Thematic Analysis of Autobiographical Dissociation Scripts in Borderline Personality Disorder

Hughes, Natasha

Psychologie
Faculteit der Sociale Wetenschappen

Thematic Analysis of Autobiographical Dissociation Scripts in Borderline Personality Disorder

Natasha Hughes

Word count: 7716

Research Master Thesis *Clinical and Health Psychology*

Date: 5/12/2022

Student number: 2886316

Supervisor: Anne Krause

Second reader: Bernet Elzinga

Thematic Analysis of Autobiographical Dissociation Scripts in Borderline Personality Disorder

Abstract

Dissociation is a complex trans-diagnostic phenomenon, which ranges from normative to pathological. There are multiple ways of measuring and categorising dissociation, and different theories as to the aetiology and function of dissociation in psychological disorders. People with Borderline Personality Disorder (BPD) experience more dissociation than healthy controls and other personality disorders, and dissociation is associated with other key features of BPD. Despite this, dissociation in BPD is poorly understood. It is unclear which types of dissociation manifest in BPD, in which situations, and the function that dissociation achieves. The aim of this study was to investigate the form and function of dissociation in BPD, by identifying themes across personal narratives. A thematic analysis was performed on narratives of dissociative experiences assessed within a script-driven imagery approach.

The predominant forms of dissociation were depersonalisation and derealisation. Dissociation occurred in interpersonal and threatening situations, tended to follow negative affect, and was accompanied by physical reactions consistent with sympathetic nervous system activation. Dissociation functioned as psychological escape from internal experiences or external situations. These themes are discussed within the context of prominent theories of BPD and dissociation. These findings are in line with the idea that dissociation in BPD acts as a protective mechanism against high sensitivity and reactivity to affective and interpersonal experiences in the place of normative regulation skills. This paper concludes that dissociation in BPD offers psychological escape from intolerable experiences, and is related to a low threshold for threat perception and threat response mobilisation.

Layman's abstract

Dissociation is a broad term which encompasses a wide range of experiences, such as losing focus, and feeling disconnected from one's self and from the world. There are multiple ways of measuring and categorising dissociation, and different theories as to the origin and function of dissociation in

psychological disorders. Borderline Personality Disorder (BPD) is a disorder characterised by emotional, interpersonal, and behavioural dysfunction. Individuals with BPD experience dissociation to a greater extent than the general population and other disordered groups, but the role of dissociation within BPD is poorly understood. It is unclear which types of dissociation manifest in BPD, in which situations, and the function that dissociation plays in real life situations.

Script-driven imagery is a research technique in which participants create short narrative scripts of a real-life situation, and then listen to the script and conjure the situation in mind. This technique has been used to induce dissociation in order to study it. Such scripts offer insight in to how dissociation is experienced in BPD, and in which situations. In this study, a thematic analysis was performed on dissociation induction scripts made by individuals with BPD, in order to identify commonalities in situations in which individuals with BPD dissociate.

The predominant forms of dissociation were depersonalisation and derealisation. Dissociation occurred in interpersonal and threatening situations, tended to follow negative emotions, and was accompanied by physical reactions consistent with an acute stress response. Such situations were experienced as overwhelming and intolerable, and dissociation functioned as psychological escape from internal experiences or external situations. These themes are discussed within the context of current theories of dissociation and BPD. This paper concludes that dissociation serves a protective function within BPD, and is related to emotional intensity, inadequate emotion regulation skills, interpersonal hypersensitivity, and low tolerance to stress and inner tension.

Introduction

Dissociation comprises of a wide range of trans-diagnostic phenomena involving disruptions in cognitive functions, such as memory, identity, perception, and conscious awareness, and motor control (Spiegel et al., 2011). Dissociation is defined as a disintegration of normally integrated functions which can "potentially disrupt every area of psychological functioning" (American Psychiatric Association [APA], 2013a, p. 291). There are two main etiological models of dissociation; the trauma model, which proposes that dissociation arises as a defence mechanism to create psychological distance from traumatic stress, and the fantasy model, which counters that dissociation is an artefact of suggestibility and iatrogenic factors, from which fantasies of trauma arise (Dalenberg et al., 2012). Evidence converges on dissociation being more common in groups who have survived trauma, particularly developmental and prolonged trauma (Carlson et al., 2012; Lanius, 2015; Lanius et al., 2010, 2012; Loewenstein, 2018; Michopoulos et al., 2015; Vonderlin et al., 2018; Zoladz & Diamond, 2013). While the etiology of dissociation is still strongly debated (Dalenberg et al., 2021; Loewenstein, 2018), most models agree that dissociation emerges due to a

complex interplay of neurobiological predisposition, temperament, and environmental factors, particularly traumatic stress, childhood abuse, and a disorganized attachment style (Scalabrini et al., 2017). The etiology of dissociation can differ from person to person, and between clinical populations.

Dissociation has been used to describe a broad swathe of phenomena, which range from benign experiences such as becoming so absorbed in a book as to lose awareness of one's surroundings, to pathological and recurring dissociation which interferes with regular functioning, as in dissociative disorders (Holmes et al., 2005; Loewenstein, 2018). Several categorisations of dissociative phenomena have been proposed. Brown (2006) outlined two broad categories: detachment, as in experiential dissociation (e.g. depersonalisation and derealisation), and compartmentalisation, in which objects are dissociated from conscious awareness (e.g. dissociative amnesia). Spiegel and Cardeña (1991) proposed three: discontinuity in subjective experience (e.g. dissociative flashbacks), disintegration of normally integrated cognitive functions (e.g. dissociative amnesia), and experiential disconnectedness (e.g. depersonalization and derealization). Lanius (2015) outlined four dimensions of dissociation: time/memory (e.g. flashbacks), thoughts (e.g. hearing voices), body (e.g. depersonalization), and emotion (e.g. emotional numbing). Dissociative phenomena can be differentiated in to positive or intrusive symptoms (e.g. dissociative flashbacks), and negative symptoms, in which a normally accessible function is lost (e.g. dissociative amnesia) (van Dijke et al., 2010), and between psychoform (e.g., depersonalization, dissociative amnesia) and somatoform (e.g. analgesia, loss of motor function) dissociation (Nijenhuis, 2001; Van der Boom, 2010).

There are several measures of dissociation. The Dissociative Experiences Scale (DES; Carlson & Putnam, 1993) is the most widely used measure of trait dissociation, and contains factors of depersonalization/derealization, amnesia, and absorption. There are numerous other measures, which differ on conceptualisations of dissociation and reliance on diagnostic criteria (for review, see Coy & Madere, 2022). The varied ways of categorizing and measuring dissociation are indicative of the lack of theoretical consensus about the presentation and etiology of dissociation. Standardized measures of dissociation allow for reliable assessment and comparison, which is essential for research. However, dissociation refers a broad range of phenomena, heterogeneous presentations of dissociation are found within samples, and the definitions of dissociation have changed over time (van der Hart & Dorahy, 2009). As such, it is difficult to decipher which forms of dissociation exist in certain populations, and how they manifest in real life situations. Furthermore, conflicting theories and categorizations have led to conceptual confusion around what dissociation is, and its function in psychopathology (Van der Hart, 2021). It is important to decipher which forms of dissociation occur

in clinical populations, for treatment and research purposes. In the present study we focused on Borderline Personality Disorder (BPD), in which dissociation is a core symptom.

BPD is the most common personality disorder in clinical populations (Bohus et al., 2021) and affects 0.5 - 2% of the general population (Bourvis et al., 2017; D'Agostino et al., 2017). BPD is a complex and heterogeneous disorder characterised by affective instability, intense and volatile interpersonal relationships, unstable sense of self, impulsivity, and self-sabotaging behaviour (APA, 2013b; D'Agostino et al., 2017). Models of BPD propose behavioural dysregulation (e.g. impulsivity, recklessness), emotional dysregulation (e.g. emotional lability and intensity), and interpersonal dysregulation (e.g. interpersonal sensitivity, impaired ability to infer the mental states of others) as core features of the disorder (Fonagy et al., 2017; Goodman & New, 2000; Gunderson & Lyons-Ruth, 2008; Linehan, 1993). Models converge on BPD being caused by a combination of genetic predisposition to heightened affect and developmental attachment trauma, resulting in an inability to form stable patterns of behaviour, and a diminished ability to self-regulate (Bozzatello et al., 2021; D'Agostino et al., 2018). The causal role of childhood adversity in the development of BPD has long been debated (Kaess, 2019), but evidence converges on BPD having higher rates of childhood abuse than the general population and other mental disorders (Kleindienst et al., 2020; Luyten et al., 2019; Porter et al., 2020).

Dissociative symptoms in BPD include identity confusion, depersonalisation, derealisation, personality fragmentation, dissociative amnesia and flashbacks (Al-Shamali et al., 2022; Korzekwa et al., 2009b; Laddis et al., 2017). BPD has higher levels of dissociation than healthy controls, other personality disorders, and other psychiatric disorders other than PTSD and dissociative disorders (Korzekwa et al., 2009b; Scalabrini et al., 2017). BPD are more prone to dissociate, and do so to a greater extent than both healthy and clinical controls (Stiglmayr et al., 2008), although levels of dissociation within BPD are heterogeneous (Scalabrini et al., 2017). Stress-related dissociation is a diagnostic feature of BPD, and is closely linked to core domains of the disorder (Krause-Utz et al., 2021). Dissociation is also associated with BPD symptom severity, suicidality and self-harm, emotional stress and dysregulation, pain hyposensitivity, identity disturbances, cognitive deficits, dysfunctional stress responses, and poor psychotherapy treatment outcomes (Al-Shamali et al., 2022; Bohus et al., 2021; Chung et al., 2020; Sommer et al., 2021; Stiglmayr et al., 2008). Despite evidence that dissociation is related to poor clinical outcomes (Kleindienst et al., 2011), the role of dissociation within BPD remains unclear, and research specifically in to dissociation in BPD is scarce (Krause-Utz et al., 2021). A remaining research question is which type(s) of dissociation manifests within BPD, and in which situations.

In the present study, script-driven imagery was used to examine personal narratives of dissociation in BPD. Script-driven imagery is used to safely induce dysfunctional phenomena, such as stress or dissociation, in order to study it. Dissociation induction scripts consist of a short narrative of a dissociative experience. This narrative is recorded and played back to the participant alongside instructions to conjure the narrative in mind (Bichescu-Burian et al., 2018). This method has been validated as effective in causing individuals with BPD to dissociate, as indicated by higher Dissociative Tension Scale acute (DSS-4; Stiglmayr et al., 2009) scores, lower pain sensitivity, and differential blood oxygen level dependent signal compared to non-dissociated BPD controls (Ludascher et al, 2010). Winter et al. (2015) examined the effect of dissociation induction on STROOP performance in BPD. Half of the BPD group underwent a dissociation induction, and were found to be slower, less accurate, and with differential neural reactivity compared to both healthy controls and the non-dissociated BPD group. Krause-Utz et al. (2018) found dissociated BPD to have differential amygdala functional connectivity and working memory impairments in an Emotional Working Memory Task than non-dissociated BPD and healthy controls. To date, there has been no research which investigates the content of the scripts themselves.

Qualitative research offers insight in to the lived experience of clinical populations, by examining symptoms as they are described in their own words. Unlike quantitative techniques, qualitative methods do not require adherence to any particular theory or model of a disorder, nor the formulation of hypotheses to be tested, and thus are appropriate when theoretical distinctions are unclear. Thematic analysis is one such technique which identifies semantic themes within narrative data through an iterative coding process (Braun & Clarke, 2006). In the present study, we re-analysed data from two previous studies (Krause-Utz et al., 2018; Winter et al., 2015) in which autobiographical narratives of dissociative experiences in BPD were used to induce dissociation. Our aims were to investigate 1) whether qualitatively different forms of dissociation can be identified in autobiographical narratives of individuals with BPD, 2) whether dissociative symptoms are associated with overarching themes (recurrent and prevalent topics), and 3) if such themes correspond with existing categorisations of dissociative phenomena. To achieve these aims, a thematic analysis was performed on the dissociation induction scripts. In a confirmatory manner, a quantitative analysis was conducted to determine whether BPD symptom severity and childhood trauma were related to dissociation, which has previously been observed in the literature (see Krause-Utz, 2022).

Methods

Participants

Forty women with BPD and 20 healthy controls were originally recruited for two fMRI studies examining the differences in brain activation in dissociated and non-dissociated BPD, and healthy controls (Krause-Utz et al., 2018; Winter et al., 2015). This study analysed only the group that prepared a dissociation induction script, which comprised 20 women with BPD aged between 18 and 45 years.

Inclusion criteria were a BPD diagnosis based on the DSM-IV criteria (APA, 2013). Clinical diagnoses were assessed by trained diagnosticians using the Structured Clinical Interview for DSM-IV Axis I (Lobbestael et al., 2011) and the BPD section of the International Personality Disorder Examination (Loranger et al., 1994). Exclusion criteria were serious somatic illness, traumatic brain injuries, current and lifetime psychotic of bipolar-I disorder, psychotropic medication within four weeks prior to the study, developmental disorders, substance dependency during the last year, and substance abuse within two months prior to the study. FMRI specific criteria were metal implants, pregnancy, left-handedness, and claustrophobia.

Measures

The Fragebogen zu Dissoziativen Symptomen (FDS; Spitzer et al., 1998) is the German version of the DES. It is a 34-item self-report measure of trait dissociation in which participants indicate frequency of dissociative experiences on an 11-point scale from 0% ('never') to 100% ('always'). It has high internal consistency (Cronbach's $\alpha = .94$) and test-retest reliability ($r = .88$).

The Borderline Symptom List short version (BSL-23, Bohus et al., 2009) is a 23-item self-report instrument used to measure borderline symptom severity. It uses a 5-point Likert scale ranging from 0 ('not at all') to 4 ('very strong'), and has high internal consistency (Cronbach's $\alpha = .94$ - $.97$) and test-retest reliability ($r = .82$).

The Childhood Trauma Questionnaire (CTQ, Bernstein et al., 2003) is a 28-item self-report instrument used to measure the severity of emotional, sexual, and physical abuse and neglect. It uses a 5-point Likert scale ranging from 'Never True' to 'Very Often True', and has good internal consistency (Cronbach's $\alpha = .66$ - $.92$) and test-retest reliability ($r = .79$ - $.84$).

The DSS-4 is a brief, four-item self-report instrument to measure dissociative states on a time-oriented scale ranging from 0% ('never') to 100% ('constantly'). It has high internal consistency (Cronbach's $\alpha = .87$) and split-half reliability ($r = .91$).

Dissociation Induction Scripts

Participants were asked to create a brief personal narrative of a past situation in which they experienced dissociation. To avoid traumatic re-experiencing, participants were asked to report a non-trauma-related memory. With the help of a clinician, a 30 second script of a well-remembered recent non-traumatic autobiographical memory was prepared for each participant. In order to validate that the scripts induced dissociation, an increase of at least 1.5 on the DSS-4 was set as a criterion when scripts were read back to participants.

Procedure

An exploratory thematic analysis was performed on dissociation induction scripts used in previous research. Dissociation induction scripts were transcribed, anonymized, and translated into English by a native German speaker with English proficiency (A.R.). The scripts were then coded in NVivo (QSR, 2020). The analysis was initially conducted individually and concurrently by two researchers (A.R. and N.H.). During the first phases of coding, every code was derived directly from the data, with no broader interpretation; for example, instances of the words 'fear', 'afraid', and 'scared' were categorised in to the code 'Fear', whereas instances which could be interpreted as fear but did not directly state it, such as "*I wanted to get away"* and "*I started shaking"*, were not. Both researchers coded the dataset multiple times. Codes with semantic similarities were then grouped together in to themes; for example, the codes 'Fear', 'Anger', and 'Shame' were nested under the broader theme of 'Negative Emotions'. Themes were made according to both frequency and salience of codes. For example, the theme of 'Negative Emotions' was formed due to the frequency of negative emotion codes, whereas the theme of 'Threat' was formed because the extracts coded as threats represented a distinct experience which was not captured by the other themes. Once each researcher had developed a thematic structure and no new codes or themes were being developed, they compared their analyses and developed one thematic structure, through discussion of discrepancies between the two individual analyses. Through several such discussions, one final thematic structure was agreed upon. The sequence of themes throughout the scripts was then analysed, to investigate whether any themes tended to precede or follow others. Relationships between codes were then examined. Relationships were identified when one code directly preceded or followed another, for example "*I notice that I'm getting nervous, tense, and more and more angry, and I stare out of the window and notice that my heart is racing more and more"* was coded as a relationship between negative emotions (nervous, tension, anger) and heart racing.

The thematic analysis was experiential, essentialist, and inductive, in that the scripts are assumed to be accurate accounts, and codes were generated directly from the data without reference to literature. A semantic approach was used, meaning that no assumptions were made about implicit

meanings or subtext. These decisions were made to center the phenomenological experience of the participants, to examine dissociation as it is experienced in real-life situations above how it is construed theoretically, and to minimise researcher bias. There was flexibility within this approach to account for salient aspects of the scripts which were not explicitly stated (see Reflexivity).

Statistical Analyses

Two multiple linear regressions were performed in SPSS to determine whether childhood trauma, as measured by the CTQ, and borderline symptoms, as measured by the BSL-23, predicted state dissociation, as measured by the FDS (Analysis 1), and trait dissociation, as measured by the DSS (Analysis 2).

Scatterplots indicated the relationship between the IVs and DVs were linear (Appendix A). The assumption of collinearity was met, as tolerance scores were above 0.2 (0.876, 0.901), and VIF scores were below 10 (1.141, 1.11), indicating that the predictor variables were not highly correlated with each other. Durbin-Watson statistics were investigated to check independence of the values of residuals. The statistic for Analysis 1 was 1.30, and Analysis 2 was 1.15, which may indicate correlation between residuals. Scatterplots of the standardised predicted values and standardised residuals were made to investigate homoscedasticity (Appendix B). The plot for the first analysis indicates funnelling, while the second does not, suggesting that this assumption was met for the second, but not for the first analysis. P-P plots were made to investigate the distribution of the value of residuals (Appendix C). In both analyses, the plots suggest that the assumption of normality of the residuals may have been violated. Cook's Distance values were all under 1, suggesting that there were no significant outliers within the dataset. That several assumptions may have been violated means caution must be taken in interpreting the results of both analyses.

Reflexivity

A reflexive journal was kept to record the course of analysis and theoretical decisions. The thematic analysis was conducted in a manner to center the phenomenological experience of individuals with BPD. As such, the only information relevant to the analysis was the data itself, and all codes were generated from this level. Although every effort was made to interpret the data without reference to external ideas, it is impossible to conduct a qualitative analysis in a theoretical vacuum. The researchers possessed prior knowledge of BPD and dissociation, and this knowledge will have influenced the codes and themes which were generated.

The initial phases of coding and generating themes were conducted in an inductive and semantic manner, in that all codes were explicitly stated in the text, with no interpretation. After several

iterations of coding, the latent theme of 'Escape' was generated. Escape represented the function of dissociation, and was inferred from scripts in which a desire or intention to escape was not explicitly stated, but acted out within the narratives. In accordance with current guidelines on thematic analysis (Braun & Clarke, 2021), inclusion of meaningful themes was prioritised over rigidity of analytical approach. The theme of 'Escape' were judged as a reasonable interpretation of the role of dissociation grounded in the dataset.

Several extracts describing dissociative experiences were not categorizable without over-interpretation. For example: "*my brain shuts down… I have drifted away*" can be interpreted as derealisation ("drifted away" from reality), but it is not obvious. In these instances, extracts were coded under 'Dissociation' and not categorised further.

Results

Multiple Regression

A multiple regression was conducted to investigate whether childhood trauma, as measured by the CTQ, and borderline symptom severity, as measured by the BSL-23, could significantly predict participant's trait dissociation scores, as measured by the FDS. The results of the regression indicated that the model explained 7% of the variance, and that the model was not a significant predictor of trait dissociation., $F(2,25) = .06$, $p = .94$. Neither childhood trauma (B = -123, $p = .96$) nor borderline symptom severity (B = -1.23, $p = .74$) contributed significantly to the model.

A multiple regression was conducted to investigate whether Childhood Trauma and borderline symptom severity, could significantly predict participant's state dissociation scores, as measured by the DSS. The results of the regression indicated that the model explained 24% of the variance, but that the model was not a significant predictor of trait dissociation, $F(2,24) = .73$, $p = .5$. Neither childhood trauma (B =,.023, $p = .24$) nor borderline symptom severity (B = -2.6, $p = .66$) contributed significantly to the model.

Thematic Analysis

The aims of the analysis were to investigate 1) whether qualitatively different forms of dissociation can be identified in autobiographical narratives of individuals with BPD, 2) whether dissociative symptoms are associated with overarching themes (recurrent and prevalent topics), and 3) if such themes correspond with existing categorisations of dissociative phenomena.

Table 1

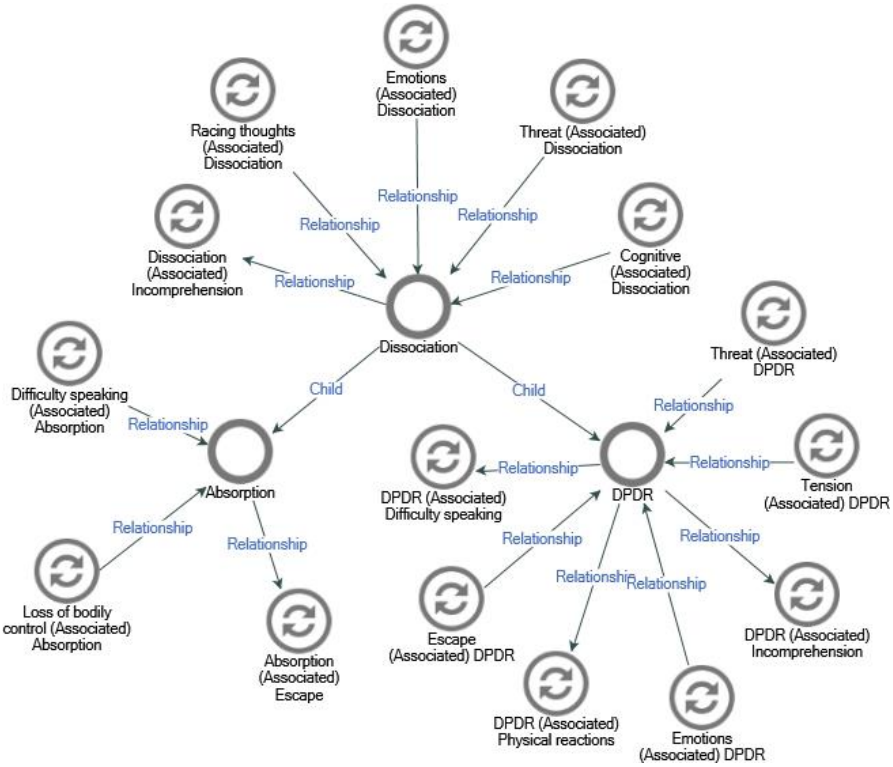
Types of Dissociation

Type of dissociation	Instances
Depersonalisation	6
Derealisation	3
Dissociation	6
Absorption/fixation	2

Qualitatively distinct forms of dissociation were depersonalisation (e.g. "*I can hear myself from far away*",), derealisation (e.g. "*It seems like a film that is passing me by*"), and dissociative absorption (e.g. "*…fixate my eyes onto the corridor… I no longer notice anything else*"). DPDR was unwanted and interfered with functioning, whereas DA was actively induced through fixation. 'Dissociation' refers to dissociative phenomena that could not be categorised (e.g. *"I go far away in my mind"*).

Figure 1

Thematic Map of Types of Dissociation and Relationships to Other Codes



The thematic map shows how DPDR and DA were nested under Dissociation, and relationships between codes.

Table 2

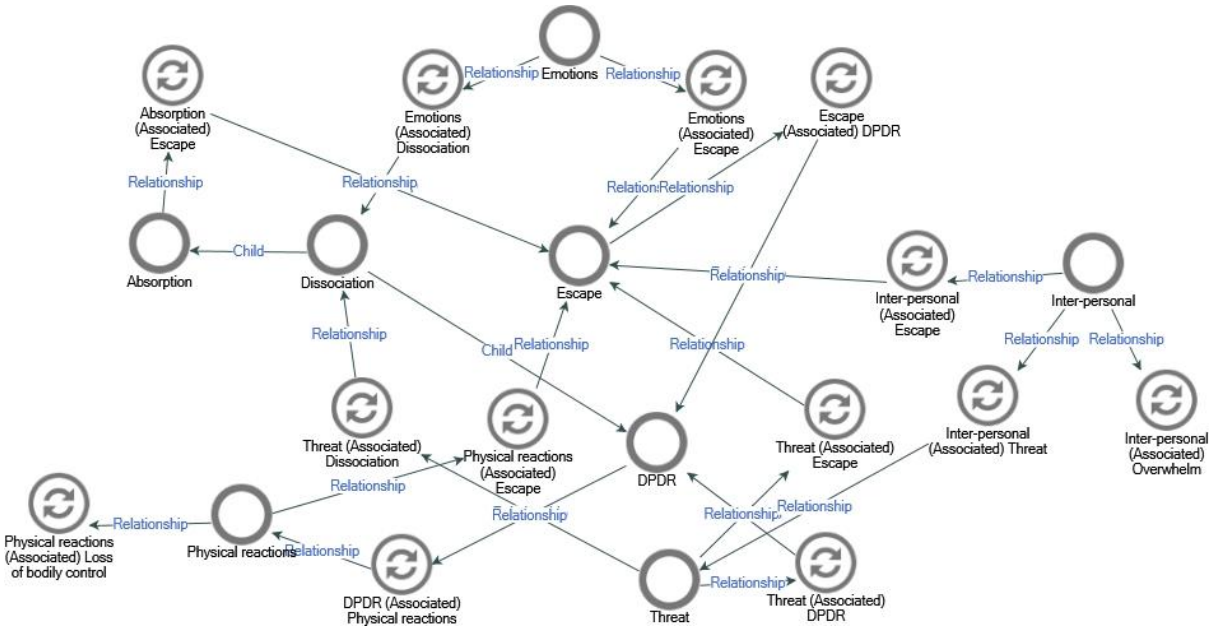
Main Themes

Theme	Instances	Percentage of scripts
Interpersonal	16	80%
Negative emotions	19	55%
Physical reactions	11	50%
Escape	7	35%
Threat	5	25%

Dissociative symptoms were associated with themes of interpersonal situations, negative emotions, physical reactions, threat, and escape. Dissociation was triggered in interpersonal and threatening situations, by negative emotions, and was accompanied by physical reactions consistent with sympathetic nervous system activation. The overall function of dissociation was escape from difficult, threatening, and overwhelming environments or internal experiences.

Figure 2

Thematic Map of Main Themes and Relationships



This map contains the main themes identified within the dataset, and the strongest relationships between the themes. A full map of every code and relationship can be found in Appendix D.

Table 3

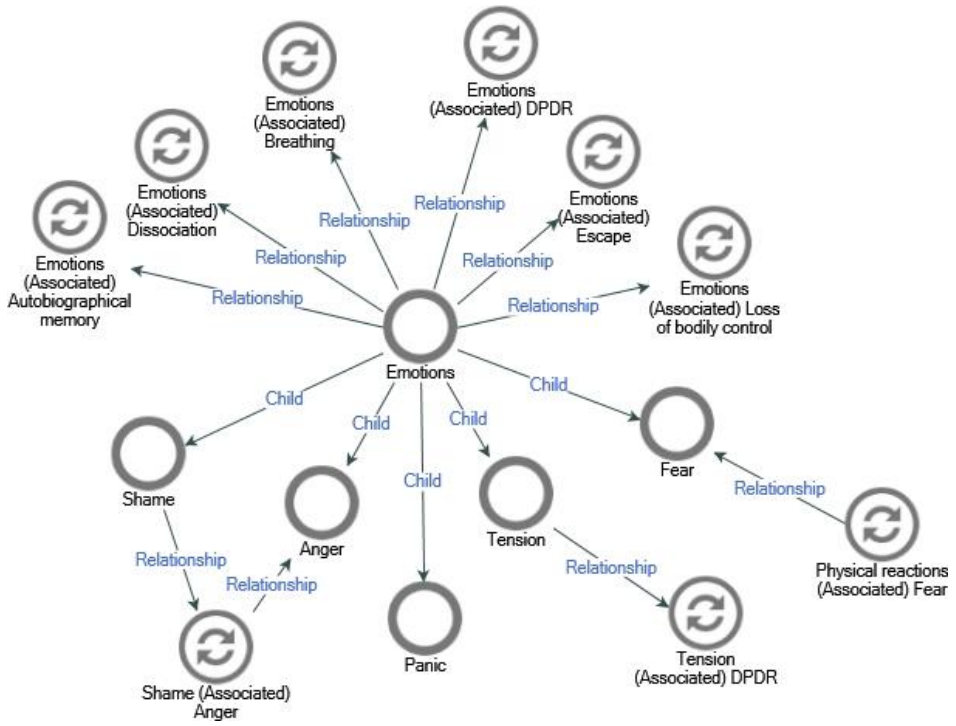
Negative Emotions

Emotion	Instances
Tension	4
Anger	2
Nervous	2
Panic	2
Fear	1
Stress	1
Shame	1
Sadness	1
Embarrassment	1
Aggression	1
Powerless	1
Insecure	1
Overwhelmed	1

There were 19 instances of a negative emotion across the dataset, in 13 (65%) scripts. In nine of these scripts, negative emotions directly preceded dissociation.

Figure 3

Thematic Map of Negative Emotions and Relationships to Other Codes



Physical reactions

Table 4

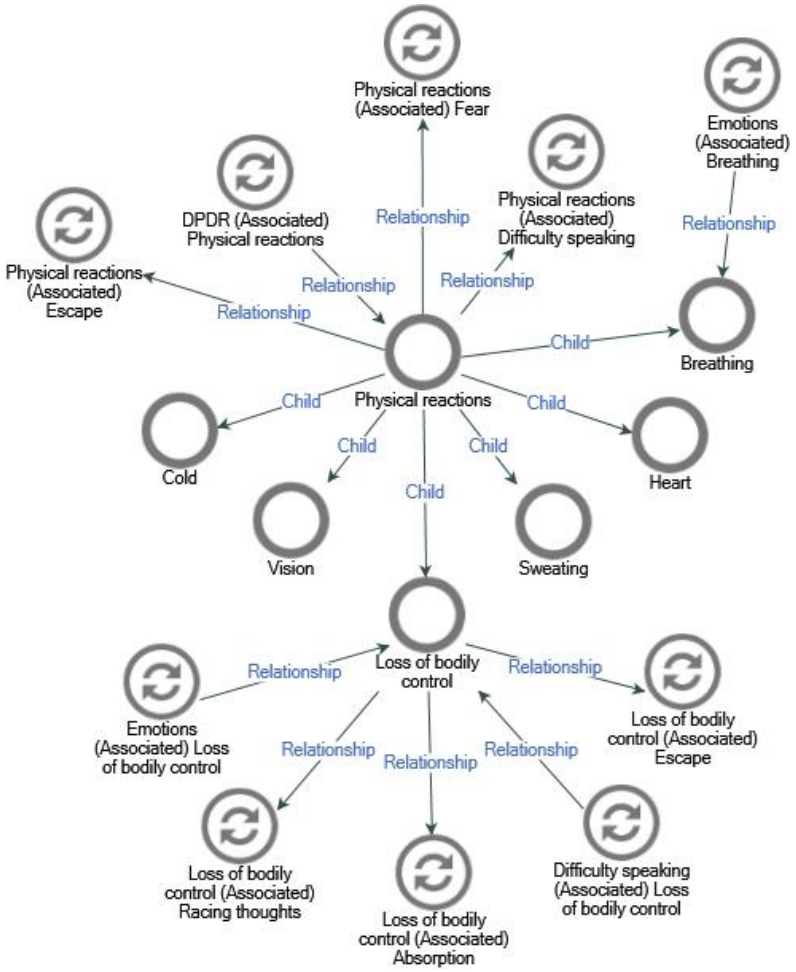
Physical reactions

Physical reaction	Instances
Difficulty moving	3
Shallow/fast breathing	2
Difficulty speaking	2
Blurred vision	2
Heart racing	1
Sweating	1
Collapse	1
Dizzy	1
Numb	1

There were 14 instances of physical reactions, included in eight (40%) of the scripts. In nine scripts, physical reactions followed dissociation, in five scripts, physical reactions preceded dissociation. Physical reactions occurred during stressful interpersonal interactions, such as therapy and disagreements, and alongside anger, sadness, and tension.

Figure 4

Thematic Map of Physical Reactions and Relationships to Other Codes



The thematic map shows physical reactions and their relationships to other codes. 'Heart' refers to racing heart, 'breathing' refers to references of shortness of breath and difficulty breathing. Instances of loss of bodily control, numbness, and collapse were consistent with somatoform dissociation.

Sixteen scripts (80%) described an interpersonal situation. Participants' relations to the people described in the scripts were friends, family, therapist, romantic partner, co-workers, and student cohort.

Five of the scripts (25%) described a threatening situation. Two described physical assault, one described feeling threatened by a stranger, one seeing a family member acutely suffering in hospital, and one seeing pictures of dead, injured, and threatened people during an fMRI task.

Seven extracts in 7 scripts (35%) described physically leaving a situation or a desire to get away, which were coded under the theme of escape. Dissociation functioned as psychological escape in more scripts than explicitly described desiring or achieving escape.

Dissociation was consistent with detachment (Brown, 2006) and experiential disconnectedness (Spiegel and Cardeña, 1991). Detachment and experiential disconnection are to be expected from narrative data, as these distinctions distinguish between dissociation within and outside of conscious awareness. Dissociation was consistent with Lanius's (2015) dimensions of body and emotion dissociation. Dissociative symptoms were negative (losses of integrated function) rather than positive (intrusive) (van Dijke et al., 2010). Dissociation was predominantly psychoform (e.g. DPDR, DA), with some instances of somatoform dissociation (e.g. difficulty speaking, loss of bodily control).

Discussion

The aim of this study was to investigate the form and function of dissociation in BPD as it is phenomenologically experienced, by identifying themes across personal narratives of individuals with BPD. The purpose of the confirmatory analyses were to replicate findings from previous literature that childhood trauma and borderline symptom severity are associated with greater dissociation (see Krause-Utz, 2022). In line with these findings, we predicted that childhood trauma and borderline symptom severity would be positively correlated with both trait and state dissociation.

Two multiple linear regressions were performed, the first to investigate whether childhood trauma and borderline symptom severity were associated with trait dissociation, the second to investigate the association with state dissociation. Neither analysis found childhood trauma or borderline symptom severity to predict dissociation. Preliminary analyses indicated that the residuals may be correlated and that the assumptions of homoscedasticity and normality may have been violated. Furthermore, the sample size was small (n = 20). Thus, it is possible that the quantitative data analysed was not robust enough to detect relationships between the childhood trauma, borderline symptom severity, and measures of dissociation, which have previously been observed in the literature.

A thematic analysis was performed on dissociation induction scripts, in order to investigate the types of dissociation present in autobiographical narratives of individuals with BPD. Dissociation occurred in interpersonal and threatening situations, was triggered by negative emotions, and was accompanied by physical reactions consistent with sympathetic nervous system activation. The overall function of dissociation was escape. These results are consistent with Ludascher et al.'s (2010) findings that the majority of dissociation induction scripts made by individuals with BPD consisted of "interpersonal conflict-associated situations", and a minority of "trauma-associated situations".

The most prevalent type of dissociation within the scripts were DPDR. Examples of DPDR are as follows: "*Reality starts to feel further away*", "*I can hear myself from far away*", "*Everything is like wrapped in cotton*", "*Like a film that is passing me by*", "*The world is blurry and I no longer feel my body*", "*Everything is blurred, my skin feels numb*". There were two instances of DA: *"I keep rocking back and forth and fixate my eyes… I no longer notice anything else"*, "*I fixate on a point on the wall and notice how I slowly drift away. I close my eyes and think about nothing*". The 'dissociation' code contains instances of dissociation which could not be categorised specifically, such as: *"my brain shuts down", "I go far away in my mind", "I become invisible"*, "*I have drifted away"*.

DPDR refers to detachment from the self and the world. DPDR symptoms occur transiently in healthy populations during acute and prolonged stress, and function to dampen anxiety (Hunter et al., 2017). DPDR is indicative of pathology when it is frequent, long-lasting, and interferes with normative functioning. This is reflected in findings that DPDR is higher in clinical populations (Hunter et al., 2004). DPDR has previously been found in BPD, and a decrease in DPDR to be associated with BPD recovery (Shah et al., 2020). The following extract captures the sense of unreality, and illustrates how DPDR interferes with functioning.

"They are talking. I don't know what they are talking about. It seems like a film that is passing me by. I feel as if this state is going on for an eternity. I hear the words of the others, but I don't understand them."

In this instance, derealisation (*"a film that is passing me by"*) interferes with comprehending the speech of peers. The other type of dissociation identifiable within the scripts was DA, in which attention is fixed on an internal or external object to the extent that the individual is unaware of their surroundings (Soffer-Dudek et al., 2015).

"Everything is too much for me. I run out into my flat slamming doors and sit down on the floor. I fixate on a point on the wall and notice how I slowly drift away. I close my eyes and think about nothing anymore. Finally silence."

In this extract, DA is induced by sitting on the floor and fixating on a point on a wall, and is a relief from "*everything (being) too much*", a way to "*think about nothing*", and to achieve silence. DA was induced through fixation. This is a qualitatively different phenomena to DPDR, in which dissociation occurred in response to interpersonal, emotional, and threatening situations. Both DPDR and DA achieved the function of psychological escape, but DPDR was uncontrolled, whereas DA was actively induced.

The majority of dissociative phenomena were psychoform dissociation; experiential disconnection in usually integrated mental processes, including those which were not categorised in to either DPDR

or DA, for example, "*nothing around me matters*". A minority were instances of somatoform dissociation, for example inability to speak, loss of bodily control, and insensitivity to pain.

"I think, but nothing at all has happened. Then I collapse."

Somatoform dissociation refers to disintegration of somatic functions such as motor control, pain perception, and sensory perception (Bob et al., 2013). Instances of somatoform dissociation were in response to acute emotional stress and threats. This is consistent with the notion that threats produce excessive physiological arousal in individuals with BPD, which, in situations which one is unable to fight or flight from, turn in to a "shutdown" response, as in immobility or fainting (Kienle et al., 2017). Somatoform dissociation within the scripts was consistent with sympathetic nervous system activation in response to a threat resulting in immobility and loss of bodily control.

The majority of identifiable dissociation was DPDR. DPDR was unwanted, interfered with normal functioning, and was accompanied by physical reactions, whereas DA was actively induced by fixation. Dissociation was negative, or disintegration of usually integrated functions. There were no instances of intrusive symptoms. The majority of dissociation was psychoform and a minority somatoform dissociation. All forms of dissociation served the function of creating distance from negative emotions, interpersonal situations, and perceived threats.

The majority of scripts described an interpersonal situation. This is consistent with the idea that interpersonal hypersensitivity is a core feature of BPD (Gunderson & Lyons-Ruth, 2008), and findings that borderline symptoms are predominantly triggered by social interactions (Roepke et al., 2013). Interpersonal dysfunction in BPD presents as intense and volatile social relationships, attachment insecurity, hypersensitivity to real or imagined rejection and abandonment, and being over-sensitive but under-scient of the emotional states of others (Krause-Utz, 2022; New et al., 2012; Miano et al., 2017; Palihawadana et al., 2018; Schmahl et al., 2014). Furthermore, BPD experience more negative emotions during social interactions, have fewer social interactions, are less trusting, and report lower feelings of social connection than healthy controls (De Panfillis et al., 2015; Lis & Bohus, 2013).

For the majority of scripts, interpersonal situations were the context in which negative emotions and physical reactions occurred. This is congruent with findings that sensitivity to interpersonal situations can act as a trigger for other borderline symptoms, such as impulsivity and emotional dysregulation (Roepke et al., 2013; Stanley & Siever, 2014). Emotional dysregulation refers to an impairment in emotional awareness and regulation, and is a core feature of BPD (Linehan, 1993). The following extract is a clear example of how dissociation functioned to create distance from emotions.

"Meanwhile, fear and panic rise up in me. I realise that I can't deal with these feelings and my brain shuts down. The images keep running, but I have drifted away."

This extract illustrates how dissociation (*"my brain shuts down", "drifted away"*) arises when the individual couldn't *"deal with these feelings"* of *"fear and panic"*. This suggests that dissociation arose to regulate affect in place of normative emotion regulation skills. Emotional dysregulation in BPD presents as hypersensitivity (low threshold for affective reaction), hyperreactivity (intense affect), an impaired return to an emotional baseline, and a lack appropriate coping mechanisms (Cattane et al., 2017; Cavicchioli et al., 2021; D'Agostino et al., 2017). The biosocial model of BPD posits that emotion dysregulation is caused by a combination of genetic predisposition and an invalidating environment during development, resulting in an impaired ability to recognise and regulate emotions (Crowell et al., 2009). Evidence for this model includes findings that emotional dysregulation is associated with BPD symptom severity (Stepp et al., 2015), and neuropsychological findings of differential functional connectivity between brain areas involved in emotional regulation (Backowski et al., 2017). Furthermore, BPD are impaired in employing emotional regulation strategies and monitoring other's emotions (Leible & Snell, 2004; Salsman & Linehan, 2012), and experience greater changeability of mood than healthy controls (Nica & Links, 2009). There are examples of emotional hypersensitivity and reactivity in the scripts, for example:

"An employee at [company] takes me on a street outreach where we visit prostitutes on [street]. We go from woman to woman to talk to the women and offer help. I notice the women's eyes and the pimps watching us. I feel insecure and overwhelmed in the confrontation with the women. As I cannot bear the pain in the women's eyes, I withdraw into myself."

This individual felt "*insecure and overwhelmed*" by coming in to contact with women who were suffering, could not "*bear the pain in [their] eyes*", and withdrew inward. This extract is congruent with the finding that BPD are highly attuned to and distressed by the emotions of others (New et al., 2012; Salgado et al., 2020), and illustrates how dissociation acts as a buffer against affective hyperreactivity to the emotions of others. Taken together with findings that dissociation impairs emotional learning and dampens emotional reactivity in BPD (Ebner-Priemer et al., 2005; Ebner-Priemer et al., 2009), dissociation can be interpreted as a protective buffer against intense affect. The following extract is an example of affective hypersensitivity, and details how losing a social relationship triggered the urge to self-harm:

"[person] writes that [person] is more important to her and that it would be better if she had no more contact with me from now on and that she is sorry. Then the world is blurry and I no longer feel my body. I feel like I'm isolated, like I don't belong to this world. I feel the urge to hurt myself."

Following a social rejection, this individual experiences derealisation ("*the world is blurry*"), depersonalisation ("*I no longer feel my body*"), and "*the urge to hurt*" themselves. BPD has high levels of non-suicidal self-injury (NSSI) and suicidality (Leichsenring et al., 2011), with 65 - 80% having engaged in NSSI (Lieb et al., 2004). Alleviation of tension, unpleasant emotions, and dissociative states have been reported as motivations for NSSI (Kleindienst et al., 2008), all of which are applicable to this extract. The extract is consistent with findings that emotional dysregulation accounts for vulnerability to NSSI within BPD (Terzi et al., 2017), and that dissociation precedes the urge to engage in NSSI (Yates, 2004).

Negative emotions were a prevalent theme and tended to directly precede dissociation. The scripts demonstrate how emotional dysregulation impacts everyday experiences for individuals with BPD, and how dissociation may compensate for deficient emotional regulation skills, acting to dampen emotional hypersensitivity and reactivity. Research suggests that individuals with BPD are impaired in identifying, naming, and describing emotions, particularly when experiencing inner tension (Derks et al., 2017; New et al., 2012; Suvak et al., 2011; Wolff et al., 2007). Thus, it is likely that more emotions were present than were named.

Five scripts described threatening situations. The following extract describes an instance of physical abuse.

> "[Person] tucks me in. He starts doing relaxation exercises with me. His voice is monotonous. He asks me to stand up, and me to turn around. He pulls down my skirt, he slaps my bottom. Then he sits down in front of me. He looks at me waiting. I think, but nothing at all has happened. Then I collapse."

In this instance, somatoform dissociation ("*nothing at all has happened. Then I collapse"*) occurs following assault. This can be interpreted as an acute stress response culminating in a dissociative "shutdown" response (Kienle et al., 2017). The following extract describes an interpersonal conflict which leads to physical violence.

> "[Person's] gaze is fixed and cold. He says I have not been a saint. He says he heard that I would not rest until I destroyed him. He answers my questions with a stammer. He gives me a grimacing, malicious look. I stand up and slap him. He strikes back with great force."

It is noteworthy that these participants used such memories for their scripts, as they were asked to use a non-traumatic memory. The inclusion of such memories is congruent with the trauma model of dissociation, as it suggests that dissociation is strongly linked to acute stress. This is the best evidenced model of dissociation, and trauma is acknowledged as at least a component, if not the determining factor, in the development of dissociative disorders (Dalenberg et al., 2012).

It has been proposed that BPD is better understood as a traumagenic disorder rather than personality disorder. This is due to the overlap between clinical pictures of BPD with PTSD and dissociative disorders, and the links between both childhood trauma and dissociation, and BPD and dissociation (Herman, 1992; MachIntosh et al., 2015). Research converges on BPD, PTSD, complex PTSD, and dissociative disorders consisting of distinct but overlapping symptom profiles (Brand & Lanius, 2014; Ford & Courtois, 2021), with greater childhood trauma associated with more severe symptoms (Cyr et al., 2022). There is evidence to suggest that different kinds of abuse lead to different psychopathologies, such borderline symptoms being closely associated with emotional abuse, while dissociation is more closely associated with sexual and physical abuse (Tschoeke et al., 2021), and it is possible for BPD to develop in absence of childhood trauma (Kleindienst et al., 2020). Taken together, this suggests that trauma is a causal factor for some, but not all instances of BPD, and that more severe or prolonged trauma leads to greater dysfunction.

The themes of threat and physical reactions are consistent with the idea that BPD have a low threshold for physiological responses to perceived threats and stress. According to the polyvagal theory of autonomic regulation, different states of physiological arousal and behaviour are activated depending on how safe, stressful, or threatening the environment is (Porges, 2009). These responses are actuated through the vagus nerve, through which the autonomic systems operate. It has been proposed that BPD has an overactive sympathetic system, resulting in hyperarousal of acute stress response mobilisation, and an underactive parasympathetic system, resulting in hypoarousal of social engagement behaviours (Austin et al., 2007). This imbalance is referred to as a decrease in vagal tone. A meta-analysis found BPD to have a lower resting state vagal tone than controls, and that this was associated with emotional liability and impulsivity (Koenig et al., 2016). Further evidence for this model includes findings that BPD have lower basal cortisol than controls (Thomas et al., 2019), and a blunted cortisol response to and impaired recovery from psychosocial stress compared to healthy controls and other personality disorders (Drews et al, 2019). Additionally, heart-rate variability, a marker of vagal tone, has been found to predict DBT treatment outcome in BPD (Weise et al., 2021). It is possible that such physiological hyperreactivity is traumagenic rather than specific to BPD, as a low vagal tone has also been observed in PTSD (Meyer et al., 2016). The following extract is an example of a physical response triggered by thinking about a conversation with the individual's therapist.

"I sit in the passenger seat and imagine the situation with my therapist and think about questions he will ask me and I notice how I become more tense and how my memories come up. I notice how reality starts to feel further away. I notice how my breathing becomes shallower. I feel like I don't want to go and I notice that it is very difficult for me to speak."

In this extract, a stressful thought triggers dissociation ("*reality starts to feel further away"*), shallow breathing, and difficulty speaking, while sitting in a car. The instances of sweating, changes in breath, difficulty speaking, and increased heart rate in the scripts are indicative of sympathetic nervous system activation (Ziegler, 2004). Such physiological activation is a mobilisation of the stress response, roused in response to acute stressors in order to ready the body for immediate action. The physical reactions were consistent with activation of this response in the absence of an environmental stressor. The following extract describes physical reactions during group therapy.

"I'm sitting in group therapy and I'm angry about [person] and it's everyone's turn to tell how they're feeling. I realise that I suddenly don't feel much anymore: nothing around me matters. Then [person] says how she is and always says the same thing. I notice that I'm getting nervous, tense, and more and more angry, and I stare out of the window and notice that my heart is racing more and more and I'm breathing faster. I can't move anymore and just want to get away."

This individual dissociates ("*I suddenly don't feel much anymore: nothing around me matters"*), experiences anger, nervousness, tension, a racing heart, fast breathing, and a loss of bodily control (*"I can't move anymore"*). This is an example of physical reactions consistent with an acute stress reaction which hinders normative functioning; in this instance, participation in group therapy. Physical reactions were consistent with sympathetic nervous system activation in absence of an environmental stressor which would typically warrant such activation. This can be interpreted as BPD having a low threshold for physiological reactivity to environmental stressors.

The final theme identified within the dataset was that of escape, which summarises the function of dissociation within the scripts. Dissociation was escape from threatening and interpersonal situations and negative emotions, and was accompanied by physical reactions. This theme is the most interpretative, as the scripts do not explicitly state a desire to escape. Rather, there are instances of a desire to get away (e.g. *"I can't move anymore and just want to get away"*), instances of physically escaping a situation (e.g. *"The nurse brings out the bloodstained sheets and calls the doctors. Four of them run in and I run away"*), and scripts in which dissociation functions as a psychological escape, for example:

"I'm sitting on the tram when a drunk man sits down next to me. His breath smells strongly of alcohol. He speaks to me. I become invisible again, but I can still smell him. I go far away in my mind and miss my stop."

In this extract, dissociation ("*I become invisible… I go far away in my mind*") happens when physical escape is impossible, while on a tram. This extract also describes how dissociation initially serves a purpose in distancing the individual from the man, it then interferes with normal functioning as they

miss their stop. In summary, dissociation allowed for "*psychological escape when physical escape is not possible*" (Putnam, 1996) in everyday situations.

Limitations

As thematic analysis is an exploratory qualitative technique, no firm conclusions can be drawn, nor does this data constitute as empirical evidence for any of the theories discussed. The advantage of investigating narrative data qualitatively is that the phenomenological experience of dissociation is represented by the population, in their own words; the disadvantage is that this is inherently subjective. While the theoretical basis for this analysis was to assume that the participants are the experts of their own experience, it is possible that they did not recall accurately, as research suggests that dissociation is associated with deficits in autobiographical recall and working memory (Al-Shamali et al., 2022; Ozdemir et al., 2015). A further consideration is that while script-driven imagery can induce dissociation in a research context, it does not directly mimic in vivo dissociation.

The sample consisted of only 20 scripts, and participants were asked to use one situation which caused moderate dissociation. The small sample size and subjective nature of the data meant that identifying different types of dissociation was limited. Thus, the dataset cannot be assumed to be representative of the complete range of dissociative experiences in BPD.

Conclusion

This thematic analysis found that individuals with BPD predominantly experienced DPDR in interpersonal and threatening situations. Negative emotions were a predominant theme, and tended to precede dissociation. For some individuals, dissociation was accompanied by physical reactions consistent with sympathetic nervous system activation. These findings suggest that dissociation provided psychological distance from internal sensations and external environments. The narratives framed such situations as intolerable, which is in line with findings that interpersonal dysregulation, a low threshold for perceiving situations as threatening, and affective hyperreactivity are central to BPD. The analysis offers insight in to the phenomenological experience of dissociation in BPD, specifically that dissociation can function as a coping mechanism to escape from affective and physiological hyperreactivity to everyday experiences.

References

Al-Shamali, H. F., Winkler, O., Talarico, F., Greenshaw, A. J., Forner, C., Zhang, Y., Vermetten, E., & Burback, L. (2022). A systematic scoping review of dissociation in borderline personality disorder and implications for research and clinical practice: Exploring the fog. *Australian & New Zealand Journal of Psychiatry, 56*(10): 1252 – 1264. https://doi.org/10.1177/00048674221077029

American Psychiatric Association. (2013a). Dissociative Disorders. In *Diagnostic and Statistical Manual of Mental Disorders (5th Ed.).*

American Psychiatric Association. (2013b). Personality Disorders. In *Diagnostic and Statistical Manual of Mental Disorders (5th Ed.).*

Amrhein, C., Hengmith, S., Maragkos, M., & Hennig-Fast, K. (2008). Neuropsychological characteristics of highly dissociative healthy individuals. *Journal of Trauma and Dissociation, 9*(4): 525 – 542. https://doi.org/10.1080/15299730802226332

Austin, M. A., Riniolo, T. C., & Porges, S. W. (2007). Borderline personality disorder and emotion regulation: Insights from the Polyvagal Theory. *Brain and Cognition, 65*(1): 69 – 76. https://doi.org/10.1016/j.bandc.2006.05.007

Barnow, S., Limberg, A., Stopsack, M., Spitzer, C., Grabe, H. J., Freyberger, H. J., & Hamm, A. (2011). Dissociation and emotion regulation in borderline personality disorder. *Psychological medicine, 42*(4): 783 – 794. https://doi.org/10.1017/S0033291711001917

Bernstein, D. P., Stein, J. A., Newcomb, M. D., Walker, E., Pogge, D., Ahluvalia, T., Stokes, J., Handelsman, L., Medrano, M., Desmond, D., & Zule, W. (2003). Development and validation of a brief screening version of the Childhood Trauma Questionnaire. *Child Abuse and Neglect, 27*(2): 169 – 190. https://doi.org/10.1016/s0145-2134(02)00541-0

Bernstein, E. M., & Putnam, F. W. (1986). Development, reliability, and validity of a dissociation scale. *Journal of Nervous and Mental Disease, 174*(12): 727 – 735. https://doi.org/10.1097/00005053-198612000-00004

Bierer, L. M., Yehuda, R., Schmeilder, J., Mitropoulou, V., New, A. S., Silverman, J. M., & Siever, L. J. (2003). Abuse and neglect in childhood: Relationship to personality disorder diagnoses. *CNS Spectrums, 8*(10): 737 – 754. https://doi.org/10.1017/s1092852900019118

Bichescu-Burian, D. M., Grieb, B., Steinert, T., Uhlmann, C., & Steyer, J. (2018). Use of a psychophysiological script-driven imagery experiment to study trauma-related dissociation in borderline personality disorder. *Journal of Visualized Experiments, 133*: 56111. https://doi.org/10.3791/56111

Bob, P., Selesova, P., Raboch, J., & Kukla, L. (2013). 'Pseudoneurological' symptoms, dissociation and stress-related psychopathology in healthy young adults. *BMC Psychiatry, 13*: 149. https://doi.org/10.1186/1471-244X-13-149

Bohus, M., Limberger, M., Ebner, U., Glocker, F. X., Schwarz, B., Wernz, M., Lieb, K. (2000). Pain perception during self-reported distress and calmness in patients with borderline personality disorder and self-multating behaviour. *Psychiatry Research, 95*(3): 251 – 260. https://doi.org/10.1016/s0165-1781(00)00179-7

Bohus, M., Stoffers-Winterling, J., Sharp, C., Krause-Utz, A., Schmahl, C., & Lieb, K. (2021). Borderline personality disorder. *The Lancet, 398*: 1528 – 1540. https://doi.org/10.1016/S0140-6736(21)00476-1

Bourvis, N., Aouidad, A., Cabelguen, C., Cohen, D., & Xavier, J. (2017). How do stress exposure and stress regulation relate to Borderline Personality Disorder? *Frontiers in Psychology, 8*: 2054. https://doi.org/10.3389/fpsyg.2017.02054

Bozzatello, P., Rocca, P., Baldassarri, L., Bosia, M., & Bellino, S. (2021). The role of trauma in early onset Borderline Personality Disorder: A biopsychosocial perspective. *Frontiers in Psychiatry, 12*: 721361. https://doi.org/10.3389/fpsyt.2021.721361

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Braun, V., & Clarke, V. (2022). Conceptual and design thinking for thematic analysis. *Qualitative Psychology, 9*(1): 3 – 26. https://doi.org/10.1037/qup0000196

Brand, B. L., & Lanius, R. A. (2014). Chronic complex dissociative disorders and borderline personality disorder: Disorders of emotion dysregulation? *Borderline Personality Disorder and Emotion Dysregulation, 1*: 13. https://doi.org/10.1186/2051-6673-1-13

Bregman-Hai, N., Abitbul-Gordon, S., Deutsch, I., Garbi, D., Shelef, L., & Soffer-Dudek, N. (2018). Leave everything to the imagination: Cognitive functioning of individuals high in dissociative absorption and imaginative involvement. *Journal of Research in Personality, 76*: 129 – 138. https://doi.org/10.1016/j.jrp.2018.08.004

Brewin, C. R., Belinda, Y. T., & Colson, J. (2012). Effects of experimentally induced dissociation on attention and memory. *Consciousness and Cognition, 22*(1): 315 – 323. https://doi.org/10.1016/j.concog.2012.08.005

Brown, R. J. (2006). Different types of "dissociation" have different psychological mechanisms. *Journal of Trauma & Dissociation, 7*(4): 7 – 28. https://doi.org/10.1300/J229v07n04_02

Cardenas-Morales, L., Fladung, A., Kammer, T., Schmahl, C., Plener, P. L., Connemann, B. J., & Schoenfeldt-Lecuona, C. (2011). Exploring the affective component of pain perception during aversive stimulation in borderline personality disorder. *Psychiatry Research, 186*(2-3): 458 – 460. https://doi.org/10.1016/j.psychres.2010.07.050

Carlson, E.B. & Putnam, F.W. (1993). An update on the Dissociative Experience Scale. *Dissociation 6*(1), 16 – 27. https://doi.org/10.1177/1073191116645904

Carlson, E. B., Dalenberg, C., & McDade-Montez, E. (2012). Dissociation in posttraumatic stress disorder part I: Definitions and review of research. *Psychological Trauma: Theory, Research, Practice, and Policy*, *4*(5), 479–489. https://doi.org/10.1037/a0027748

Cattane, N., Rossi, R., Lanfredi, M., & Cattaneo, A. (2017). Borderline personality disorder and childhood trauma: Exploring the affected biological systems and mechanisms. *BMC Psychiatry, 17*: 221. https://doi.org/10.1186/s12888-017-1383-2

Cavicchioli, M., Barone, L., Fiore, D., Marchini, M., Pazzano, P., Ramella, P., Riccardi, I., Sanza, M., & Maffei, C. (2021). Emotion regulation, physical diseases, and Borderline Personality Disorders: Conceptual and clinical considerations. *Frontiers in Psychology, 12*: 567571. https://doi.org/10.3389/fpsyg.2021.567671

Chung, B. Y., Hensel, S., Schmidinger, I., Bekrater-Bodmann, R., & Flor, H. (2020). Dissociation proneness and pain hyposensitivity in current and remitted borderline personality disorder. *European Journal of Pain 24*(7): 1257 – 1268. https://doi.org/10.1002/ejp.1567

Colle, L., Hilviu, D., Rossi, R., Garbarini, F., & Fossataro, C. (2020). Self-harming and sense of agency in patients with Borderline Personality Disorder. *Frontiers in Psychiatry, 11*: 449. https://doi.org/10.3389/fpsyt.2020.00449

Coy, D. M., & Madere, J. (2022). Diagnosing the Dissociative Disorders: Conceptual, Theoretical, and Practical Considerations. In: Dorahy, M. J., Gold, S. N., & O'Niel, J. A. (Eds), *Dissociation and the Dissociative Disorders: Past, Present, Future* (pp. 661 - 672). Routledge. https://doi.org/10.4324/9781003057314-50

Crowell, S. E., Beauchaine, T. P., & Linehan, M. M. (2009). A biosocial developmental model of borderline personality: Elaborating and extending Linehan's theory. *Psychological Bulletin, 135*: 495 – 510. https://doi.org/10.1037/a0015616

Cyr, G., Godbout, N., Cloitre, M., & Belanger, C. (2022). Distinguishing among symptoms of posttraumatic stress disorder, complex posttraumatic stress disorder, and borderline personality disorder in a community sample of women. *Journal of Traumatic Stress, 35*(1): 186 – 196. https://doi.org/10.1002/jts.22719

D'Agostino, A., Covanti, S., Monti, M. R., & Starcevic, V. (2017). Reconsidering emotion dysregulation. *Psychiatric Quarterly, 88*(4): 807 – 825. https://doi.org/10.1007/s11126-017-9499-6

D'Agostino, A., Monti, M. R., & Starcevic, V. (2018). Models of borderline personality disorder: Recent advances and new perspectives. *Current Opinion in Psychiatry, 31*(1): 57 – 62. https://doi.org/10.1097/YCO.0000000000000374

Dalenberg, C. J., Brand, B. L., Gleaves, D. H., Dorahy, M. J., Loewenstein, R. J., Cardeña, E., Frewen, P. A., Carlson, E. B., & Spiegel, D. (2012). Evaluation of the evidence for the trauma and fantasy models of dissociation. *Psychological Bulletin*, *138*(3), 550–588. https://doi.org/10.1037/a0027447

De Panfillis, C., Riva, P., Preti, E., Cabrino, C., & Marchesi, C. (2015). When social inclusion is not enough: Implicit expectations of extreme inclusion in borderline personality disorder. *Personality Disorders: Theory, Research, and Treatment 6*(4): 301 – 309. https://doi.org/10.1037/per0000132

Derks, Y. P. M. J., Westerhof, G. J., & Bohlmeijer, E. T. (2017). A meta-analysis on the association between emotional awareness and borderline personality disorder. *Journal of Personality Disorders, 31*(3): 362 – 384. https://doi.org/10.1521/pedi_2016_30_257

Drews, E., Fertuck, E. A., Koenig, J., Kaess, M., & Arntz, A. (2019). Hypothalamic-pituitary-adrenal axis functioning in borderline personality disorder: A meta-analysis. *Neuroscience & Biobehavioural Reviews, 96*: 316 – 334. https://doi.org/10.1016/j.neubiorev.2018.11.008

Ebner-Priemer, U. W., Badeck, S., Beckmann, C., Wagner, A., Feige, B., Weiss, I., Lieb, K., & Bohus, M. (2005). Affective dysregulation and dissociative experience in female patients with borderline personality disorder: A startle response study. *Journal of Psychiatric Research, 39*(1): 85 – 92. https://doi.org/10.1016/j.jpsychires.2004.05.001

Ebner-Priemer, U. W., Mauchnik, J., Kleindienst, N., Schmahl, C., Peper, M., Rosenthal, M. Z., Flor, H., & Bohus, M. (2009). Emotional learning during dissociative states in borderline personality disorder. *Journal of Psychiatry and Neuroscience, 34*(3): 214 – 222.

Fonagy, P., Luyten, P., Allison, E., & Campbell, C. (2017). What we have changed our minds about: Part 2. Borderline personality disorder, epistemic trust and the developmental significance of social communication. *Borderline Personality Disorder and Emotion Dysregulation, 4*(9): 11. https://doi.org/10.1186/s40479-017-0061-9

Ford, D. F., & Courtois, C. A. (2021). Complex PTSD and borderline personality disorder. *Borderline Personality Disorder and Emotion Dysregulation, 8*: 16. https://doi.org/10.1186/s40479-021-00155-9

Goodman, M., & New, A. (2000). Impulsive aggression in borderline personality disorder. *Current Psychiatry Reports, 2*: 56 – 61. https://doi.org/10.1007/s11920-000-0043-1

Gunderson, J. G., & Lyons-Ruth, K. (2008). BPD's interpersonal hypersensitivity phenotype: A gene-environmental developmental model. *Journal of Personality Disorders, 22*(1): 22 – 41. https://doi.org/10.1521/pedi.2008.22.1.22

Herman, J. L. (1992). *Trauma and Recovery: The aftermath of violence from domestic abuse to political terror*. New York, NY: Basic Books.

Holmes, E. A., Brown, R.J., Mansell, W., Fearon, R. P., Hunter, E. C. M., Frasquilho, F., & Oakley, D. A. (2005). Are there two qualitatively distinct forms of dissociation? A review and some clinical implications. *Clinical Psychology Review, 25*(1): 1 – 23. https://doi.org/10.1016/j.cpr.2004.08.006

Hunter, E. C. M., Sierra, M., & David, A. S. (2004). The epidemiology of depersonalisation and derealisation: A systematic review. *Social Psychiatry and Psychiatric Epidemiology, 39*(1): 9 – 18. https://doi.org/10.1007/s00127-004-0701-4

Hunter, E. C. M., Charlton, J., & David, A. S. (2017). Depersonalisation and derealisation: Assessment and management. *BMJ, 356*: 745. https://doi.org/10.1136/bmj.j745

Kaess, M. (2019). Childhood adversity in borderline personality disorder – A call for a more systemic approach to early intervention and prevention. *Acta Psychiatrica Scandinavica, 141*(1): 3 – 5. https://doi.org/10.1111/acps.13138

Kienle, J., Rockstroh, B., Bohus, M., Fiess, J., Huffziger, S., & Steffen-Klatt, A. (2017). Somatoform dissociation and posttraumatic stress syndrome – two sides of the same medal? A comparison of symptom profiles, trauma history and altered affect regulation between patients with functional neurological symptoms and patients with PTSD. *BMC Psychiatry, 17*: 248. https://doi.org/10.1186/s12888-017-1414-z

Kleindienst, N., Bohus, M., Ludascher, P., Limberger, M., Keunkele, K., Ebner-Priemer, U., Chapman, A., Reicherzer, M., Stieglitz, R., & Schmahl, C. (2008). Motives for nonsuicidal self-injury among women

with Borderline Personality Disorder. *The Journal of Nervous and Mental Disease,196*(3): 230 – 236. https://doi.org/10.1097/NMD.0b013e3171663026

Kleindienst, N., Limberger, M. F., Ebner-Priemer, U., Keibel-Mauchnik, J., Dyer, A. S., Berger, M., Schmahl, C., & Bohus, M. (2011). Dissociation predicts poor response to Dialectical Behavioural Therapy in female patients with Borderline Personality Disorder. *Journal of Personality Disorders, 25*(4): 432 – 447. https://doi.org/10.1521/pedi.2011.25.4.432

Kleindienst, N., Priebe, K., Gorg, N., Dyer, A., Steil, R., Lussenko, L., Winter, D., Schmahl, C., & Bohus, M. (2016). State dissociation moderates response to dialectical behaviour therapy for posttraumatic stress disorder in women with and without Borderline Personality Disorder. *European Journal of Psychotraumatology, 7*(1): 30375. https://doi.org/10.3402/ejpt.v7.30375

Kleindienst, N., Vonderlin, R., Bohus, M., & Lis, S. (2020). Childhood adversity and borderline personality disorder. Analyses complementing the meta-analysis by Porter et al. (2020). *Acta Psychiatrica Scandinavica, 143*(2): 183 – 184. https://doi.org/10.1111/acps.13256

Klonsky, E. D., Victor, S. E., & Saffer, B. Y. (2014). Nonsuicidal self-injury: What we know, and what we need to know. *Canadian Journal of Psychiatry, 59*(11): 565 – 568. https://doi.org/10.1177/070674371405901101

Koenig, J., Kemp, A. H., Feeling, N. R., Thayer, J. F., & Kaess, M. (2016). Resting vagal tone in borderline personality disorder: A meta-analysis. *Progress in Neuro-Psychopharmacology and Biological Psychiatry, 64*: 18 – 26. https://doi.org/10.1016/j.pnpbp.2015.07.002

Korzekwa, M. I., Dell, P. F., & Pain, C. (2009a). Dissociation and borderline personality disorder: An update for clinicians. *Current Psychiatry Reports, 11*: 82 – 88. https://doi.org/10.1007/s11920-009-0013-1

Korzekwa, M. I., Dell, P. F., Links, P. S., Thabane, L., & Fougere, P. (2009b). Dissociation in borderline personality disorder: A detailed look. *Journal of Trauma & Dissociation, 10*(3), 346–367. https://doi.org/10.1080/15299730902956838

Krause-Utz, A. (2022). Dissociation, trauma, and borderline personality disorder. *Borderline Personality Disorder and Emotion Dysregulation, 9*: 14. https://doi.org/10.1186/s40479-022-00184-y

Krause-Utz, A., Frost, R., Chatzaki, E., Winter, D., Schmahl, C., & Elzinga, B. M. (2021). Dissociation in Borderline Personality Disorder: Recent Experimental, Neurobiological Studies, and Implications for Future Research and Treatment. Current Psychiatry Reports, 23(6), 37. https://doi.org/10.1007/s11920-021-01246-8

Krause-Utz, A., Winter, D., Schriner, F., Chiu, C. D., Lis, S., Spinhoven, P., Bohus, M., Schmahl, C., & Elzinga, B. M. (2018). Reduced amygdala reactivity and impaired working memory during dissociation in borderline personality disorder. European Archives of Psychiatry and Clinical Neuroscience, 268(4): 401 – 415. https://doi.org/10.1007/s00406-017-0806-x

Laddis, A., Dell, P. F., & Korzekwa, M. (2017). Comparing the symptoms and mechanisms of "dissociation" in dissociative identity disorder and borderline personality disorder. *Journal of Trauma and Dissociation, 18*(2): 139 – 173. https://doi.org/10.1080/15299732.2016.1194358

Lanius, R. A. (2015). Trauma-related dissociation and altered states of consciousness: A call for clinical, treatment, and neuroscience research. *European Journal of Psychotraumatology, 6*(1), 27905. https://doi.org/10.3402/ejpt.v6.27905

Lanius, R. A., Vermetten, E., Loewenstein, R. J., Brand, B., Schmahl, C., Bremner, J. D., & Spiegel, D. (2010). Emotion modulation in PTSD: Clinical and neurobiological evidence for a dissociative subtype. *The American Journal of Psychiatry, 167*(6): 640 – 647. https://doi.org/10.1176/appi.ajp.2009.09081168

Lanius, R. A., Brand, B., Vermetten, E., Frewen, P. A., & Spiegel, D. (2012). The dissociative subtype of posttraumatic stress disorder: rationale, clinical and neurobiological evidence, and implications: Dissociative subtype of PTSD. *Depression and Anxiety*, *29*(8), 701–708. https://doi.org/10.1002/da.21889

Leichsenring, F., Leibing, E., Kruse, J., New, A. S., & Leweke, F. (2011). Borderline personality disorder. *The Lancet, 377*(9759): 74 – 84. https://doi.org/10.1016/S0140-6736(10)61422-5

Lieb, K., Zanarini, M. C., Schmahl, C., Linehan, MM., Bohus, M. (2004). Borderline personality disorder. *The Lancet, 364*: 453 – 461. https://doi.org/10.1016/S0140-6736(04)16770-6

Leible, T. L., & Snell, W. E. (2004). Borderline personality disorder and multiple aspects of emotional intelligence. *Personality and Individual Differences, 37*(2): 393 – 404. https://doi.org/10.1016/j.paid.2003.09.001

Linehan, M. M. (1993). Cognitive-Behavioral Treatment of Borderline Personality Disorder. New York, NY: Guilford Press.

Lobbestael, J., Leurgans, M., & Arntz, A. (2011). Inter-rater reliability of the structured clinical interview for DSM-IV axis I disorders (SCID I) and axis II disorders (SCID II). *Clinical Psychology & Psychotherapy, 18*(1): 75 – 79. https://doi.org/10.1002/cpp.693

Loewenstein, R. J. (2018). Dissociation debates: Everything you know is wrong. *Dialogues in Clinical Neuroscience*, *20*(3), 229–242. https://doi.org/10.31887/DCNS.2018.20.3/rloewenstein

Loranger, A. W., Sartorius, N., Andreoli, A., Berger, P., Buchheim, P., Channabasavanna, S. M., Coid, B., Dahl, A., Diekstra, R. F., Ferguson, B., Jacobsberg, L. B., Mombour, W., Pull, C., Ono, Y., & Regier, D. A. (1994). The International Personality Disorder Examination: The world health organisation/alcohol, drug abuse, and mental health administration international pillow study of personality disorders. *JAMA Psychiatry, 51*(3): 215 – 224. https://doi.org/10.1001/archpsych.1994.03950030051005

Ludascher, P., Valerius, G., Stiglmayr, C., Mauchnik, J., Lanius, R. A., Bohus, M., & Schmahl, C. (2010). Pain sensitivity and neural processing during dissociative states in patients with borderline personality disorder with and without comorbid posttraumatic stress disorder: A pilot study. *Journal of Psychiatry and Neuroscience, 35*(3): 177 – 184. https://doi.org/10.1503/jpn.090022

Luyten, P., Campbell, C., & Fonagy, P. (2019). Borderline personality disorder, complex trauma, and problems with self and identity: A social-communicative approach. *Journal of Personality, 88*(1): 88 – 105. https://doi.org/10.1111/jopy.12483

MacIntosh, H. B., Godbout, N., & Dubash, N. (2015). Borderline personality disorder: Disorder of trauma or personality, a review of the empirical literature. *Canadian Psychology, 56*(2): 227 – 241. https://doi.org/10.1037/cap0000028

Meyer, P. W., Muller, L. E., Zastrow, A., Schmidinger, I., Bohus, M., Herpertz, S. C., Bertsch, K. (2016). Heart rate variability in patients with post-traumatic stress disorder or borderline personality disorder: Relationship to early life maltreatment. *Journal of Neural Transmission, 123*(9): 1107 – 1118. https://doi.org/10.1007/s00802-01601584-8

Miano, A., Dziobek, I., & Roepke, S. (2017). Understanding interpersonal dysfunction in Borderline Personality Disorder: A naturalistic dyadic study reveals absence of relationship-protective empathic inaccuracy. *Clinical Psychological Science, 5*(2): 355 – 366. https://doi.org/10.1177/2167702616683505

Michopoulos, V., Norrholm, S. D., & Jovanovic, T. (2015). Diagnostic Biomarkers for Posttraumatic Stress Disorder: Promising Horizons from Translational Neuroscience Research. *Biological Psychiatry*, *78*(5), 344–353. https://doi.org/10.1016/j.biopsych.2015.01.005

New, A. S., Rot, M. aan het, Ripoll, L. H., Perez-Rodriguez, M. M., Lazarus, S., Zipursky, E., Weinstein, S. R., Koenigsberg, H. W., Hazlett, E. A., Goodman, M., & Siever, L. J. (2012). Empathy and Alexithymia in Borderline Personality Disorder: Clinical and Laboratory Measures. *Journal of Personality Disorders*, *26*(5), 660–675. https://doi.org/10.1521/pedi.2012.26.5.660

Nica, E. I., & Links, P. S. (2009). Affective instability in borderline personality disorder: Experience sampling findings. *Current Psychiatry Reports, 11*(1): 74 – 81. https://doi.org/10.1007/s11920-009-0012-2

Nijenhuis, E. R. S. (2001). Somatoform dissociation. *Journal of Trauma and Dissociation, 1*(4): 7 – 32. https://doi.org/10.1300/J229v01n04_02

Ozdemir, O., Ozdemir, P. G., Boysan, M., & Yilmaz, E. (2015). The relationships between dissociation, attention, and memory dysfunction. *Nöro Psikiyatri Arşivi 52*(1): 36 – 41. https://doi.org/10.5152/npa.2015.7390

Palihawadana, V., Broadbear, J. H., & Rao, S. (2018). Reviewing the clinical significance of 'fear of abandonment' in Borderline Personality Disorder. *Austalasian Psychiatry, 27*(1): 60 – 63. https://doi.org/10/1177/1039856218810154

Pavony, M. T., & Lenzenweger, M. F. (2014). Somatosensory processing and borderline personality disorder: Pain perception and a signal detection analysis of proprioception and exteroceptive sensitivity. *Personality Disorders, 5*(2): 164 – 171. https://doi.org/10.1037/per0000017

Porges, S. W. (2009). The polyvagal theory: new insights into adaptive reactions of the autonomic nervous system. *Cleveland Clinical Journal of Medicine, 76*(2): S86 – S90. https://doi.org/10.3949/ccjm.76.s2.17

Porter, C., Palmier-Claus, J., Branitsky, A., Mansell, W., Warwick, H., & Varese, F. (2020). Childhood adversity and borderline personality disorder: A meta-analysis. *Acta Psychiatrica Scandinavica, 141*(1): 6 – 20. https://doi.org/10.1111/acps.13118

Putnam, F. W. (1996). *Dissociation in Children and Adolescents: A Developmental Perspective*. Guilford Press.

Putnam, K. M., & Silk, K. R. (2005). Emotion dysregulation and the development of borderline personality disorder. *Developmental Psychopathology, 17*(4): 899 – 925. https://doi.org/10.1017/s0954579405050431

QSR International Pty Ltd. (2020). NVivo (released in March 2020), https://www.qsrinternational.com/nvivo-qualitative-data-analysis-software/home

Roepke, S., Vater, A., Prißler, S., Heekeren, H. R., & Bziobek, I. (2013). Social cognition in borderline personality disorder. *Frontiers in Neuroscience, 6*: 195. https://doi.org/10.3389/fnins.2012.00195

Salsman, N. L., & Linehan, M. M. (2012). An investigation of the relationships among negative affect, difficulties in emotion regulation, and features of Borderline Personality Disorder. *Journal of*

Psychopathological Behavioural Assessment 34(2): 260 – 267. https://doi.org/10.1007/s10862-012-9275-8

Salgado, R. M., Pedrosa, R., & Bastos-Leite, A. J. (2020). Dysfunction of empathy and related processes in borderline personality disorder: A systematic review. *Harvard Review of Psychiatry, 28*(4): 238 – 254. https://doi.org/10.1097/HRP.0000000000000260

Şar, V., Alioğlu, F., Akyuz, G., Tayakısı, E., Öğülmüş, E. F., & Sönmez, D. (2017). Awareness of identity alteration and diagnostic preference between borderline personality disorder and dissociative disorders. *Journal of Trauma & Dissociation*, *18*(5), 693–709. https://doi.org/10.1080/15299732.2016.1267684

Scalabrini, A., Cavicchioli, M., Fossati, A., & Maffei, C. (2017). The extent of dissociation in borderline personality disorder: A meta-analytic review. *Journal of Trauma and Dissociation, 18*(4): 522 – 543. https://doi.org/10.1080/15299732.2016.1240728

Schmahl, C., Greffrath, W., Baumgartner, U., Schlereth, T., Magerl, W., Philipsen, A., Lieb, K., Bohus, M., & Treede, R. D. (2004). Differential nociceptive deficits in patients with borderline personality disorder and self-injurious behaviour: Laser-evoked potentials, spatial discrimination of noxious stimuli, and pain ratings. *Pain, 110*(1-2): 470 – 479. https://doi.org/10.1016/j.pain.2004.04.035

Schmalh, C., Herpertz, S. C., Bertsch, K., Ende, G., FLor, H., Kirsch, P., Lis, S., Meyer-Lindenberg, A., Rietschel, M., Schneider, M., Spanagel, R., Treede, R., & Bohus, M. (2014). Mechanisms of disturbed emotion processing and social interaction in borderline personality disorder: State of knowledge and research agenda of the German Clinical Research Unit. *Borderline Personality Disorder and Emotion Dysregulation, 1*(12). https://doi.org/10.1186/2051-6673-1-12

Shah, R., Temes, C. M., Frankenburg, F. R., Fitzmaurice, G. M., & Zanarini, M. C. (2020). Levels of depersonalisation and derealisation reported by recovered and non-recovered borderline patients over 20 years of prospective follow-up. *Journal of Trauma and Dissociation, 21*(3): 337 – 348. https://doi.org/10.1080/15299732.2020.1719259

Soffer-Dudek, N., Lassri, D., Soffer-Dudek, N., & Shahar, G. (2015). Dissociative absorption: An empirically unique, clinically relevant, dissociative factor. *Consciousness and Cognition: An International Journal, 36*: 338 – 351. https://doi.org/10.1016/j.concog.2015.07.013

Sommer, J. L., Blaney, C., Mota, N., Bilevicius, E., Beatie, B., Kilborn, K., Chang, U., Sareen, J., & El-Gabalawy, R. (2021). Dissociation as a transdiagnostic indicator of self-injuriour behaviour and suicide attempts:

A focus on posttraumatic stress disorder and borderline personality disorder. *Journal of Traumatic Stress, 34*(6): 1149 – 1158. https://doi.org/10.1016/10.1002/jts.22726

Spiegel, D., & Cardeña, E. (1991). Disintegrated experience: The dissociative disorders revisited. *Journal of Abnormal Psychology, 100*(3): 366 – 378. https://doi.org/10.1037/0021-843X.100.3.366

Spiegel, D., Loewenstein, R. J., Lewis-Fernández, R., Sar, V., Simeon, D., Vermetten, E., Cardeña, E., Dell, P. F. (2011). Dissociative disorders in DSM-5. *Depression and Anxiety, 28*(12): 17 – 45. https://doi.org/10.1002/da.20923

Spitzer, C., Freyberger, H. J., Stieglitz, R. D., Carlson, E. B., Kuhn, G., Magdeburg, N., & Kessler, C. (1998). Adaptation and psychometric properties of the German version of the dissociative experience scale. *Journal of Traumatic stress 11*(4): 799 – 809. https://doi.org/10.1023/A:1024457819547

Stanley, B., & Siever, L. J. (2014). The interpersonal dimension of Borderline Personality Disorder: Towards a neuropeptide model. *American Journal of Psychiatry, (167*)1: 24 – 39. https://doi.org/10.1176/appi.ajp.2009.09050744

Stepp, S. D., Scott, L. N., Morse, J. Q., Nolf, K. A., Hallquist, M. N., Pilkonis, P. A. (2014). Emotion dysregulation as a maintenance factor of borderline personality disorder features. *Comprehensive Psychiatry, 55*(3): 657 – 666. https://doi.org/10.1016/j.comppsych.2013.11.006

Stiglmayr, C., Ebner-Priemer, U. W., Bretz, J., Behm, R., Mohse, M., Ladissocmmers, C.-H., Anghelescu, I.-G., Schmahl, C., Schlotz, W., Kleindienst, N., & Bohus, M. (2008). Dissociative symptoms are positively related to stress in borderline personality disorder. *Acta Psychiatrica Scandinavica*, *117*(2): 139 – 147. https://doi.org/10.1111/j.1600-0447.2007.01126.x

Stiglmayr, C., Schmahl, C., Bremner, J. D., Bohus, M., & Ebner-Priemer, U. (2009). Development and Psychometric Characteristics of the DSS-4 as a Short Instrument to Assess Dissociative Experience during Neuropsychological Experiments. *Psychopathology*, *42*(6), 370–374. https://doi.org/10.1159/000236908

Suvak, M. K., Litz, B. T., Sloan, D. M., Zanarini, M. C., Barrett, L. F., & Hofmann, S. G. (2011). Emotional granularity and borderline personality disorder. *Journal of Abnormal Psychology, 120*(2): 414 – 426. https://doi.org/10.1037/a0021808

Terzi, L., Martino, F., Berardi, D., Bortolotti, B., Sasdelli, A., & Menchetti, M. (2017). Aggressive behaviour and self-harm in Borderline Personality Disorder: The role of impulsivity and emotion dysregulation in a sample of outpatients. *Psychiatry Research, 249*: 321 – 326. https://doi.org/10.1016/j.psychres.2017.01.011

Thomas, N., Gurvich, C., Hudaib, A., Gavrilidis, E., & Kulkarni, J. (2019). Systematic review and meta-analysis of basal cortisol levels in Borderline Personality Disorder compared to non-psychiatric controls. *Psychoneuroendocrinology, 102*: 149 – 157. https://doi.org/10.1016/j.psyneuen.2018.12.009

Tschoeke, S., Bichescu-Burian, D., Steinert, T., & Flammer, E. (2021). History of Childhood Trauma and Association With Borderline and Dissociative Features. *Journal of Nervous & Mental Disease*, *209*(2): 137 – 143 https://doi.org/10.1097/NMD.0000000000001270V

Van der Boom, J., Van den Hout, M., & Huntjens, R. J. C. (2010). Psychoform and somatoform dissociation, traumatic experiences, and fantasy proneness in somatoform disorders. *Personality and Individual Differences, 48*(4): 447 – 451. https://doi.org/10.1016/j.paid.2009.11.018

Van der Hart, O. (2021). Trauma-related dissociation: An analysis of two conflicting models. *European Journal of Trauma & Dissociation, 5*(4): 110210. https://doi.org/10.1016/j.ejtd.2021.100210

Van der Hart, O., Dorahy, M. J. (2009). History of the concept of dissociation. In Dell, P. F., O'Niel, J., Somer, E. (eds), Dissociaion and the Dissociative Disorders: DSM-V and Beyond (pp. 3 – 26). New York, NY: Routledge. https://doi.org/10.4324/9780203893920

Van Dijke, A., Van der Hart, O., Ford, J. D., Van Son, M., Van Der Heijden, P., & Bühring, M. (2010). Affect dysregulation and dissociation in borderline personality disorder and somatoform disorder: Differentiating inhibitory and excitatory experiencing states. *Journal of Trauma & Dissociation, 11*, 424–443. https://doi.org/10.1080/15299732.2010.49614

Vermetten, E., & Spiegel, D. (2014). Trauma and dissociation: Implications for Borderline Personality Disorder. *Current Psychiatry Reports, 16*(434): 4429. https://doi.org/10.1007/s11920-013-0434-8

Vonderlin, R., Kleindienst, N., Alpers, G. W., Bohus, M., Lyssenko, L., & Schmahl, C. (2018). Dissociation in victims of childhood abuse or neglect: A meta-analytic review. *Psychological Medicine*, *48*(15), 2467–2476. https://doi.org/10.1017/S0033291718000740

Weise, S., Parzer, P., Furer, L., Zimmermann, R., Schmeck, K., Resch, F., Kaess, M., & Koening, J. (2021). Autonomic nervous system activity and dialectical behavioural therapy outcome in adolescent borderline personality pathology. *The World Journal of Biological Psychiatry, 22*(&): 535 – 545. https://doi.org/10.1080/15622975.2020.1858155

Winter, D., Krause-Utz, A., Lis, S., Chiu, C., Lanius, R. A., Schriner, F., Bohus, M., & Schmahl, C. (2015). Dissociation in borderline personality disorder: Disturbed cognitive and emotional inhibition and its neural correlates. *Psychiatry Research, 233*(3): 339 – 351. https://doi.org/10.1016/j.pscychresns.2015.05.018

Wolff, S., Stiglmayr, C., Bretz, H. J., Lammers, C., & Auckenthaler, A. (2007). Emotion identification and tension in female patients with borderline personality disorder. *British Journal of Clinical Psychology, 46*(3): 347 – 360. https://doi.org/10.1348/014466507X173736

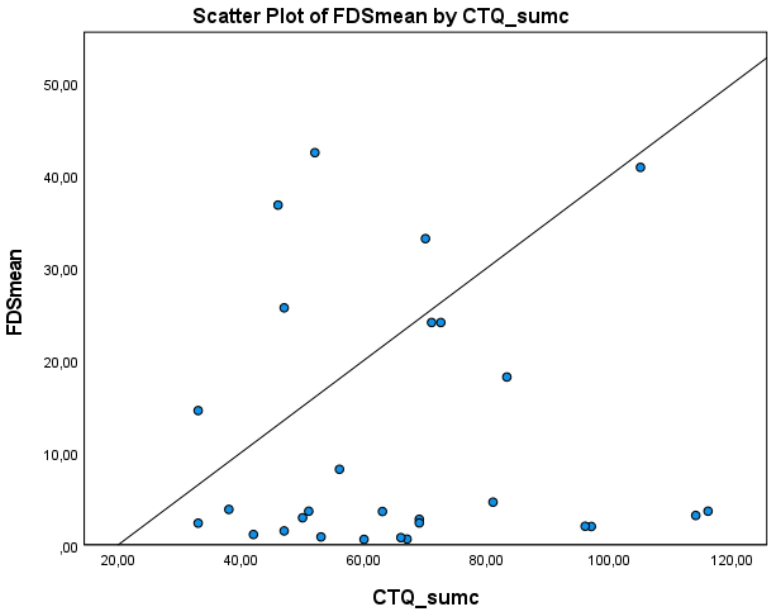
Yates, T. M. (2004). The developmental psychopathology of self-injurious behaviour: Compensatory regulation in posttraumatic adaptation. *Clinical Psychology Review, 24*(1): 35 – 74. https://doi.org/10.1016/j.cpr.2003.10.001

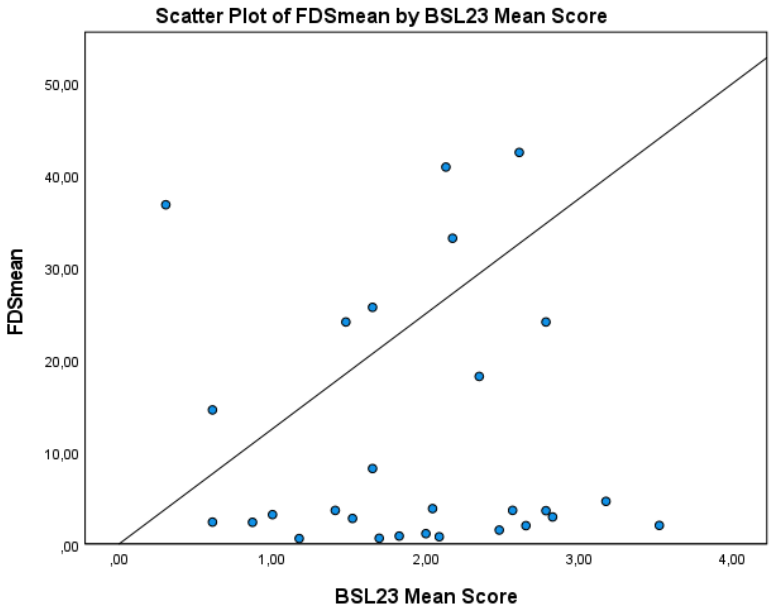
Ziegler, M. G. (2004). 50 – Psychological Stress and the Autonomic Nervous System. In Robertson, D., Biaggioni, I., Burnstock, G., & Low, P. A. (Eds.), *Primer on the Autonomic Nervous System* (pp. 189 – 190). Academic Press. https://doi.org/10.1016/B978-012589762-4/50051-7

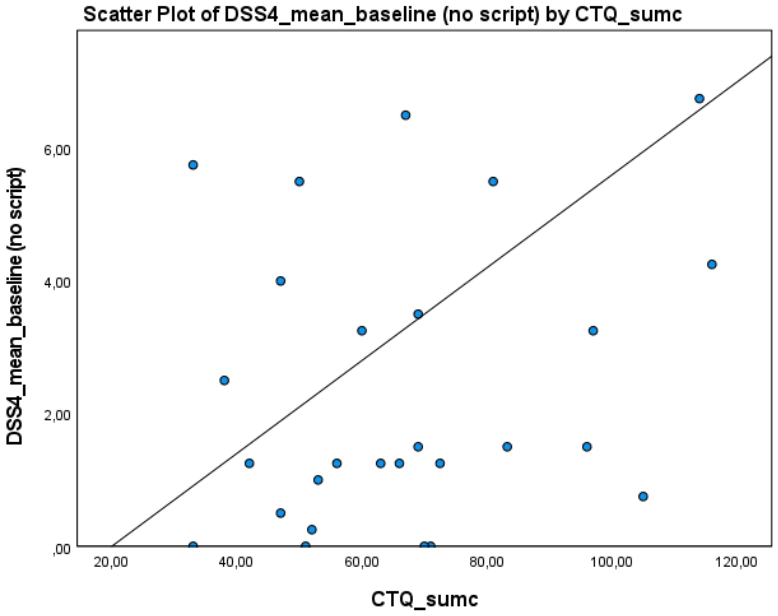
Zoladz, P. R., & Diamond, D. M. (2013). Current status on behavioral and biological markers of PTSD: A search for clarity in a conflicting literature. *Neuroscience & Biobehavioral Reviews*, *37*(5), 860–895. https://doi.org/10.1016/j.neubiorev.2013.03.024

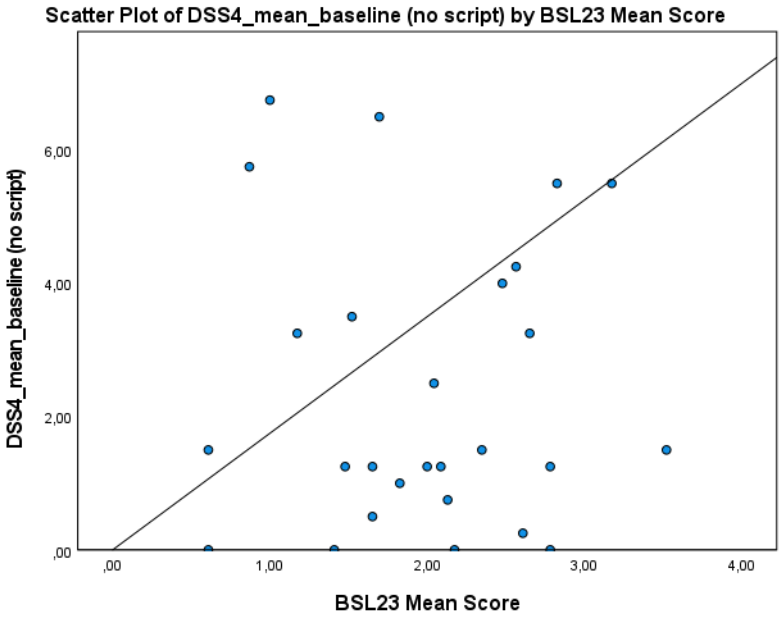
Appendix A

Scatterplots of IV and DVs



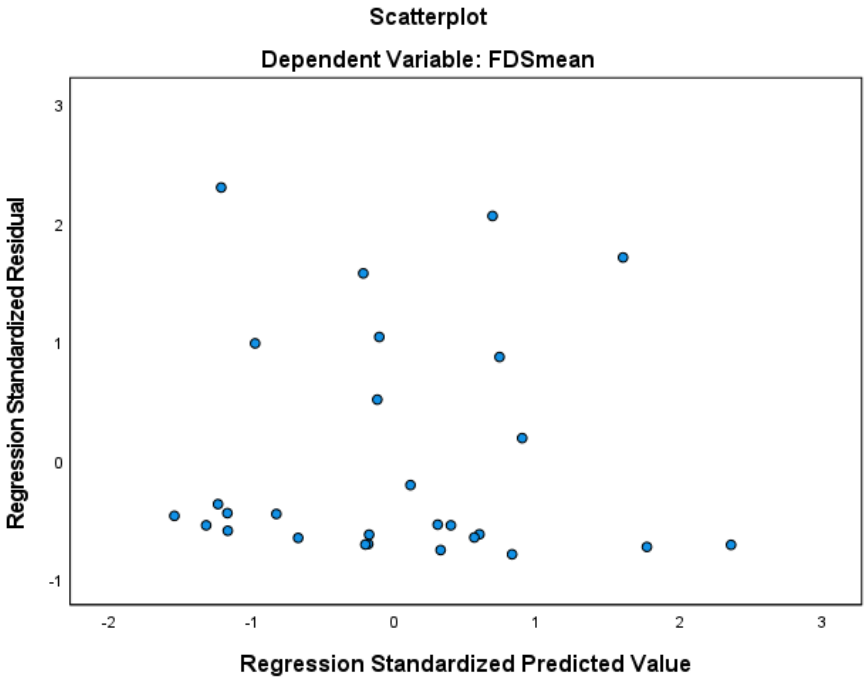


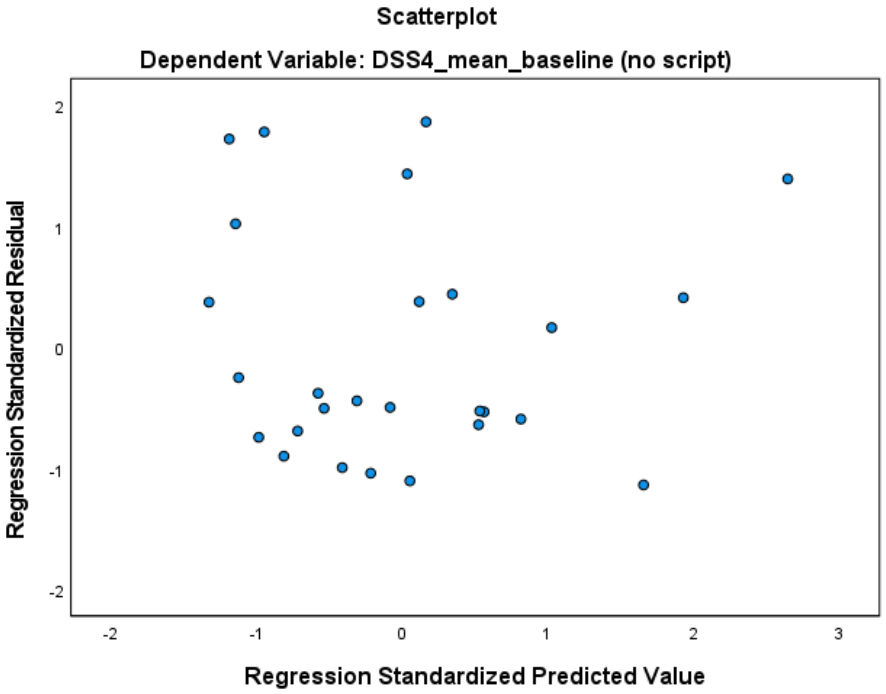




Appendix B

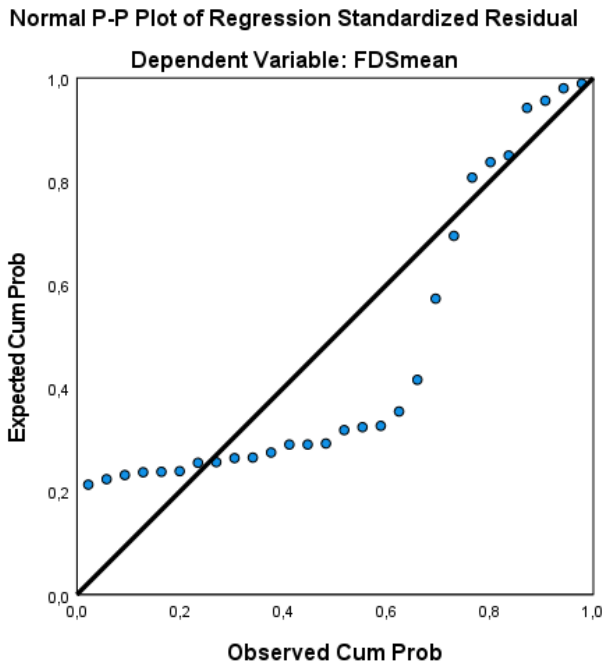
Scatterplots of Predicted and Actual Standardised Residuals

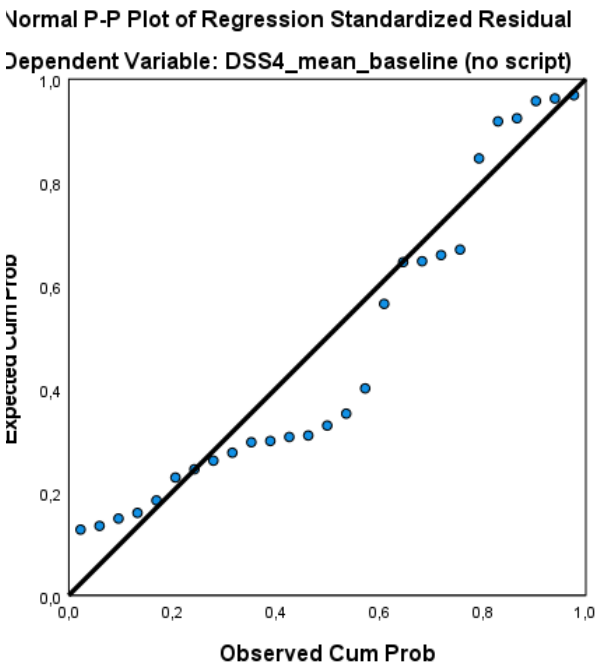




Appendix C

Normal P-P Plots of Regression Standardized Residuals





Appendix D

Thematic Map of All Nodes and Relationships