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Article

Study of childhood trauma in borderline personality sufferers in Egypt

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Abstract. *Background:* Borderline personality disorder (BPD) is both a common and severe mental health disorder. Patients with BPD reports higher rates of childhood trauma (sexual, physical, and emotional abuse) compared to other personality disorders and normal populations. However, there is limited research on history of childhood trauma in this population in Egypt. The aim of this paper was to study the profile of childhood trauma experience among Egyptian patients with BPD and to study its relationship with BPD symptoms. *Methods:* A case control study was carried out on a sample of 128 participants. This study used data collected in Arabic language from 64 patients with BPD who presented to Al-Hadra University Hospital outpatient psychiatry clinic and compared them with age and gender-matched control. The data collection tools were a pre-designed structured interview for collecting socio-demographic data, medical and psychiatric history, Structured Clinical Interview for Axis II Personality Disorders (SCID-II), Mini-International Neuropsychiatric Interview (M.I.N.I.), Childhood Trauma Questionnaire (CTQ), and Borderline Symptom List 23 (BSL-23). *Results:* There has been a significant increase in the odds of exposure of all types of childhood trauma in the BPD group. Upon further analysis with multivariate logistic regression, only physical abuse (OR=30.53, 95%CI=2.77-986.87, p=0.015), and sexual abuse (OR=5.41, 95%CI=2.17-530.74, p=0.022) showed significant high OR. Physical abuse was found to be significantly associated with higher BSL-23 score (p=0.027). With additional multivariate linear regression analysis, there were no significant association between any of the subtypes of childhood trauma and BPD symptoms.

Conclusion: Nearly all subtypes of Childhood trauma are highly prevalent among Egyptian BPD patients and physical abuse showed strongest association with the severity of BPD symptoms.

Keyword: Borderline personality disorder, BPD, Childhood trauma. Physical abuse.

Introduction

Borderline personality disorder (BPD) is a severe personality disorder characterized primarily by enduring pattern of affect dysregulation, chronic emptiness, disturbed sense of self, fear of abandonment, impulsiveness, and suicidal and para-suicidal self-harm behaviors.(1) BPD is a common mental health problem with a prevalence of 1 to 3 percent in the community, 10 and 20 percent in the outpatient and inpatient setting respectively. Also, 9 to 27 percent of those who visit the accidents and emergency departments suffers from BPD.(2)

There have been multiple theories that explored the etiology of the BPD over the last decades. Marsha Linehan published the biosocial theory of BPD in 1993 which is one of the most accepted theories of the etiology of BPD. Linehan proposed that BPD may be caused by the interaction of biological vulnerabilities and psychosocial factors. She suggested that individuals with BPD grow up in an emotional invalidating environment in addition to their biologically determined emotional vulnerability.(3)

Patients with BPD has higher rates of childhood neglect and abuse compared to patients with other personality disorder (PD) and mental health disorder, with prevalence rates range from 30 to 90 percent in various studies. Between various types of childhood trauma childhood sexual abuse was reported to be more common in BPD patients than those diagnosed with other PDs. Furthermore, childhood trauma also plays a significant role in the severity of BPD symptoms.(4)

There is few research on BPD in Egypt and Arabic countries.(5, 6) However as of the last decade, there has been a growth in the research on and knowledge about BPD in Egypt.(7)

The objective of this paper is to study the profile of childhood trauma experience among Egyptian patients with BPD and to study its relationship with BPD symptoms. This would aid the understanding and knowledge of culturally relevant aspects of BPD psychopathology in Egypt, as well as providing future directions for BPD research.

Materials and methods

Participant

Patients diagnosed with BPD presenting to Al-Hadra University Hospital outpatient psychiatry clinic - offering psychiatric and psychotherapy services in Alexandria, Egypt - in 2021 were recruited. Sample size for case control study based

on previous research, was calculated as 64 in each group (study and control), Using the G*Power 3.1 statistical tool to achieve a level of significance of 0.05 and statistical power of 80%.

Patients with BPD were added to the BPD group after evaluation by a psychiatrist. Additionally, Structured Clinical Interview for Axis II Personality Disorders (SCID-II),(8) was used by the researcher for confirmation of the diagnosis. The control group was compromised of non-clinical participants using convenience sampling from volunteers.

The researcher interviewed study participants from both groups (study and control). using SCID-II to confirm or exclude the diagnosis of BPD and Mini-International Neuropsychiatric Interview (M.I.N.I.)(9) to assess the presence of psychiatric comorbidity. The inclusion criteria for the participants of both groups were both genders, aged above 18 and being able to provide written informed consent. Participants with history of developmental disorders, schizophrenia and related disorders were excluded. The control group participants were matched according to age and gender, and they were excluded if they met diagnostic criteria for any PD on SCID-II and or any axis-1 disorder on M.I.N.I.

Seventy-nine patients with diagnosis of BPD presenting to Al-Hadra University Hospital outpatient psychiatry clinic were approached to participate in the study group. Two out of the 79 participants did not meet the SCID-II criteria for BPD, and 13 refused to consent to take part in the study. As for the control, seventy-six volunteers matched by age and gender were approached. Three study participants did not consent after a debriefing session. Seven participants had axis-I disorders on M.I.N.I. 2 participants met the criteria for BPD on SCID-II and were added to the study group.

Tools used

All psychometric tools were administered in Arabic. These tools have been primarily used in psychiatric settings and have been used as well with normal populations.

A pre-designed structured interview was used to collect socio-demographic variables as age, gender, education, work and social status, medical and psychiatric history, and to collect data about suicide and non-suicide self-injury.

Arabic version of **Structured Clinical Interview for Axis II Personality Disorders (SCID-II)**, which is a semi-structured interview conducted by clinicians for the diagnosis of Axis II personality disorders included in Diagnostic and Statistical Manual of Mental Disorders, 4th edition (DSM IV).(10) It was used to confirm the diagnosis of BPD in the study group and exclude it in the control group.

Arabic version of **Mini-International Neuropsychiatric Interview (M.I.N.I.)**, which is a structured diagnostic interview conducted by clinicians for comorbid DSM-IV and International Classification of Disease-10th edition (ICD-10),(11) psychiatric diseases. M.I.N.I. is organized into modules, each of which corresponds to a diagnostic category.

Arabic version of **Childhood Trauma Questionnaire (CTQ),(12)** which is a Self-report Likert scale retrospective questionnaire covering 28 items that measures five subsets of childhood trauma emotional neglect and abuse, physical neglect and abuse, as well as sexual abuse. The validity and the reliability have been evaluated in different psychiatric population and it is a valid and sensitive test to screen for childhood trauma

Arabic version of **Borderline Symptom List 23 (BSL-23)**,(13) to provide a quick and effective way to measure the symptoms experienced by patients diagnosed with borderline personality disorder. It was based on the original BSL-95. The BSL-23 is graded by summing the items' values together. For the scores to be evaluated, patients must complete at least 90% of the questionnaire.

Before beginning this research, ethical approval of the study protocol was granted from the ethical committee (EC) of Faculty of Medicine, Alexandria University and all study participants provided written informed consent for the use of their data for research purposes.

Statistical analysis

Data were collected, coded, revised and entered to the Statistical Package for Social Science (Rstudio) version 2.3.2. The data were presented as number and percentages for the qualitative data, mean and standard deviations for the quantitative data with parametric distribution and median with Minimum and Maximum (Min.-Max.) for the quantitative data with non-parametric distribution. The Kolmogorov-Smirnov test and Shapiro test was used to verify the normality of distribution. Chi-square test was used in the comparison between two groups with qualitative data and Fisher exact test was used instead of the Chi-square test when the expected count in any cell found less than 5. Independent t-test was used in the comparison between two groups with quantitative data and parametric distribution and Mann-Whitney test was used in the comparison between two groups with quantitative data and non-parametric distribution. Univariate and multivariate logistic regression was used to control for possible confounder and find risk factors affecting the Odds ratio (OR) of the occurrence of childhood trauma subtypes in BPD group compared to the odds of it occurring in the control group. Linear regression analysis was done for the different risk factors affecting BSL-23. The statistical significance level of the obtained results was set at the 5% level.

Results

The study showed no significant difference between BPD and control group regarding gender, age, education and marital status (p value is 0.789, 1.00, 0.057, 0.083 respectively), however there was significant difference between BPD and control group regarding work status. Participants with BPD were more likely to report lower levels of education compared to the control group (^{F}p=0.0002). Furthermore 21.9% of the BPD group were unemployed compared to zero percent in the control group (^{F}p=0.0002). As for relationship status, BPD participants were more likely to be single (85.9%) compared to the control group (71.9%) with ^{F}p value equals 0.083 as shown in Table (1).

Table (1): Comparison between the BPD and control groups according to sociodemographic data of the participants

Q 1- Data collection Interview	Patients (n=64) No. (%)	Control (n=64) No. (%)	X^2	p
1- Gender:				
Male	7 (10.9%)	9 (14.1%)	0.071	0.789
Female	57 (89.1%)	55 (85.9%)		
2- Age:				
18 – 25 y	42 (65.6%)	41 (64.1%)		
26 – 40 y	21 (32.8%)	21 (32.8%)	1.012	^{F}1.00
41 – 50 y	0 (0.0%)	1 (1.6%)		
50 – 60 y	1 (1.6%)	1 (1.6%)		
3- Education:				
Read and write	2 (3.1%)	0 (0.0)		
Basic Education	3 (4.7%)	0 (0.0)	5.02	^{F}0.058
Graduate studies	59 (92.2%)	64 (100.0%)		
4- Marital Status:				
Single	55 (85.9%)	46 (71.9%)	3.004	0.083
Married	9 (14.1%)	18 (28.1%)		
5- Work:				
Unemployed	14 (21.9%)	0 (0.0%)	13.55	0.0002*
Employed	50 (78.1%)	64 (100.0%)		

χ^2: **Chi square test** F: **Fisher test**
p: p value for comparing between the two studied groups
*: Statistically significant at p ≤ 0.0

Table (2) presents the odds of exposure to different types of childhood trauma in borderline groups vs the control. There has been a significant increase in the odds of exposure to all types of childhood trauma in the BPD group. The highest was odds

of experiencing emotional abuse with OR of 38.55 (95%CI=14.16-126.84, p<0.001) The least was the odds of experiencing physical neglect (OR=18.1, 95%CI=6.49-64.93, p<0.001). When taking in our consideration possible confounder such as work status, history of psychiatric disorders, substance use history and family history of mental illness, the multivariate logistic regression analysis showed significant difference with decreasing in odds of all types of childhood trauma. Physical abuse with OR of 30.53 (95% CI=2.77-986.87, p=0.015) and sexual abuse with OR of 5.41 (95% CI=2.17-530.74, p=0.022) showed the highest odds.

Table (2): Univariate and Multivariate Logistic regression of odds of exposure to different types of childhood trauma in borderline groups vs the control

	Patients (n=64)	Control® (n=64)	OR (univariable) OR (95% CI, P)	OR (multivariable) OR (95% CI, P)
1- Work:				
Unemployed	14 (100.0%)	0 (0.0)	-	-
Employed	50 (43.9%)	64 (56.1%)	54457359.79 (0.00 NA,p=0.987)	145134598.93 (0.00-NA,p=0.993)
2- History of psychiatric disorder:				
No	15 (20.5%)	58 (79.5%)	-	-
Yes	49 (89.1%)	6 (10.9%)	0.03 (0.01-0.08,**p<0.001***)	0.08 (0.01-0.51,**p=0.015***)
3- History of substance use:				
No	48 (43.2%)	63 (56.8%)	-	-
Yes	15 (93.8%)	1 (6.2%)	0.05 (0.00-0.26,**p=0.005***)	0.57 (0.01-22.50, p=0.764)
4- Family history of mental illness:				
No	30 (37.0%)	51 (63.0%)	-	-
Yes	34 (72.3%)	13 (27.7%)	0.22 (0.100.48,**p<0.001***)	0.15 (0.01-1.54, p=0.143)
5- Emotional Abuse:				
Yes	49 (90.7%)	5 (9.3%)	-	-
No	15 (20.3%)	59 (79.7%)	38.55 (14.16-126.84,**p<0.001***)	2.96 (0.34-30.28, p=0.329)
6- Physical Abuse:				
Yes	49 (89.1%)	6 (10.9%)	-	-
No	15 (20.5%)	58 (79.5%)	31.58 (12.14-95.60,**p<0.001***)	30.53 (2.77-986.87,**p=0.015***)
7- Sexual Abuse:				
Yes	44 (91.7%)	4 (8.3%)	-	-
No	20 (25.0%)	60 (75.0%)	33.00 (11.65-120.10,**p<0.001***)	19.88 (2.17-530.74,**p=0.022***)
8- Emotional Neglect:				
Yes	39 (92.9%)	3 (7.1%)	-	-
No	25 (29.1%)	61 (70.9%)	31.72 (10.31-139.83,**p<0.001***)	5.41 (0.57-87.60, p=0.166)
9- Physical Neglect:				
Yes	35 (89.7%)	4 (10.3%)	-	-
No	29 (32.6%)	60 (67.4%)	18.10 (6.49-64.93,**p<0.001***)	0.45 (0.03-5.94, p=0.530)

p: p value for Odd`s ratio; *: Statistically significant at p ≤ 0.05; ®: Reference group; OR: Odd`s ratio; C.I: Confidence interval

On assessing the relationship between history of different subtypes of childhood trauma and the BSL-23 score, only exposure to physical abuse was associated with increased score in the BSL-23 (p=0.027) as shown in **table 3**.

Table (3): Relation between childhood trauma types and BSL-23 score in BPD group (n=64)

Type of Childhood trauma	N	BSL-23 Score		U	p
		Mean ± SD	Median (Min.- Max.)		
1- Emotional Abuse:					
Yes	**49**	57.4 ± 18.8	60 (7 - 91)	437.4	0.270
No	**15**	52.9 ± 17.2	52 (19 – 82)		
2- Physical Abuse:					
Yes	**49**	59.0 ± 18.1	60 (7 - 91)	507	**0.027***
No	**15**	47.9 ± 17.2	51 (25 – 82)		
3- Sexual Abuse:					
Yes	**44**	56.2 ± 19.8	59 (7 - 91)	450	0.891
No	**20**	56.6 ± 15.4	54.5 (19 – 82)		
4- Emotional Neglect:					
Yes	**39**	56.9 ± 20.6	58 (7 - 91)	541.5	0.461
No	**25**	55.6 ± 14.8	53 (29 – 82)		
5- Physical Neglect:					
Yes	**35**	57.5 ± 18.0	57 (7 - 91)	535	0.716
No	**29**	55.1 ± 19.2	56 (19 - 85)		

U: **Mann Whitney test**

p: p value for association between **the different studied categories**

*: Statistically significant at $p \leq 0.05$

Univariate linear regression analysis for multiple risk factors (age, gender, marital status, educational level, employment status, psychiatric and substance use history, family history of mental illness and different types of childhood trauma) showed significant results with family history of mental illness and exposure to childhood physical abuse (P =0.03 and 0.04 respectively). On multivariate regression analysis, only gender, history of psychiatric disorder and history of family mental illness risk were found to be significant independent risk factors for increased borderline symptoms (p=0.038 and p=0.04 and p=0.009 respectively). Physical abuse showed positive correlation with BPD symptoms, and the results were almost significant (Coeff= 10.93 ,95%CI= -1.07 to 22.93, p=0.073) as shown in **table 4.**

Table (4): Univariate and Multivariate Linear regression analysis for the different risk factors affecting BSL-23 score in BPD group (n=64)

	Coefficient (univariable) Coeff (95%C.I, P)	Coefficient (multivariable) Coeff (95%C.I, P)
1- Sex:		
Male	-	-
Female	8.60 (-6.11 to 23.31, p=0.247)	16.40 (0.95 to 31.84, **p=0.038***)
2- Age:		
18 – 25 y	-	-
26 – 40 y	-6.12 (-16.00 to 3.76, p=0.220)	0.43 (-12.47 to 13.34, p=0.947)
3- Education:		
Read and write	-	-
Basic Education	-13.33 (-47.25 to 20.58, p=0.435)	-40.23 (-86.78 to 6.32, p=0.089)
Graduate studies	-13.02 (-39.73 to 13.70, p=0.334)	-37.26 (-74.09 to -0.44, p=0.047)
4- Marital status:		
Single	-	-
Married	3.18 (-10.14 to 16.51, p=0.635)	-3.14 (-18.74 to 12.45, p=0.687)
5- Work:		
Unemployed	-	-
Employed	2.95 (-8.25 to 14.15, p=0.601)	7.80 (-6.77 to 22.38, p=0.287)
6- History of psychiatric disorder:		
	-8.91 (-19.63 to 1.81, p=0.102)	-13.18 (-25.77 to -0.60, **p=0.04***)
7- Use of psychotropic medication:		
	-0.81 (-10.97 to 9.34, p=0.873)	8.53 (-3.69 to 20.76, p=0.167)
8- Family history of mental illness:		
	9.93 (0.98 to 18.88, **p=0.030***)	16.34 (4.19 to 28.48, **p=0.009***)
9- Types of traumas:		
Emotional Abuse	4.58 (-6.31 to 15.48, p=0.404)	-3.48 (-17.34 to 10.37, p=0.615)
Physical Abuse	11.11 (0.53 to 21.70, **p=0.040***)	10.93 (-1.07 to 22.93, p=0.073)
Sexual Abuse	-0.40 (-10.41 to 9.61, p=0.937)	2.78 (-8.01 to 13.56, p=0.607)
Emotional Neglect	1.27 (-8.24 to 10.78, p=0.790)	-2.28 (-14.20 to 9.63, p=0.702)
Physical Neglect	2.39 (-6.92 to 11.69, p=0.610)	5.06 (-5.50 to 15.63, p=0.340)

B: Unstandardized Coefficients

C.I: Confidence interval

#: All variables with p<0.05 was included in the multivariate

*: Statistically significant at $p \leq 0.05$

Discussion

This research is one of the early studies in Egypt aiming at investigating childhood #trauma in individuals with BPD# and whether childhood traumatic experience would be associated with higher severity in the current borderline

symptoms. As anticipated, patients with BPD in comparison to healthy control (HC), reported higher odds of experiencing nearly all types of childhood trauma, with highest odds found with physical abuse and sexual abuse. However, our results showed that only exposure to physical abuse was correlated with increased severity of the BPD. Furthermore, multivariate regression analysis showed that female gender, history of comorbid psychiatric disorders, and family history of mental illness were the risk factors significantly associated with the highest risk of increase in borderline symptoms.

Childhood trauma and its relationship with borderline personality disorder has been highlighted in literature. Early research in the 1980s and 1990s found a consistent connection between childhood trauma, especially sexual abuse, and BPD.(14, 15) Herman et al.(14) in 1989 reported that 81 percent of BPD patients suffered from history of childhood trauma, such as physical and sexual abuse (71% and 67% respectively).

A systematic review and meta-analysis of etiological and psycho-pathological factors associated with BPD in youth (people aged 19 or younger) by Winsper et al. (14) reported that young people with BPD had 3 times the odds of exposure to physical abuse and 5 times the odds of exposure to sexual abuse. A more recent metanalysis,(15) compared levels of childhood trauma in patients with BPD to both non-clinical and clinical controls. BPD was associated with higher rates of all trauma types, with large effects when evaluating emotional abuse and neglect (OR = 38.11 and 17.73 respectively) which was consistent with our results in univariate analysis before considering the effect of confounder risk factors.

The extensive association between childhood trauma and BPD in our study are in line with the most acknowledged etiopathogenetic theory of BPD that suggests that BPD is produced by the interaction of biological and psychosocial factors,(3, 16) particularly biological vulnerabilities (temperamental characteristics,(17) and genetic polymorphisms(18)) and childhood traumatic experiences. These childhood adverse events could be also linked to epigenetic changes,(19) neurological structural(20) and functional (21) abnormalities, and neuroendocrinal dysfunction (22) (hypothalamic-pituitary axis) that are observed in patients with BPD and trauma history.

The relatively higher odds of childhood trauma in BPD observed in our study may be due to our use of case–control study design, which generally have much larger effects than those reported in other epidemiological or prospective cohort studies. These disparities could be attributed to the higher risk of selection bias in case-control study designs. This could lead to overestimation of childhood trauma prevalence in BPD group participants. For example, patients who suffer from past history of more severe traumatic experiences are more likely to seek help

from clinical services and, as a result, be recruited in research studies. In addition, BPD patients are compared to HC who have no other known psychiatric diagnoses.

Most of the western literature agree that childhood sexual abuse (CSA) is as an important risk factor for the severity of BPD symptoms.(23) CSA history is associated with a more severe clinical presentation and a worse prognosis.(24) However our study has shown no significant relationship between BPD symptoms severity and any of the childhood trauma subtypes. This can be due to the small sample size which could have affected the precision of our study results.

Limitations of the study

Our study had several limitations. First, we used case-control study design which may have risk of selection bias and overestimation of the exposure to childhood trauma. Second, CTQ and BSL-23 are self-report questionnaires and thus they are liable to response bias. Third, we used non- experimental cross-sectional case control data, which limits our ability to draw causal-and-effect conclusions. Fourth, we compared BPD patients to HC group participants, without including a clinical control group. Finally, we used a small sample size that can affect the accuracy of the findings. As a result, statements about the specificity of our findings are not possible. Taken together, the findings must be viewed as exploratory and interpreted cautiously. This study needs to be replicated with a larger sample size and additional clinical control group.

Conclusion

The findings of this study, in line with literature, indicate that childhood trauma is highly prevalent in patients with a diagnosis of BPD in Egypt. However, a larger sample size and additional clinical control group are needed before any definite conclusions can be deducted regarding the role of childhood trauma in the development and the severity of the BPD symptoms in Egyptian population.

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No funds were received for this project.

Conflicts of interest

The authors declare no conflicts of interest.

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None to declare.

Data availability

The data are available upon request.

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