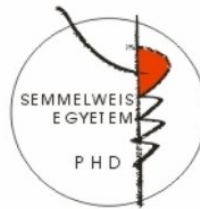


NEUROCOGNITIVE PROFILE OF BORDERLINE PERSONALITY DISORDER

PhD thesis

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Table of Contents

1. Introduction	3
1.1 Borderline Personality Disorder	3
1.2 Mental State Decoding	5
1.3 Autobiographical Memory	7
1.4 Neuropsychological Functioning	8
2. Objectives	10
3. Methods	11
4. Conclusions	12
4.1 Mental State Decoding	12
4.2 Autobiographical Memory	12
4.3 Neuropsychological Functioning	13
4.3 Overall Conclusions	13
5. Bibliography of candidates' publications	15
5.1 Related to thesis	15
5.2 Not related to thesis	15

1. INTRODUCTION

1.1 Borderline Personality Disorder

Borderline personality disorder (BPD) is present in approximately 2% of the general population (Coid, Yang, Tyrer, Roberts, & Ullrich, 2006) and characterized by impulsivity, non-suicidal self-harming behavior, a high level of suicidal lethality, labile affectivity, emotion dysregulation, disturbed relationships, and identity disturbances. BPD is present in approximately 2% to 5.9% of the general population (Coid et al., 2006). The ranges are much higher in clinical settings at 8% to 27% in outpatient psychiatric and 40% among inpatient psychiatric populations (Lenzenweger, 2008). BPD is a part of the personality disorder classification called “cluster B” in the Diagnostic Statistical Manual (DSM; American Psychiatric Association [APA], 1952). This cluster, which also includes narcissistic personality disorder (i.e., extreme sense of self which interferes with everyday functioning), antisocial personality disorder (i.e.,

psychopathic and lack of empathy tendencies), and histrionic personality disorder (i.e., extreme dramatized lifestyle leading to impaired relationships), is marked by dramatic or extreme tendencies (APA, 2013). There are nine symptoms for borderline personality disorder. The DSM-IV lists them as " a) frantic efforts to avoid real or imagined abandonment. (b) identity disturbance: markedly and persistently unstable self-image or sense of self (c) impulsivity in at least two areas that are potentially self-damaging (e.g., spending, sex, Substance Abuse, reckless driving, binge eating). (d) recurrent suicidal behavior, gestures, or threats, or self-mutilating behavior (e) affective instability due to a marked reactivity of mood (e.g., intense episodic dysphoria, irritability, or anxiety usually lasting a few hours and only rarely more than a few days) (f) chronic feelings of emptiness, (g) inappropriate, intense anger or difficulty controlling anger (e.g., frequent displays of temper, constant anger, recurrent physical fights) (h) transient, stress-

related paranoid ideation or severe dissociative symptoms, and i) a pattern of unstable and intense interpersonal relationships characterized by alternating between extremes of idealization and devaluation." (APA, 2013).

Three specific areas of functioning in BPD are of high importance and need further studying; however, the literature is limited. The current thesis undertakes three meta-analytic reviews to delve further into this topic: Mental State Decoding, Autobiographical Memory, and Neuropsychological Functioning.

1.2 Mental State Decoding

Mental state decoding (MSD) – the ability to attribute mental states to social partners from perceivable social information such as tone of voice, body posture, or facial expression – provides an important tool for maintaining social relations and cooperation and is an important representation in borderline personality disorder and may be affected in those with BPD. Human facial cues of the eyes provide one of the most important signals of mental

states (Baron-Cohen et al., 2001). important signals of mental states (Baron-Cohen et al., 2001). The Reading Eyes in the Mind Test (RMET; Baron-Cohen et.al, 2001) is a test that matches semantic definitions of mental states to pictures of the eye-region with emotionally valence positive, negative, or neutral expressions. Some studies indicate that depressed patients exhibit impaired RMET performance. The mental state decoding performance in subjects suffering from BPD follows this controversy. One study reported BPD patients having impaired social interpretation relative to healthy controls according to RMET, but subjects suffering from BPD with co-occurring major depression were significantly more accurate in decoding mental states of negative stimuli (Unoka et. al, in press). The same study indicated patients with both BPD and MD performed significantly better than patients with only BPD on negative and neutral items as well as total score (Unoka et al.2015). Comorbid depression was shown increase RMET accuracy (Fertuck et al., 2009; Unoka et

al.,2015), perpetuating the idea that depression in BPD intensifies vigilance toward social information (Harkness et al, 2005; Wolkenstein et al, 2011). No studies have looked at both.

1.3 Autobiographical Memory

In addition, Autobiographical memory (AM)—the memory system that contains personal memories and knowledge of self-related past events—has been an inconsistent deficit in the cognitive profile in BPD and provides an important tool for maintaining stable self-representations. Since recollection processes of AM have basic importance to the composition of the self and a continuing sense of identity (Lorenzoni, Silva, Poletto, Kristensen, & Gauer, 2014), the normal functioning of AM is considered a prerequisite for adaptive personality functioning (McAdams & Pals, 2006). AM is composed of memories referring to past personal experience (Conway, 2001).

Autobiographical memory has been examined in several different measures; the Autobiographical Memory Test (AMT) is the most

widely used. In BPD, research on AM has been contradictory. In the DSM fifth edition (*DSM-5*; American Psychiatric Association, 2013), patients' diagnoses of BPD could be related to AM malfunctioning (Bech, Elkit & Simonsen, 2015). Also, individuals with BPD have high rates of childhood trauma (e.g., Goodman & Yehuda, 2002; Yen et al., 2002), PTSD (McGlashan et al., 2000; Yen et al., 2002; Zanarini et al., 1998), and depression (McGlashan et al., 2000; Zanarini et al., 1998), suggesting that if traumatic events, PTSD, and depression are crucial to overgenerality, then it would most likely be evident in BPD (Moore and Zoellner, 2007). According to several earlier studies, people with BPD have a tendency for overgeneral memory (Jones et al., 1999; Korfine, 1998; Maurex et al., 2010)—thought to be a dissociative mechanism serving to avoid painful negative memories—but further studies failed to confirm this claim (Renneberg, Theobald, Nobs, & Weisbrod, 2005; Reid & Startup, 2010).

1.4 Neuropsychological Functioning

Due to the considerable variability in symptoms, neuropsychological deficits have been identified as a robust feature of BPD and are a central manifestation of the pathophysiology of the disorder. In the first major literature analysis based on 10 studies, Ruocco (2005) found evidence of significant impairment across the full range of neuropsychological tests. The most consistent impairments were found in the domains of attention, cognitive flexibility, learning and memory, planning, processing speed, and visuospatial abilities. Overall, while sustained attention, inhibition, executive function, decision making, language, memory, verbal IQ, visuospatial processing deficits are frequently reported, the nature and magnitude of such impairments, as well as their consistency can vary markedly across studies due to differences in sample characteristics, co-morbidity profile and research methodologies.

The effects of co-occurring disorders in BPD neuropsychological functioning have not been analyzed; however, recent studies have suggested

that co-morbidity with BPD is tremendously prevalent in this population. Specifically, BPD is highly co-morbid with a number of Axis I and other personality disorders). Further analysis showed that anxiety disorders were most common, followed by PTSD (Zanarini et al., 1998).

2. OBJECTIVES

The three aforementioned cognitive core elements of BPD have been inconsistently represented in the literature regarding their level of impairment and high functioning. As a method to further elucidate exactly the cognitive abilities existing, three separate meta-analytic reviews, which look all studies on these topics, were undertaken. The expected outcome of the work is that a clearer understanding of the exact deficits of cognitive functioning and heightened areas will further be understood. Moreover, moderator analysis will be expected to highlight which areas are specifically related to categorical and continuous variables such as demographic and clinical variables.

3.METHODS

Relevant articles were identified through a computerized literature search using PubMed, PsychINFO, and MEDLINE Web of Science databases. Each study had a search terms parsed by type of meta-analytic review. Studies were parsed out by inclusion and exclusion criteria variables. After further analysis and discussion between supervisor and PhD student, some articles were included, and some were not. Articles were scanned for statistical values to be included in the meta-analysis and also moderator variables (such as clinical and demographic variables). Final items included looked at either mental state decoding, autobiographical memory, and neuropsychological functioning in BPD as compared to healthy controls. Moderator variable analyses were also undertaken. The meta-analysis was conducted with Comprehensive Meta-Analysis Version 2.0 software (Borenstein, 2005). When analysis of the Q-statistic revealed significant within-group heterogeneity, a random-effects model was used for

the significance level. In addition to a visual funnel plot, methods for the evaluation of potential publication bias included those recommended by Begg and Mazumdar (1994) and Egger, Smith, Schneider, and Minder (1997).

4. CONCLUSIONS

4.1 Mental State Decoding

Patients with BPD and MD comorbidity performed better on RMET accuracy and positive valence task than BPD or MD alone. BPD patients with co-occurring eating disorder performed better on accuracy than having a disorder of BPD without it. BPD patients who met DSM-IV criteria for any cluster B or any cluster C personality disorder performed worse on accuracy. Neutral valence was impaired in BPD but positive valence was impaired in MD, consistent with therapeutic interventions and literature.

4.2 Autobiographical Memory

Overall general memory was impaired in those with BPD, followed by omission and specific autobiographical memory. Overall autobiographical

memory was also impaired. In BPD, meta-regression revealed that as age increases, samples with an older mean age had fewer impairments in autobiographical memory.

4.3 Neuropsychological Functioning

Strongest impairments in memory, executive functioning, processing speed, VIQ, Visuospatial abilities, attention, and overall neuropsychological functioning existed. Comorbidities and demographic/clinical variables moderated the findings, indicating important relevance.

4.4 Overall conclusions

Taken together, a common clinical (neurocognitive) profile of borderline personality disorder is further elucidated. By making this research more mainstream and formulating further studies based on findings, positive results can be seen for the treatment of BPD, which are currently limited due to variability of symptoms. This meta-analysis enriches the field by pointing to where we need to further dive into regarding research and

where we need to use findings to create future clinical modalities.

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