Cognitive Dysfunction in Borderline Personality Disorder

Case -Control Study

Thesis

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بسم الله الرحمن الرحيم
قالُوا سُبْحَانَكَ لاَ عِلْمَ لَنَا إِلاَّ مَا
عَلَّمْتَنَا إِنَّكَ أَنتَ الْعَلِيمُ الْحَكِيمُ
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Wafaa Abd Alhaleem Farrag

Contents

List of Abbreviations

ACC	:	Anterior cingulated cortex
ADHD	:	Attention deficit hyperactivity disorder
AMT	:	Autobiographical Memory Test .
ANT	:	attention networks test
APA	:	American psychiatric association
Asp	:	Alpha Span
BD	:	bipolar disorder
BPD	:	Borderline personality disorder.
BRIDGE	:	Bipolar Disorders: Improving Diagnosis, Guidance and Education
CVLT	:	California Verbal Learning Test
DBT	:	Dialectical behavior therapy
D–KEFS	:	Delis-Kaplan Executive Function System.
DLPFC	:	Dorso-lateral prefrontal cortex .
DSM	:	Diagnostic and Statistical Manual of Mental Disorders
DSp	:	Digit Span–Forward
DSp-B	:	Digit Span Backward
EF	:	Executive functions
fMRI	:	Functional magnetic resonance imaging
GAF	:	Global assessment of function

List of Abbreviations

ICD	:	International Classification of Diseases
MDD	:	Major depressive disorder
MRI	:	Magnetic resonance imaging
OFC	:	Orbito-frontal cortex
PFC	:	Prefrontal cortex
PTSD	:	Post truamatic stress disorder
ROCF	:	The Rey Osterrieth Complex Figure .
SOPT	:	Self-Ordered Pointing Task
SUD	:	Substance use disorder
TMT-A	:	Trail Making Test – Part A
TMT-B	:	Trail Making Test Part B
WAIS-III	:	Wechlser Adult Intelligence Scale III
WCST	:	Wisconsin Card Sorting Test
WMS-III	:	Wechlser Memory Scale III

List of tables

List of Figures

Introduction

Borderline personality disorder (BPD), is a diagnosis on axis II of the Diagnostic and Statistical Manual of Mental Disorders ***(APA, 2000)***.

The disorder affects approximately 2% of the general population yet It is much more frequent among the psychiatric population, in which a prevalence of up to 10% has been described. Furthermore, many more cases of BPD are observed in women than in men (70% women versus 30%men) (***Swartz et al., 1990***).

Research on borderline personality disorder has focused its attention on behavioral components of the syndromes such as: impulse acts, stormy interpersonal relationships and aggression. Neurocognitive traits, which are equally important, have been overlooked for a long time. However, in recent years, their involvement in the development of the disorderis being studied in depth. ***Burrguess***in ***1991***, studied suicide in borderline personality disorder and he related the risk of suicide with cognitive functioning, and not with depression levels in the patients with this type of personality .So It is important to know the neuropsychological characteristics of these patients for the diagnosis, estimation of suicide risk, treatment plan and prognosis ***(Burrguess,1991).***

In the last two decades, some neuropsychological factors have been taken into account in the development of borderline personality disorder in different studies. Furthermore, different investigations have been developed that manifest the neurological and neuropsychological differences between patients with this personality disorder and other psychiatric diseases and control groups ***(Zetsche et al., 2007***).

That it has been proposed that neurocognitive injury plays a key role in the development and maintenance of the disorder ***(Brambilla, 2004).***

In addition to the findings that imply a high likelihood of neurobiological injury in this patient group, other studies have verified that the severity of the brain damage has a positive correlation with severity of behavioral disorders ***(Rusch et al., 2007).***

Furthermore, Magnetic resonance imaging (MRI) studies found a smaller frontal lobe, amygdala, hippocampus, orbitofrontal and anterior cingulated cortex, a reduction in parts of the parietal cortex and corpus collosum and increased putamen in borderline personality disorder patients ***(Irle et al., 2007).***

Damage to the prefrontal cortex, amygdala and hippocampus, brain regions, could lead to disturbances in executive functions, attention, working memory, long- and short-term memory and the perception and processing of emotion ***(Graham et al., 2007).***

At the same time behavior that is characteristic for borderline personality disorder is also seen after injury to the frontal cortex. In view of this, In 2003, ***Kunert and his colleagues in 2003***, have linked borderline personality disorder to frontal dysfunction, which could result in deficits in executive functioning, attention and working memory.

These findings support the hypothesis that these patients could benefit from the application of neuropsychological rehabilitation programs aimed at the type and grade of the neurocognitive difficulties they have. They also support the idea that the cognitive improvement would be reflected in an improvement of the clinical symptoms and would thus have a positive impact on the general functioning of the patient **(*Minzenberg, 2007).***

Aim of the Work

1. To describe cognitive profile of patients with boderline personality disorder which include: intelligence, memory and executive function.
2. To compare cognitive profile of borderline personality disorder to group of age and sex matched healthy control.

Borderline Personality Disorder

Definition and Historical background:

The term 'borderline personality' was proposed in the United States by Adolph Stern in 1938 (most other personality disorders were first described in Europe). Stern described a group of patients who 'fit frankly neither into the psychotic nor into the psychoneurotic group' and introduced the term 'borderline' to describe what he observed because it 'bordered' on other conditions **(John et al.,2011).**

The term 'borderline personality organisation' was introduced by **Otto Kernberg** at **1975** to refer to a consistent pattern of functioning and behavior characterised by instability and reflecting a disturbed psychological self-organisation. Whatever the purported underlying psychological structures, the cluster of symptoms and behaviour associated with borderline personality were becoming more widely recognized,and included striking fluctuations from periods of confidence to times of absolute despair, markedly unstable self-image, rapid changes in mood, with fears of abandonment and rejection, and a strong tendency towards suicidal thinking and self-harm. Transient psychotic symptoms, including brief delusions and hallucinations, may also be present. **(Tyrer, 2002)**.

The characteristics that now define borderline personality disorder were described by Gunderson and Kolb in 1978 and have since been incorporated into contemporary psychiatric classifications .Either as a result of its position on the 'border' of other conditions, or as a result of conceptual confusion, borderline personality disorder is often diagnostically comorbid with depression and anxiety, eating disorders such as bulimia, post-traumatic stress disorder (PTSD), substance misuse disorders and bipolar disorder (with

which it is also sometimes clinically confused). An overlap with psychotic disorders can also be considerable. In extreme cases people can experience both visual and auditory hallucinations and clear delusions, but these are usually brief and linked to times of extreme emotional instability, and thereby can be distinguished from the core symptoms of schizophrenia and other related disorders **(Links et al., 2011).**

The level of comorbidity is so great that it is uncommon to see an individual with 'pure' borderline personality disorder . Because of this considerable overlap with other disorders, many have suggested that borderline personality disorder should not be classified as a personality disorder; rather it should be classified with the mood disorders or with disorders of identity. Its association with past trauma and the manifest similarities with PTSD have led some to suggest that borderline personality disorder should be regarded as a form of delayed PTSD **(Yen & Shea, 2001).**

Despite these concerns, borderline personality disorder is a more uniform category than other personality disorders and is probably the most widely researched of the personality disorders. While some people with borderline personality disorder come from stable and caring families, deprivation and instability in relationships are likely to promote borderline personality development and should be the focus of preventive strategies **(Alexander & Cooray, 2003).**

There is some controversy over the possible age of onset of borderline personality disorder. Many believe that it cannot, or perhaps should not, be diagnosed in people under 18 years of age while the personality is still forming (although diagnosis is possible in the Diagnostic and Statistical Manual of Mental Disorders, 4th edition [DSM-IV; APA, 1994] based on the same criteria as adults with additional caveats**(Bradley et al., 2005).**

Diagnosis:

Borderline personality disorder is one of the most contentious of all the personality disorder subtypes. The reliability and validity of the diagnostic criteria have been criticised, and the utility of the construct itself has been called into question **(Tyrer,1999).**

Moreover, it is unclear how satisfactorily clinical or research diagnoses actually capture the experiences of people identified as personality disorders**.** There is a large literature showing that borderline personality disorder overlaps considerably with other categories of personality disorder, with 'pure' borderline personality disorder only occurring in 3 to 10% of cases. The extent of overlap in research studies is particularly great with other so called cluster B personality disorders (histrionic, narcissistic and antisocial). In addition, there is considerable overlap between borderline personality disorder and mood and anxiety disorders **(Zanarini et al., 1998).**

This guideline uses the DSM-IV diagnostic criteria for borderline personality disorder **(APA, 1994),** which are listed in Table 1. According to DSM-IV, the keyfeatures of borderline personality disorder are instability of interpersonal relationships, self-image and affect, combined with marked impulsivity beginning in early adulthood.

A stand-alone category of borderline personality disorder does not exist within the International Classification of Diseases, 10th revision**,** although there is an equivalent category of disorder termed 'emotionally unstable personality disorder, borderline type, which is characterised by instability in emotions, self-image and relationships. The ICD-10 category does not include brief quasi-psychotic features (criterion 9 of the DSM-IV category).

Further modifications in the ICD and DSM are required to promote convergence between the two classifications, although greater convergence is unlikely to resolve the problems inherent in the current concept of personality disorder **(Grilo et al., 2000).**

The reliability of diagnostic assessment for personality disorder has been considerably improved by the introduction of standardized interview schedules. However, no single schedule has emerged as the 'gold standard' as each has its own set of advantages and disadvantages, with excessive length of interview time being a problem common to many of the schedules. When used by a properly trainedrater, all of the schedules allow for a reliable diagnosis of borderline personality disorder to be made. Nevertheless, the level of agreement between interview schedules remains at best moderate (**Zimmerman, 1994**).

In addition, clinical and research methods for diagnosing personality disorders diverge. **Westen in 1997** has found that a pervasive pattern of instability of interpersonal relationships, self-image and affects, and marked impulsivity beginning by early adulthood and present in a variety of contexts, as indicated by five (or more) of the following:

1. Frantic efforts to avoid real or imagined abandonment. Note: Do not include suicidal or self-mutilating behaviour covered in Criterion 5.

2. A pattern of unstable and intense interpersonal relationships characterised by alternating between extremes of idealisation and devaluation.

3. Identity disturbance: markedly and persistently unstable self-image orsense of self.