= < .001; Pillai's trace= 0.76; partial eta squared = 0.78.]. As shown in Table 3, The BPD group had significantly higher scores than the control group on the total TAS-20, and on the three subscales of the TAS-20. In order to reduce the likelihood of a Type 1 error, a more conservative alpha level of .013 was used in the univariate ANOVA tests, as suggested by Tabachnick and Fidell (2007).

The correlation matrix presented in Table 4 indicates that significant correlations were found between total TAS-20 and total HADS scores for the BPD group (r = .59, *n* = 20, p < .01) and between total TAS-20 and depression in the BPD group (r = .62, *n* = 20, p < .01). These associations were not significant in the control group. Therefore, in order to assess whether differences in alexithymia between individuals with BPD and controls were attributable to anxiety and depression scores, one-way MANCOVA's were performed, co varying total HADS scores. The overall group effect for the combined dependent variables, using Pillai's Trace criterion, remained significant [f (3, 40) = 4.41, p= .009; Pillai's trace= 0.25; partial eta squared = 0.25].

As depicted in Table 3, univariate ANCOVA's revealed that only Total DIF and Total DDF subscales remained significant using the conservative adjusted alpha level of 0.013. TAS-20 total scores and Total EOT were not significant. When the influence of the covariate total HADS score was considered, there was a significant relationship between total HADS and the dependent variable, total TAS-20 (p = .001), which explained 22% of the variance of the total TAS-20 score.

When the adjusted means were considered, with the effect of the covariate total HADS statistically removed, there were still differences between the means for the two groups for most of the variables; the BPD group had higher total TAS-20 scores (M = 61.27, SD = 3.38) than the control group (M = 47.84, SD = 2.61), higher DIF scores (M = 23.13, SD = 1.62) than controls (M = 15.22, SD = 1.27),

higher DDF scores (M= 17.96, SD= 1.33) than controls (M = 12.26, SD = 1.03). There was little difference between the means for the two groups on EOT scores; BPD group (M = 20.19, SD = 1.60), control group (M = 20.36, SD = 1.24).

When depression and anxiety were entered separately as covariates in two separate MANCOVA's, univariate ANCOVA's showed that TAS-20 total scores, total DIF and total DDF subscales remained significant when anxiety (total anxiety on HADS) was entered. Total EOT scores were not significant. Similar results were obtained for depression (total depression on HADS) entered separately; TAS-20 total scores, total DIF and total DDF remained significant. Total EOT scores were not significant. This is also depicted in Table 3. These results suggest that the differences in alexithymia scores between the two groups were not overall attributable to total HADS scores, but that total HADS scores did particularly influence the EOT subscale of the TAS-20.

Insert Table 3 here

Thought suppression and emotional dysregulation in adults with BPD compared with healthy controls

An independent samples t-test was used to compare the two groups for thought suppression using total WBSI scores. The BPD group had significantly higher scores (M= 65.65, SD= 5.21) than the control group (M= 39.88, SD= 12.16); $t(44) = -9.71$, $p < .001$ (two-tailed). The magnitude of the difference in the means (mean difference = -25.77, 95% CI: -31.15 to -20.38) was very large (eta squared = -0.809), according to Cohen's (1988) criteria for effect sizes.

Similarly, an independent samples t-test was used to compare the two groups for emotional dysregulation using total DERS scores. The BPD group had significantly higher scores (M= 143.85,

SD= 20.77) than the control group (M= 72.58, SD= 17.86); t(44) = -12.50, p< .001 (two-tailed). The magnitude of the difference in the means (mean difference = -71.27, 95% CI: -82.76 to -59.78) was very large (eta squared = -0.879), according to Cohen's (1988) criteria.

Relationship between alexithymia, emotional dysregulation, thought suppression and severity of BPD

Correlations between the TAS-20, DERS, WBSI and BEST measures are shown in Table 4. As was hypothesised, alexithymia was strongly positively correlated with emotional dysregulation in both groups; BPD group (r = .81, *n* = 20, p < .01), control group (r = .69, *n* = 26, p < .01), with high levels of alexithymia associated with higher levels of emotional dysregulation.

Conversely, alexithymia was not significantly correlated with thought suppression in the BPD group, but was strongly positively correlated in the control group (r = .50, *n* = 26, p < .01), indicating that high levels of alexithymia were associated with higher levels of thought suppression in the control group only.

The relationship between alexithymia and severity of BPD was in the expected direction in the BPD group, with a strong positive correlation, revealing that high levels of alexithymia were associated with higher levels of BPD (r = .65, *n* = 20, p < .01).

Insert Table 4 here

Discussion

This study found an increased prevalence of alexithymia in adults with BPD when compared to healthy controls. Eighty-five percent of the BPD group met clinical cut-off scores for alexithymia, compared to none of the control group. The BPD group had higher total TAS-20 scores and higher scores on all three subscales of the TAS-20, than the control group. These results are consistent with a

previous study using an adult BPD sample (New et al., 2012), but results of the present study (means) indicate that this sample had particularly high scores for the difficulty identifying feelings subscale. The overall effect remained even after controlling for presence of anxiety and depression, with the exception of the EOT subscale. While the results of this study do suggest a relationship between alexithymia scores and the presence of anxiety and depression, particularly depression in the BPD group, the effect did not change the significant group differences. Results suggest that the EOT subscale of the TAS-20 is particularly subject to influence by presence of depression and anxiety. The EOT subscale has undergone criticism in the past as it demonstrates lower internal reliability than the other subscales. Loas et al., (2001) and Kooiman, Spinhoven, and Trijsburg (2002) review of the literature on the validity of the TAS-20, reported that in practically all studies, the dimension EOT appears to be unreliable. The results of the current study would support this view, as it was subject to change when anxiety and depression were considered.

A further aim of this study was to assess prevalence of thought suppression in adults with BPD compared to healthy controls. The BPD group used thought suppression as an emotion-related cognitive strategy significantly more than the control group in this study. This finding is consistent with previous research (Baer et al., 2012). Suppression could be considered a maladaptive attempt to regulate emotions and may consequently impact on ability to successfully regulate emotions. Despite the prevalence of thought suppression and alexithymia in the BPD group, no relationship was found between alexithymia and thought suppression, but a relationship was found in the control group. A previous study that found an association used a different measure of thought suppression and a non-BPD sample (e.g. Stasiewicz et al., 2012). Results of the present study suggest that these two constructs are unrelated and measure separate aspects of functioning in BPD, but clinical observations and previous research suggest that both alexithymia and thought suppression play an important role in emotion regulation. Therefore, these results would support the hypothesis that individuals with BPD perhaps oscillate between unhelpful

tendencies of over-regulation of affect via thought suppression and presence of alexithymia and under-regulation of affect (emotional dysregulation). Van Dijke et al., (2010) found that BPD was associated with under-regulation of affect but also substantial over-regulation of affect.

The relationship between alexithymia and severity of BPD was in the expected direction in the BPD group in this study, revealing that high levels of alexithymia were associated with higher levels of BPD. This study also found that alexithymia was strongly related to emotional dysregulation in both groups, with high levels of alexithymia associated with higher levels of emotional dysregulation. This aspect, to our knowledge, has not been assessed before in previous research but provides evidence to suggest a relationship between psychological distress and alexithymia.

Due to the cross-sectional design of this study, no inferences about causality between alexithymia and BPD can be made. Possible proposed pathways that require investigation in future research may be, that difficulty identifying emotions (as was the case in the present sample) leads to difficulties in regulating one's own emotions. An alternative perspective might be that the presence of emotional dysregulation itself leads to an inability to correctly label and identify emotions because such psychological distress impacts on cognitive processes (Gellatly & Meyer, 1992) and alexithymia may result as a coping mechanism that conversely impedes the regulation of negative affect. Some theorists argue that alexithymia is a coping or defense mechanism to protect the self against emotional distress associated with situations of intense vulnerability (Corcos & Speranza, 2003; New et al., 2012). The results of this study are inconsistent with the previous finding that persons with cluster B PD, are not unaware of their feelings but instead have intense emotional experiences (Semerari, Carcione, Dimaggio, Nicolo & Procacci, 2007). While there is little doubt that individuals with BPD experience intense emotional experiences, results of this study suggest that such individuals also have difficulty identifying and describing their feelings.

Previous research has found, as a result of such a complex interplay, that those higher in alexithymic deficits in emotion regulation, experience negative affect more intensely overall, in addition to experiencing exaggerated negative affect in response to and following stressors (Connelly & Denney, 2007). This provides a potential framework for understanding the features associated with BPD, and fits with Linehan's (1993) theory which suggests heightened emotional reactivity and sensitivity as characteristic of BPD. One possibility is that alexithymia may be influential on emotional dysregulation in individuals with BPD. This aspect is worthy of further investigation via mediator analysis. Impairments in the ability to recognise and describe emotions are in turn, associated with poor tolerance for emotional distress and an increase in acting impulsively when negatively aroused. Such a model has recently been described in the literature, which additionally links trauma exposure with BPD features (Gaher et al., 2013).

Arguments have been put in favour of alexithymia as a stable personality trait, related to mental health, but independent of its variation, from longitudinal studies with psychiatric outpatients (Saarijarvi, Salminen & Toikka, 2001; Salminen, Saarijarvi, Aairela & Tamminen, 1994). A prospective study by Mikolajczak and Luminet (2006) examined the stability of alexithymia in a non-clinical sample in the context of acute changes in the level of psychological distress. Alexithymia was found to have a high degree of stability despite an increase in psychological distress. Results of Honkalampi et al., (2001) study of outpatients with major depressive disorder and with or without a cluster C PD, suggested that the presence of co-morbid PD increases the stability of alexithymia in patients with major depressive disorders. Results of this study suggested that alexithymia in this sample was relatively independent of depression and anxiety. Further research is needed to clarify the nature of such processes in clinical samples, using additional methods of assessing alexithymia, such as observer ratings like the Observer Alexithymia Scale (Haviland, Warren & Riggs, 2000).

Limitations

A number of limitations in the present study have to be considered. The cross-sectional design negates inferences regarding causality. Future longitudinal studies are needed to address this. No data on DSM diagnostic assessment (i.e. SCID-II) was collected for the BPD group, although participants were screened for presence of BPD within the study. Data from this study was based on self-report measures. This may be problematic for measures such as the TAS-20, as it may be somewhat paradoxical to ask subjects with low insight into their own emotions to rate their ability on this very aspect (Lane, Sechrest & Reidel, 1998). An alternative measure may be beneficial, such as the Levels of Emotion Awareness Sale (LEAS; Lane, Quinlan, Schwartz, Walker, & Zeitlin, 1990) which asks subjects to describe what feelings they would experience in hypothetical emotion-evoking scenarios, thus not directly asking subjects to rate their ability at this, but rather assessing their actual performance.

This study is also limited by absence of inclusion of a clinical comparison group. This would provide important information as to the extent of alexithymia prevalence as specific to individuals with BPD. Previous studies have found increased alexithymia levels with various psychiatric samples. In a recent study that compared individuals with BPD to those with avoidant personality disorder (AVPD), individuals with BPD had more difficulty identifying their own emotions than patients with AVPD (New et al., 2012). In the current study, results indicated that mean scores for the TAS-20 subscales assessing alexithymia in the BPD group, corroborated such previous findings and were higher than both the AVPD and BPD group in the previous study, for each of the three subscales, suggesting that alexithymia is particularly relevant to individuals with BPD.

Conclusion and implications for clinical practice

The results of this study have therapeutic implications. Alexthymia could be a key feature to address in the treatment of adults with BPD, which has not been identified before in the literature and

thus treatment interventions may need to be adapted accordingly. Several studies have demonstrated that alexithymia negatively influences outcome in psychotherapy and treatment (Ogrodniczuk, et al., 2011). Research findings suggest that alexithymia may be a contraindication for traditional psychoanalytic therapy, as greater emphasis would need to be placed on supportive rather than interpretative aspects of the intervention if undertaken. Intervention for alexithymia needs to include emphasis on various psycho-educational strategies for increasing affect awareness and affect tolerance (Taylor & Bagby, 2013). Linehan (1993) suggests that a focus on specific and concrete behaviours and coping strategies in which the person can engage to reverse emotional inhibition is beneficial. The therapist must balance their response to the oscillating nature of the client's distress, which is sometimes expressed as acute crisis and overwhelming affect, and at other times, presenting with inhibition of affective responding. Results of this study would support this view.

The ability to regulate emotions likely requires the ability to identify, differentiate and understand emotions (Webb & McMurran, 2008). Interventions that focus on getting people to focus on what they are feeling, to recognise that arousal shifts can be related to emotions and find affect words to match their bodily states are likely beneficial (Dimaggio et al., 2011). This is also in accordance with Connolly and Denney (2007) suggestion that clinical interventions for affect dysregulation in individuals with alexithymia should target subjective interpretations of emotional stimuli rather than presumed autonomic hyperactivity. Preliminary empirical evidence of psychotherapies that incorporate such strategies has shown a reduction in alexithymia (Beresnevaite, 2000; Dimaggio et al., 2011; Grabe et al., 2008).

To our knowledge, no study has investigated the effectiveness of different psychotherapeutic approaches in adult BPD patients while taking account of levels of alexithymia pre and post intervention. A recent systematic review of the factors predicting the outcome of psychotherapy for BPD, called for

identification and testing of new predictors of outcome, especially those related to theories of therapeutic change in BPD (Barnicot et al., 2012). The results of this study strengthen the case for alexithymia as a possible predictor of outcome in BPD. Future research that investigates how clinical interventions for BPD are effective and whether such interventions may also impact alexithymia are required. Lines of investigation may also include aspects such as emotional dysregulation; a key feature of BPD, in order to assess if improvement in alexithymia also reduces emotional dysregulation. This may then give insight into the most effective therapeutic intervention to address alexithymia in BPD and shed light on the mechanisms through which treatment is successful.

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Tables

Table 1
Demographic characteristics of participants

Characteristics	BPD Group (*n*= 20)		Control Group (*n*= 26)	
	N	%	*N*	%
Age (years)				
M (SD)	36.15 (11.73)		27.04 (12.44)	
≤ 29	5	25	20	76.9
30 – 38	7	35	1	3.8
≥ 39	8	40	5	19.2
Sex				
Male	3	15	7	26.9
Female	17	85	19	73.1
Education Level[1]				
Primary school education only	1	5	0	0
Secondary education and above	15	75	16	62
Degree/ Professional qualification and above	4	20	10	38
Duration received intervention from NHS[2]				
< 6 months	2	10	N/A	
6 months – 1 year	6	3	N/A	
> 1 year	10	50	N/A	

[1]Education level recorded as highest level achieved. [2]Two participants did not respond.
N/A= Not applicable

Table 2

Alexithymia, prevalence and means and standard deviations for TAS-20, in individual's with BPD and healthy controls

	Alexithymia [1] *	TAS- 20 Total *
	N %	M (SD)
BPD Group (*n* = 20)	17 (85 %)	71.40 (11.25)
Control Group (*n* = 26)	0 (0 %)	40.85 (8.22)

[1] Alexithymia as measured by the TAS-20 using cut-off scores of ≥ 61 as alexithymic and ≤ 61 as non-alexithymic.
* Significant at alpha= 0.05.

Table 3

Means, standard deviations, and univariate analyses assessing differences between individual's with BPD (*n* = 20) and healthy controls (*n* = 26) on the TAS-20 (alexithymia) and HADS (anxiety and depression) measures

	Individuals with BPD (*n* = 20)	Healthy controls (*n* = 26)	ANOVA	Partial eta-squared	ANCOVA (Total HADS)	ANCOVA (Total Anxiety)	ANCOVA (Total Depression)
N = 46	M (SD)	M (SD)	f (1, 44)		f (1, 42)	f (1, 42)	f (1, 42)
TAS-20							
DIF	28.19 (1.04)	11.73 (0.91)	139.57***	0.76	9.18**	12.60**	22.75***
DDF	19.80 (0.77)	11.12 (0.68)	71.07***	0.62	7.18**	9.66**	13.05***
EOT	23.50 (0.95)	18.00 (0.84)	18.83***	0.30	0.01	0.87	0.07
Total	71.40 (2.16)	40.85 (1.89)	113.47***	0.72	6.16*	10.68**	15.41***
HADS (n=45)[a]							
Depression	11.79 (5.01)	1.96 (2.14)					
Anxiety	16.21 (3.19)	4.92 (2.97)					

[a] *n*= 45 for HADS as one participant did not complete HADS measure
* p < .05, ** p < .01, *** p < .001

Table 4

Correlations between alexithymia, depression, anxiety, emotional dysregulation, thought suppression and BPD

Measure	1	2	3	4	5	6	7	8	9
BPD group (*n* = 20)									
1. Total TAS-20 [a]									
2. TAS-20 DIF [a]	.80**								
3. TAS-20 DDF [a]	.81**	.46*							
4. TAS-20 EOT [a]	.79**	.34	.61**						
5. Total Anx HADS [a]	.34	.33	.22	.25					
6. Total Dep HADS [a]	.62**	.55*	.31	.55*	.46*				
7. Total HADS [a]	.59**	.54 *	.32	.50*	.78**	.92**			
8. Total WBSI [a]	.19	.25	.00	.16	.14	.27	.25		
9. Total DERS [a]	.81**	.73**	.59**	.60**	.32	.68**	.62**	.13	
10. Total BEST [a]	.65**	.57**	.54*	.44	.78**	.51*	.72**	- .14	.55*
Control group (*n* = 26)									
1. Total TAS-20 [a]									
2. TAS-20 DIF [a]	.71**								
3. TAS-20 DDF [a]	.84**	.46*							
4. TAS-20 EOT [a]	.73**	.15	.48*						
5. Total Anx HADS [a]	.26	.40*	.06	.12					
6. Total Dep HADS [a]	.30	.30	.17	.19	.67**				
7. Total HADS [a]	.30	.40*	.12	.16	.94**	.88**			
8. Total WBSI [a]	.50**	.62**	.45*	.08	.57**	.21	.45*		
9. Total DERS [a]	.69**	.39*	.74**	.46*	.32	.20	.30	.61**	
10. Total BEST [a]	.27	.17	.13	.31	.55**	.31	.49*	.55**	.48*

[a] Pearson's correlation, ** p < .01, * p < .05

Section 5

Contributions to Theory & Clinical Practice

Contributions to theory and clinical practice

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Introduction

The findings of the two studies presented in this thesis have several implications for future research and theory development. Specific implications of both papers are discussed. The studies have implications for theory development in relation to attachment, emotion regulation and alexithymia and pathways that link these three concepts. Attachment theory may be used to understand the development of emotion regulation and associated tendencies for over and under-regulation of affect. A recent model proposed that alexithymia may stem from adverse attachment experiences via an invalidating environment that impedes the expression of emotions. Alexithymia has been linked with various insecure attachment styles in previous research. Suggestions for future research in relation to affect regulation and childhood adversity, and alexithymia stability are discussed. The present research has implications for future research on outcome of psychotherapy and specific theories of therapeutic change. Both emotional dysregulation and alexithymia may be influential to outcome and change in psychotherapy. Following this, clinical implications of the studies are discussed, with particular focus on assessment of alexithymia and strategies and therapies to address alexithymia in individuals with BPD.

1. Implications for future research and theory

1.1 Summary of general implications

Implications for future research arising from the literature review include use of longitudinal studies that involve adequate measures of attachment. Studies that included direct measurement of attachment were lacking in the research that currently exists. Development of additional measures of attachment that allow for ease of administration (e.g. not excessive in duration) are warranted to address this. Also, the findings of the literature review suggest that future studies of adversity and potential impact on the later development of BPD, should measure parental factors, particularly maternal

separation, and perceptions of mother's and/or parents, such as a lack of care. Studies of this nature are needed in order to replicate some previous findings and confirm the theoretical hypotheses of an influence of attachment theory in the development of BPD features, which can then further theoretical development in this area.

While the empirical study was limited in the use of a cross-sectional design, given that emotional dysregulation, alexithymia and thought suppression can be theorised to be related to BPD symptoms, a meaningful test of the strength of these relations does not require a longitudinal design. The findings also need to be replicated using a sample that has undergone a formal interview schedule to assess diagnosis of BPD, and using alternative non-self report measures, as ability to self- reflect on aspects that the measures target, such as alexithymia and affect dysregulation, may be low in some individual's with BPD, thus influencing scores on the measures.

1.2 Implications for theory development on attachment, emotion regulation and alexithymia

Findings from the literature review highlighted a potential role of attachment in the later development of BPD features, such that the role of the parent was found to be influential, particularly the mother in the parent-child relationship and perceptions of parents, as well as adversity aspects, such as trauma, abuse and separation. Attachment theory has become a prominent conceptual framework for understanding the development of emotion regulation and dysregulation (Allen & Fonagy, 2006; Mikulincer & Shaver, 2004). Bowlby (1988) highlighted the anxiety-buffering functions of close relationships and conceptualised proximity-seeking as an alternative which involves emotion regulation, to the fight-flight response which involves emotion dysregulation (van Dijke, 2012). Mikulincer and Shaver's (2004) conceptualisation of insecure attachment may provide a framework that can be extended to understand the processes at play for individuals with BPD. In line with their model, de-

activation of the attachment system may involve an emphasis on self-reliance and the experience of proximity as non-rewarding. This may manifest in strategies that involve over-regulation of affect such as alexithymia and thought suppression. In contrast hyper-activation of the attachment system may involve an emphasis on helplessness and a sense of dependence and fear of being alone. This may manifest in strategies to prevent abandonment from others and help-seeking behaviour that involves under-regulation of affect (van Dijke, 2012). Future research could evaluate this model further by assessing under and over-regulation of affect and its relationship to insecure attachment and childhood adversity, such as trauma, neglect and separation.

The study of attachment and alexithymia in individuals with BPD may contribute to theory development as the constructs may be linked via mediating effects. The literature review paper presented in this thesis sought to assess early adverse environments and attachment theory's contribution to the development of BPD. The findings of this review may shed light on the development of alexithymia. Deborde et al., (2012) recently proposed a model to suggest that alexithymia may stem from adverse attachment experiences. Rationale for this is provided by the authors such that Linehan's (1993) aetiological model for BPD suggests that invalidating environments in which the expression of emotional experiences is not tolerated impede the understanding and labelling of emotions (see also Fonagy, Target, Gergely, Allen & Bateman, 2003). Bateman and Fonagy (2006) suggest that both insecure attachment and problems with emotion regulation constitute vulnerability factors for the development of BPD. Previous studies have also shown associations between attachment and alexithymia (Meins, 2008; Montebarocci, Codispoti, Baldaro, & Rossi, 2004; Wearden, Lamberton, Crook & Walsh, 2005). Results of Deborde et al., (2012) study on adolescents with BPD found secure attachment was a protective factor in the development of BPD, in line with Bowlby's (1982) view that secure attachment is central to personality development and a secure base is necessary for the

exploration of internal states. Without a secure base and sensitive validating environment, an individual fails to learn to understand and label appropriate emotions, resulting in a reduced capacity to problem solve situations related to emotional distress, and instead developing unhelpful means to manage intense emotions.

Deborde et al's., (2012) model utilises the concepts proposed by both Linehan (1993) and Fonagy, Target and Gergely (2000) on the aetiology of BPD. Fonagy et al., (2000) suggested that an 'alien self' with limited reflective capacities that arises from insensitive care-giving leads to the development of BPD. Fearful and preoccupied attachment styles can account for the constant worrying about caregiver availability and the anger it may lead to, resulting in the observed interpersonal problems in those with BPD. Alexithymia mediated the link between fearful attachment and BPD severity in the Deborde et al., (2012) study and the author's suggested that those with fearful attachment hold a negative model of others and often expect rejection when seeking comfort or reassurance. Also, a recent study by Oskis et al., (2013) found that the features of anxious and avoidant insecure attachment styles were differentially related to the separate facets of alexithymia in female adolescents. Fear of separation predicted overall alexithymia scores and the 'difficulty identifying feelings' facet. Constraints on closeness were predictive of the 'difficulty describing feelings' facet and low felt attachment to primary caregiver was predictive of the 'externally oriented thinking' facet of alexithymia. Therefore, the two papers provided in the current thesis may provide an account of the developmental and possible pathways to the development of BPD, in that those who have experienced adversity that may impact the attachment relationship between child and caregiver may in turn develop alexithymia, which manifests in and may contribute to the observed difficulties that face adults with current BPD features. Future research is needed to explore further this proposed model and pathway.

1.3 Implication for future research on affect regulation and childhood adversity

The empirical paper presented used different measures to assess affect regulation. Individuals with BPD were found to have higher levels of emotional dysregulation (under-regulation of affect) and higher levels of alexithymia and thought suppression (over-regulation of affect) than controls. Future research could use a measure that encompasses both forms of affect dysregulation combined, instead of using two separate measures. This could then provide additional information about these two constructs. The development of a suitable measure to addresses this may be warranted (van Dijke et al., 2010).

Future studies could also include biological and psycho-physiological aspects of affect regulation. Van Dijke (2012) suggests that three different forms of affect regulation exist; inhibitory (which encompasses over-regulation of affect), excitatory (which encompasses under-regulation of affect) and combined inhibitory and excitatory regulation. Findings from their study suggest that inhibitory regulation is associated with physical trauma while excitatory regulation is associated with emotional trauma, especially when it occurs between the developmental ages from birth to six years. The findings of the literature review presented here may provide support for this hypothesis in that childhood adversity was linked to later development of BPD (in which excitatory regulation is central), although the majority of studies included in the review did not specify ages for the adversity to occur. However, two studies did report that maternal separation before the age of five years and losses of mother within two years of patient's birth were associated with later development of BPD (Crawford, Cohen, Chen, Anglin & Ehrensaft, 2009; Liotti & Pasquini, 2000). Future studies could pay closer attention to age at which adversity occurred.

1.4 Implications for research on alexithymia stability

Research has shown that alexithymia scores can be influenced by the presence of anxiety or

depression. Results of the empirical paper found that the externally oriented thinking (EOT) subscale of alexithymia was influenced by anxiety and depression, but not the other subscales. Studies have shown that alexithymia scores can lack absolute stability, yet the relative differences in alexithymia scores among individuals remain the same over time (relative stability) (see e.g. Luminet, Bagby & Taylor, 2001; Luminet, Rokbani, Ogez & Jadoulle, 2007). Our results suggest that the differences in absolute stability in alexithymia scores may be due to changes in the EOT subscale, as a function of anxiety and depression. This aspect warrants further investigation and replication, as the EOT subscale has previously been found to be unreliable (Kooiman, Spinhoven & Trijsburg, 2002). The empirical study found an association between emotional dysregulation and alexithymia, where high levels of alexithymia were associated with high levels of emotional dysregulation. To our knowledge, this aspect has not been investigated before and may be a viable alternative to measures of anxiety and depression for assessment of the relative stability of alexithymia in future studies.

1.5 Implications for future research and outcome of psychotherapy

There is as yet no consensus on the factors that influence the outcome of psychotherapy for BPD. This information would be valuable in allowing earlier identification of patients who may be at risk of poor outcomes and may therefore require altered treatment strategies (Barnicot et al., 2012). A systematic review by Barnicot et al., (2012) of the factors predicting the outcome of psychotherapy for BPD suggested that the advancement of the field requires identification and testing of new predictors of outcome, especially those related to specific theories of therapeutic change in BPD. Barnicot et al., (2012) review found that the therapeutic alliance was particularly important in outcome and suggested that future research should test potential mediators between alliance and outcome. Mechanisms of change are mediators (Baron & Kenny, 1986), or those variables that account for the relationship between treatment intervention and the outcome (Linch, Chapman, Rosenthal, Kuo & Linehan, 2006).

Alexithymia may be viewed as a potential mediator between outcome as studies have suggested that alexithymia impacts psychotherapy and potentially the therapeutic alliance. The empirical paper found increased levels of alexithymia in adults with BPD compared to controls. If an individual finds it difficult to identify and describe feelings, this is likely to impact on the therapeutic relationship, with reports of therapists being that of frustration in working with clients who are alexithymic (Taylor & Bagby, 2013). Future research could examine alliance and outcome in the context of alexithymia.

1.6 Implications for future research on specific theories of therapeutic change in BPD

The literature review and empirical paper presented described current therapeutic approaches that may be suitable to address the difficulties experienced by adults with BPD. Barnicot et al., (2012) review highlighted that little research has been done on variables relevant to BPD specific theories of therapeutic change. For example research on improvement in mentalising capacity or change in attachment, or use of skills taught in DBT is lacking. Considering that the BPD group in the empirical study was found to have increased levels of alexithymia, where 85% met clinical cut-off scores for alexithymia, future research could explore if changes in alexithymia result in changes in use of DBT skills or mentalising capacity and vice versa. Participants could be tracked throughout various components of interventions to assess when the most change may occur and via what mechanisms. Research considering such variables might lead to better understanding of what processes are helpful in achieving positive outcomes, so that existing interventions can be appropriately tailored to achieve this and as a result improve outcomes.

The empirical study also found increased levels of emotional dysregulation in individuals with BPD than controls, in line with previous research. In a study comparing three different theoretical constructs of BPD; emotion regulation deficits, disrupted interpersonal relations and identity disturbance

or a lack of an integrated sense of self, results indicated that emotion regulation difficulties was the only predictor uniquely associated with BPD symptoms (Cheavens, Strunk & Chriki, 2012). The authors also called for future research to identify the mechanisms of change in treatment of BPD and suggested that emotion regulation may be an important mechanism of change. Results of the empirical study corroborate these findings that emotional dysregulation is central to BPD and emotional dysregulation was strongly associated with alexithymia, with high levels of alexithymia associated with high levels of emotional dysregulation. Future research could evaluate whether changes in emotional dysregulation occur with changes in alexithymia and further assess if overall features of BPD consequently reduce. Future research is also needed to replicate findings of the present empirical study regarding emotional dysregulation and alexithymia that includes a clinical comparison group, such as adults with major depressive disorder, to confirm higher levels of both these constructs in individuals with BPD.

2. Implications for clinical practice

Results of the empirical paper indicated that individuals with BPD did use strategies relevant to over-regulation of affect, namely thought suppression and alexithymia more than controls. Higher levels of emotional dysregulation were also found in individuals with BPD, compared to controls. Thus, it seems pertinent that individuals with BPD should be assessed in clinical practice for over-regulation of affect as well as under-regulation, particularly if co-morbid somatoform disorder is present, as both forms of affect regulation are more likely to occur in such individuals (van Dijke, et al., 2010). Current clinical practice likely places emphasis on under-regulation of affect as key for assessment and to address as a difficulty in those with BPD. This study and recent research suggests that over-regulation of affect requires clinical attention in addition to under-regulation of affect, as both patterns can be evident in adults with BPD.

In order for interventions to successfully address alexithymic features in individuals with BPD, a focus on emotional awareness and literacy would be paramount. Interventions such as Mentalisation Based Therapy (MBT; Bateman & Fonagy, 2008) and Dialectical Behaviour Therapy (DBT; Linehan, 1993) may be useful for addressing alexithymia in individuals with BPD. DBT teaches skills such as mindfulness in order to facilitate emotional awareness, distress tolerance and emotion regulation. Psychodynamic approaches may have to shift focus slightly with greater emphasis on supportive rather than interpretative interventions as suggested by Taylor and Bagby (2013). Transference Focused Psychotherapy (Levy et al., 2006) may be useful if emphasis is placed on recognition on emotions and how to modulate emotions within the patient-therapist relationship. Similarly, MBT could focus on moment-to moment state of mind to include emotion awareness and to also incorporate this aspect into understanding themselves, others and their relationships. If individuals can successfully identify and describe emotions, this is likely to in turn, enhance emotion regulation ability and tolerance for emotions (Gaher, Hofman, Simons & Hunsaker, 2013). Also, interventions such as emotion-focused therapy for trauma (Greenberg & Bolger, 2001; Paivio & Pascual-Leone, 2010) could contribute to the experiential process of emotional awareness and growth.

Meta-cognitive awareness and understanding of emotional experience may be particularly important in clinical interventions for BPD. The ability to identify and label emotions may act to decrease the intensity of the emotion and create some distance between the self and state of arousal (Gaher et al., 2013). Therefore, mindfulness components may be very useful as mindfulness offers a way of staying present by giving another place from which to view things and to relate to experience differently. A key concept in mindfulness is de-centring from usual thinking processes (Segal, Williams & Teasdale, 2002). Hofmann, Sawyer, Witt and Oh, (2010) suggested that it is perhaps possible that mindfulness-based therapy is associated with a general reduction in stress as mindfulness encourages

participants to relate differently to their physical symptoms so that when they occur, their consequences are less distressing. Also, previous research has suggested that experiential avoidance may be a key process in BPD (Iverson, Follette, Pistorello & Fruzetti, 2012). Helping patients to recognise that arousal shifts are correlated with emotions, and find affect words to match their bodily states would be suitable (Dimaggio et al., 2011). Interventions that focus on individual experience of emotion may be helpful and may aid distress tolerance.

If working from a psychodynamic psychotherapy perspective, Taylor (2012) suggests that therapists may need to be aware that once individuals with BPD learn to identify and consciously experience and communicate their emotions, substantial turmoil within the patient and therapeutic relationship may occur. Therapeutic work may re-activate trauma-related emotions that have not been communicated before, and may need to be integrated and gradually contained by the patient and therapist (Taylor, 2012). This perhaps needs to be considered while taking into account particular alterations to traditional psychodynamic therapy for working with those whom are alexithymic.

Vanheule, Verhaeghe and Desmet (2011) suggest that two main underlying processes exist within alexithymic individuals; problems in developing accounts of one's own experiences of arousal, which remains as bodily distress and a failure to make use of interpersonal relationships and communication with others for managing distress. Psychotherapy could aim to address both processes by encouraging labelling and expression of emotions as outlined above and skills training in interpersonal effectiveness and problem solving of interpersonal interactions, as provided in DBT (Linehan, 1993). The chain analysis framework of DBT would also appear beneficial in improving self-reflection of emotions, cognitions and behaviour and also generating a solution analysis that generates more effective behaviours. Often problem behaviours in individuals with BPD occur in the context of

interpersonal relationships. Throughout all therapeutic modalities to address alexithymia and related difficulties in those with BPD, validation and acknowledgement of the patient's experience is likely of paramount importance, so as to help reduce strong emotional arousal that may serve as a barrier to experiential exposure to emotions and learning (Lynch et al., 2006).

3. Reflective commentary

A reflection from this research surrounds the diagnostic label of BPD. In data collection for the study, I intended to minimise emphasis on the diagnosis of BPD as the focus of the study was not on the diagnosis per se, as the study more so aimed to assess the component features of the diagnosis of BPD. The label of BPD was thus retained in the study for research purposes solely, in order to identify a suitable sample. As a clinical practitioner, I was aware of the potential negative perception of acquiring a diagnostic label of BPD. However, this aspect did not appear to impede data collection, presumably as participants were already in treatment services for PD and were already made aware of the label. Some participants reported during conversations surrounding the research study, how it was access to appropriate services and treatment that was a primary difficulty they had experienced.

A further reflection surrounds the concept of alexithymia. In writing this thesis, I began to consider the merits and limitations of the alexithymia concept. A number of limitations to this concept became apparent. Firstly, there are no reported prevalence rates of alexithymia, to my knowledge. As such, it is not something that is routinely 'diagnosed' in clinical populations, although many clients that are seen in psychiatric settings may exhibit the features. This may be due to the fact that alexithymia is perhaps best considered a dimensional construct in terms of severity, rather than an all-or-none phenomenon, (Taylor & Bagby, 2013), despite recommended cut-off scores for the measure of alexithymia.

Secondly, there may be substantial conceptual overlap between concepts related to emotional awareness, processing and regulation. This may be a potential reason why alexithymia is not reported as a difficulty for clients by clinicians. Other terms such as emotional dysregulation may actually encompass some of the features of the alexithymia construct. The emergence of these separate strands of investigation, both in research and in clinical practice, may be due to the particular theoretical orientation that each has stemmed from. Emotional dysregulation as a concept may sit comfortably within a cognitive-behavioural therapy tradition, whereas alexithymia, and some of its related concepts may sit more comfortably within a psychodynamic psychotherapy tradition. While each concept may have distinct features, there may be considerable overlap in concepts. This aspect may warrant further investigation in future research. For example, the concept of emotional intelligence may overlap significantly with alexithymia, which has previously been identified. In researching concepts such as these, I realised that these areas are immensely complex and in pursuing investigations surrounding emotion-related concepts, often more questions than answers are generated. Therefore, while I have learned a great deal surrounding the area of emotion processing and awareness, I am aware that there is much about these topics that remain unknown.

The results of the empirical paper would have been substantiated with inclusion of a clinical comparison group in the design. On reflection, this aspect was considered in planning the design and methodology of the study, however, due to time-frame restrictions in data collection (as a DClinPsy research project) inclusion of a further group was deemed unfeasible. Therefore, it was necessary to omit this aspect from the project. A further study that included a clinical comparison group would be interesting to pursue.

Conclusion

A history of adversity, which included trauma, abuse, neglect and separation, was associated with later development of BPD features in the literature review paper described. Results of a previous study (Gaher et al., 2013) suggested that trauma may interfere with basic abilities in the processing of emotions. Deficits in the ability to identify and describe emotions (alexithymia) are related to both poor tolerance for negative emotions and an increased tendency for impulsive action when negatively aroused, which in turn, can lead to maladaptive behaviours and interpersonal problems (Gaher et al., 2013). These aspects are hallmarks of BPD and may provide a theoretical and clinical framework within which to understand the developmental course and adult features of BPD. Future research needs to evaluate these constructs further to corroborate previous research and explore further links.

The findings of the empirical paper specifically highlight the need for more systematic evaluation of over-regulation of affect in individuals with BPD and co-morbid diagnoses. This can take the form of alexithymia and thought suppression. Creating better understanding of the constructs that contribute to BPD symptoms can inform how BPD features are maintained and ultimately how BPD features may best be treated. Research evaluating whether specific changes in emotion and cognitive problem-solving processes predict treatment outcome in BPD is only just beginning (e.g. McMain et al., 2013). The effectiveness of psychotherapy for individuals with BPD may be strengthened by assessing patient's abilities for awareness of emotions and self-reflection on emotions and related cognitions and tailoring interventions to their level of emotion and reflective ability (Choi-Kain & Gunderson, 2008; Dimaggio et al., 2012). Ultimately, it will be important to determine in future research how changes in specific aspects such as emotional dysregulation, alexithymia and thought suppression are related to changes in BPD features and functioning and overall treatment outcome.

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Section 6

Word Counts

Word Counts

Thesis abstract: 300
Literature review: 7,983 (excluding tables, fugures & references)
Empirical Paper: 6,457 (excluding tables, figures & references)
Contributions to Theory & Clinical Practice: 3,988

Total: 18,428

All Tables: 2,776
All Figures: 106
All References: 5,858

Total Appendix word count: 8,740 (excluding ethics appendix)