

Childhood Adverse Events and the Long-Term Effects on Mental Health

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Abstract

Background: There has long been an association between family history and mental illness; however, recently, researchers have focused on the correlation between childhood adverse events and mood disorders, specifically bipolar disorder.

Methods: A literature search of peer reviewed journals published from 2015 to 2020 was conducted using the keywords: childhood adverse events, childhood adversity, childhood trauma, bipolar disorder, mental illness, and mood disorders from the EBSCO database which included, APA PsychArticles, Child Development and Adolescent Studies, Health Source: Nursing/Academic Edition, and MEDLINE.

Results: The results demonstrate a strong correlation between childhood adverse events and bipolar disorder specifically, sexual abuse in females, maternal separation, economic difficulties and family history of mental illness. Specific childhood adverse events show a correlation with specific types of mental illness. The recollection of abuse is associated with an increased risk of depressive symptoms. Additionally, childhood adverse events are associated with clinical outcomes of bipolar disorder including age of onset, chronicity, psychotic episodes and suicidality.

Conclusion: The findings suggest that females that experience childhood adverse events may be at a higher risk for developing bipolar disorder and the clinical outcome of bipolar disorder may also be affected by the type and number of childhood adverse events. The results also suggest that schizophrenic spectrum disorders, bipolar disorder and major depressive disorder are associated with different childhood adverse events. Females who have recollections of childhood abuse are at an increased risk for depressive symptoms associated with bipolar disorder. Psychosocial interventions that are geared towards limiting childhood adverse events may reduce the incidence of mental illness, specifically bipolar disorder.

Introduction

According to the National Alliance on Mental Illness (NAMI), 1 in 5 adults and 1 in 6 youth, age 6-17, experience mental illness each year. The annual prevalence of schizophrenia is 1.5 million people, while bipolar disorder and major depressive disorders are 7 million and 17.7 million respectively¹. There has long been an association between family history and mental illness but recently, research has suggested that there is an association between childhood adverse events (CAE) and mood disorders such as bipolar disorder². Additionally, the psychopathology related to CAE has been shown to result in worse overall outcomes, earlier age of onset, an increased number of suicide attempts and treatment resistance³. Bipolar disorder can be described as a mental disorder with alternating periods of depression, hypomania, and manic episodes. Patients with bipolar disorder who have experienced CAE often have a higher

number of episodes, rapid cycling, more severe symptoms, an increased likelihood of comorbid mental disorders, and psychotic symptoms². Current research is exploring the correlation between CAE and mood disorders such as bipolar disorder.

Method

A search of the EBSCO database including: APA PsychArticles, Child Development and Adolescent Studies, Health Source: Nursing/Academic Edition, and MEDLINE was conducted using keywords: childhood adverse events, childhood adversity, childhood trauma, bipolar disorder, mental illness, and mood disorders for peer reviewed, full text article resulted in 177 research articles. Four articles were selected based on research focusing on the role of family history, gender, type, number and timing of childhood adverse events. Additionally, the author was interested in research identifying different childhood adverse events resulting in different psychiatric diagnoses.

Results

Jansen et al. (2016)³ conducted a cross-sectional study nested in a population-based study looking at the prevalence of CAE in patients with mood disorders compared to patients without mood disorders. They initially looked at 1500 patients between the ages of 18 and 24 years old using

a sample selection cluster. The final sample size included 82 patients with major depressive disorder (MDD), 52 patients with BP, and 94 patients as control subjects. The Childhood Trauma Questionnaire (CTQ), which is a self-rated instrument, was utilized to assess childhood trauma which was classified as moderate or severe in the categories of emotional, physical, or sexual abuse. Dichotomous Poisson regression was used to investigate the association between trauma and mood disorders³.

A history of trauma was found in 17% of the control group, 55% of patients with MDD, and 54% of patients with BP. This was found to be statistically significant with a p-value of less than 0.001. A history of sexual abuse occurred in 11.5% of the BP patients compared to 1.1% of the control subjects. Additionally, trauma was associated with a family history of psychiatric illness. This was demonstrated with both first-degree relative and more distant relatives with p-values of less than 0.001 and less than 0.003 respectively. Also, a family history of mental illness was associated with a mood disorder diagnosis. This was also observed with both first-degree relatives and more distant relatives with p-values of less than 0.001 and less than 0.023 respectively. A strong association was found between patients diagnosed with a mood disorder and stressful life events, parenting style, CAE and maltreatment; while sexual abuse was specifically associated with BP patients³. (See table 1)

Early childhood events	HC N=85		MDD N=83		BD N=74		SSD N=91		χ^2	p	Post-hoc
	Fr	%	Fr	%	Fr	%	Fr	%			
Cannabis Abuse	5	5.9	1	1.2	12	16.2	26	28.6	$\chi^2 = 33.721$	<.001	SSD > all; HC < all
Cocaine Abuse	0	0.0	0	0.0	4	5.4	6	6.6	$\chi^2 = 10.695$	.013	NS
LSD Abuse	0	0.0	0	0.0	0	0.0	4	4.4	$\chi^2 = 10.767$	.013	NS
Heroin Abuse	0	0.0	0	0.0	0	0.0	4	4.4	$\chi^2 = 10.767$	.013	NS
Alcohol Abuse	0	0.0	4	4.8	11	14.9	8	8.8	$\chi^2 = 14.660$	.002	NS
Absence of father	3	3.5	11	13.3	13	17.6	15	16.5	$\chi^2 = 9.279$	.026	HC < all
Absence of mother	2	2.4	6	7.2	13	17.6	8	8.8	$\chi^2 = 11.853$	.008	BD > all
Change of school	9	10.6	13	15.7	14	18.9	25	27.5	$\chi^2 = 8.900$	.031	NS
Home escape	0	0.0	4	4.8	11	14.9	20	22.0	$\chi^2 = 27.056$	<.001	SSD > all; HC < all
Serious economic difficulties	9	10.6	29	34.9	36	48.6	26	28.6	$\chi^2 = 28.543$	<.001	HC < all; BD > all
Neglect of major needs	3	3.5	18	21.7	20	27.0	21	23.1	$\chi^2 = 17.935$	<.001	HC < all
Serious family tensions	6	7.1	34	41.0	25	33.8	40	44.0	$\chi^2 = 33.681$	<.001	HC < all
Psychological Abuse	0	0.0	10	12.0	11	14.9	26	28.6	$\chi^2 = 29.986$	<.001	SSD > all; HC < all
Physical Abuse	1	1.2	12	14.5	18	24.3	38	41.8	$\chi^2 = 46.849$	<.001	SSD > all; HC < all
Absence of adult confidant	18	21.2	38	45.8	36	48.6	47	51.6	$\chi^2 = 20.465$	<.001	HC < all
Absence of peer confidant	10	9.7	25	21.1	25	33.8	43	47.3	$\chi^2 = 26.271$	<.001	HC < all
Experiences of loneliness	7	8.2	34	41.0	30	40.5	61	67.0	$\chi^2 = 63.662$	<.001	SSD > all; HC < all

Abbreviations: HC Healthy Control, MDD Major Depressive Disorder, BD Bipolar Disorder, SSD Schizophrenic Spectrum Disorder, Fr Frequency
For comparison, post hoc Bonferroni-corrected, Chi-square test used for binary variables; the bold P values indicated the statistical significance

Table 1:

Bruni et al. (2018)⁴ looked at what type of CAE resulted in different psychiatric disorders. The two objectives of this study were first to assess the frequency of various forms of CAE in patients with schizophrenic spectrum disorder (SSD), BP, and MDD and second, to identify the association between CAE and SSD, BP, and MDD⁴. The sample (n=333) consisted of 91 patients diagnosed with SSD, 74 patients diagnosed with BP, 83 patients diagnosed with MDD, and 85 control subjects. The patients participated in a semi-structured interview and the CTQ. The data were analyzed using the Statistical Package for Social Science and results were presented as frequency and percentages. Group differences were assessed with chi-squared tests. Independent predictors of each psychiatric disorders were analyzed with multi-variant logistic regression⁴.

Bipolar and MDD were more common in women occurring in 60.8% and 67.5% respectively, while SSD was more commonly found in men at 60.4% which was found to be statistically significant in all three groups with a p-value

of 0.002. A correlation was found between maternal separation, 17.6%, and family economic difficulty, 48.6%, and BP. Both values were statistically significant with a p-value of .008 and less than 0.001 respectively. The CAE that correlated with SSD were cannabis abuse, 28.6%, escape from home, 22%, psychological abuse, 41.8%, and loneliness, 67%. All values were statistically significant with a p-value of less than 0.001. A low rate of cannabis abuse, 1.2%, and serious family tension, 41%, were associated with MDD which was statistically significant with a p-value of less than 0.001⁴. Linear regression was utilized to find the predictive nature of CAE. Neglect of core needs, physical abuse, absence of peer confident and loneliness were all predictive of SSD, while economic difficulties and maternal separation were predictive of BP⁴ (See Table 2).

Hausleiter et al. (2020)² were interested in CAE and gender and its relationship to BP symptoms. The objective of the study was to clarify the association of CAE with BP symptoms and gender. Specifically, they looked at

Type of trauma	Community controls	MDD	BD
Emotional neglect			
Prevalence (%)	6.4	22.0	21.2
Bivariate PR (95% CI)	1	3.44 (1.43–8.27)	3.31 (1.30–8.46)
Multivariate PR (95% CI)	1	3.20 (1.34–7.50)	3.39 (1.34–8.61)
Physical neglect			
Prevalence (%)	9.6	29.3	28.8
Bivariate PR (95% CI)	1	3.06 (1.51–6.21)	3.01 (1.42–6.41)
Multivariate PR (95% CI)	1	2.91 (1.09–6.06)	2.99 (1.40–6.41)
Emotional abuse			
Prevalence (%)	8.5	36.6	44.2
Bivariate PR (95% CI)	1	4.30 (2.09–8.86)	5.20 (2.50–10.80)
Multivariate PR (95% CI)	1	3.58 (1.71–7.52)	4.58 (2.18–9.63)
Physical abuse			
Prevalence (%)	4.3	14.6	25.0
Bivariate PR (95% CI)	1	3.43 (1.15–10.28)	5.88 (2.01–17.14)
Multivariate PR (95% CI)	1	3.03 (1.02–9.06)	5.21 (1.77–15.30)
Sexual abuse			
Prevalence (%)†	1.1	1.2	11.5
Bivariate PR (95% CI)	1	1.15 (0.07–18.18)	10.85 (1.34–88.07)
Multivariate PR (95% CI)	1	0.77 (0.03–18.15)	9.16 (1.03–81.60)
Any trauma			
Prevalence (%)	17.0	54.9	53.9
Bivariate PR (95% CI)	1	3.22 (1.98–5.26)	3.16 (1.89–5.29)
Multivariate PR (95% CI)	1	2.92 (1.78–4.79)	2.99 (1.78–5.01)

MDD, major depressive disorder; BD, bipolar disorder; 1, reference; CI, confidence interval.

*Poisson regression adjusted for sex, socioeconomic status, and the presence of smoking, alcohol, and illicit drug misuse.

†Statistically different prevalence between the group with MDD and BD ($P < 0.05$).

Table 2: Prevalence Ratio PR of trauma types in the mood disorders in bivariate analysis and multivariate model*

emotional, physical and sexual abuse and their relationship to depression, hypomania and manic symptoms of BP. This study was part of a larger longitudinal research project focused on prodromal symptoms of college-aged students diagnosed with BP. One hundred and thirty-four students participated in five measurement intervals during a period of 2 years². All data were collected using self-reported scales including: retrospective measurement of childhood maltreatment, Becks Depression Inventory II, Hypomania Checklist 32, Altman Self Rating Scale, and the Bachumer Screeningbogen Bipolar Scale. The Kolmogorov-Smirnov was used to test normal distribution and Chi-square test was used to ensure sample representation. The Mann-Whitney was used to determine if BP symptoms vary with gender and childhood trauma, identify differences between

men and women, and identify differences between participants with and without histories of abuse².

A correlation was found between participants who experienced emotional, physical and sexual abuse as a child and adults experiencing depression. Women diagnosed with BP who experience emotional and physical abuse had the highest depression scores demonstrating statistical significance with p-values ranging from less than 0.001 to less than 0.01 for emotional abuse and p-values ranging from less than 0.01 to less than 0.05 for physical abuse. Men scored as low on depression scales as women who did not experience abuse. Additionally, there did not seem to be a correlation between hypomania and mania and childhood maltreatment². (See Table 3)

	Gender		z	Emotional abuse		z	Physical abuse		z	Sexual abuse		z
	Male	Female		No	Yes		No	Yes		No	Yes	
	<i>Mdn</i>	<i>Mdn</i>		<i>Mdn</i>	<i>Mdn</i>		<i>Mdn</i>	<i>Mdn</i>		<i>Mdn</i>	<i>Mdn</i>	
Depressive symptoms												
BDI 1	5	9	-2.36*	7	23	-4.81***	8	14	-2.17*	8	17	-2.49*
BDI 2	5	8	-2.51*	7	17	-3.53***	7	16	-3.03**	7	17	-2.54*
BDI 3	4	9	-2.91**	7	17	-4.06***	7	17	-2.24*	7	21	-3.03**
BDI 4	5	8	-2.44*	5	14	-3.07**	6	17	-1.99*	6	14	-2.17*
BDI 5	6	6	-0.99	5	13	-3.87***	6	15	-2.82**	6	19	-3.35**
Hypomanic symptoms												
HCL 1	16	16	-0.36	16	17	-1.23	16	17	-1.33	16	18	-2.08*
HCL 2	15	15	-0.33	15	17	-0.62	15	18	-1.18	15	17	-1.96
HCL 3	14	14	-0.12	14	15	-1.98*	14	16	-0.49	14	15	-1.40
HCL 4	13	13	-0.05	13	16	-1.03	13	18	-1.48	13	17	-2.24*
HCL 5	12	12	-0.03	12	16	-1.05	12	17	-1.33	12	17	-2.01*
Manic symptoms												
ASRM 1	2	2	-0.96	2	2	-1.19	2	2	-0.46	2	2	-0.16
ASRM 2	2	2	-0.14	2	3	-0.97	2	3	-0.38	2	2	-0.29
ASRM 3	2	2	-1.19	2	5	-1.97*	2	3	-0.69	2	2	-1.75
ASRM 4	2	1	-0.14	2	3	-1.39	2	3	-1.37	2	3	-1.41
ASRM 5	2	1	-1.89	1	1	-0.21	1	0	-0.84	1	0	-2.06*
Overall bipolar symptoms												
BSB 1	10	14	-2.22*	12	21	-3.85***	12	17.5	-1.14	12	15	-1.85
BSB 2	10	11	-1.25	10	17	-2.99**	10.5	12.5	-0.25	11	11	-0.65
BSB 3	9	12	-1.93	11	22	-3.54***	11	12.5	-0.54	11	18	-2.29*
BSB 4	8	12	-2.55*	9	20	-3.36**	10	11	-1.36	10	14	-2.12*
BSB 5	8	8	-0.81	8	17	-3.55***	8	7.5	-1.02	8	12	-1.85

BDI/Beck Depression Inventory, HCL Hypomania Checklist, ASRM Altman Self-Rating Mania Scale, BSB Bochumer Screeningbogen Bipolar, *Mdn* median, * $p < .05$, ** $p < .01$, *** $p < .001$

Table 3: Difference in depressive, hypomanic, manic and overall bipolar symptoms depending on gender and childhood trauma

Variable	Group without ACE	Group with ACE	P
AAO, years (mean ± SD)	20.1 ± 9.7	17.5 ± 9.0	<0.01 ^a
Age at assessment, years (mean ± SD)	43.7 ± 14.1	44.3 ± 12.1	0.28 ^b
Sex ratio, males/females (%)	42.5/57.5	32.3/67.7	<0.01 ^c
Number of manic episodes* (mean ± SD)	0.5 ± 0.9	0.6 ± 1.4	0.30 ^b
Number of depressive episodes* (mean ± SD)	1.0 ± 2.8	0.9 ± 1.7	0.21 ^b
History of psychotic episodes (mean ± SD)	47.5	82.4	<0.01 ^c
History of suicide attempts (%)	75.7	82.4	<0.01 ^c
History of mixed symptoms or episodes (%)	44.9	52.4	<0.01 ^c
Presence of substance misuse (%)	54.3	62.2	<0.01 ^c
Presence of worsening in life functioning (%)	81.7	86.7	<0.01 ^c

Table 4:

Several conclusions can be drawn from this study. First, childhood emotional and physical abuse is a risk factor for depression in adult females. Sexual abuse could not be analyzed because of the small number of males reporting sexual abuse. This could be related to the small number of men who are sexually abused or that men do not recall sexual abuse. Also, being of the male gender may be protective in terms of the risk factors for depression independent of the presence or absence of abuse².

Park et al. (2020)⁵ studied the relationship between CAE and clinical outcomes of patients with BP by looking at the number, type and timing of CAE. Clinical data from 2675 patients were obtained from the Bipolar Genomic Study in five increments at 11 sites throughout the United States. Statistical significance was determined to be a p-value of less than 0.05. Continuous variables were analyzed using Mann-Whitney, Kruskal-Wallis, independent sample t-tests and ANOVA, while Chi-squared tests were used to analyze categorical variables. “Multivariate regression and logistical regression analysis was used to evaluate the association of the number of CAE, specific CAE and the timing of adverse experiences with age at onset (AAO) and clinical outcome severity” (Park et al. 2020, para. 6)⁵. Statistical significance was determined to be a p-value of less than 0.05.

The mean age of the subjects was 44 years old while the AAO was 18.5 years old. More than half of the patients experienced psychotic episodes, suicide attempts and comorbidity of substance abuse. Almost half of the participants had a history of mixed symptoms or episodes, and 63.1% experienced at least one CAE. Physical abuse was the most prevalent of all CAE⁵. There was a strong association found between CAE presence versus CAE absence with clinical outcomes in patients with BP. For example, BP participants with CAE experienced a history of psychotic episodes 82.4% versus 47.5% in the BP participants without a history of CAE which was

statistically significant with a p-value of less than 0.01. Participants with CAE had a significantly earlier AAO than those without CAE, 20.1 years old versus 17.5 years old respectively, with a statistically significant p-value of less than 0.01. A significant relationship was found between the number of CAE and AAO. Participants with no CAE, 1 CAE, 2 CAE, and 3 or more CAE had an AAO of 20.1 years, 18.9 years, 17.1 years and 16.3 years respectively. These results were statistically significant with a p-value of less than 0.01⁵. A statistical significance, with a p-value of less than 0.01, was found between the number of females who experienced CAE versus no CAE, 67.7% and 57.5% respectively; while male participants with a history of CAE, 32.3%, versus no history of CAE, 42.5%. A positive correlation was found between the number of CAE and AAO, chronicity, psychotic episodes, suicidality, substance misuse, and worsening function with a p-value of less than 0.01. There was no correlation between CAE and mixed symptoms with a p-value of 0.43. A history of physical abuse affected AAO, worsened the severity of mixed symptoms, suicidality and substance misuse, demonstrating statistical significance with a p-value ranging from less than 0.01 to 0.05. Additionally, AAO affected chronicity, psychosis, mixed symptoms, suicidality and life function⁵. (See Table 4).

Discussion

Although the data from these studies are compelling, there were some limitations, including the challenges when interpreting the CTQ, the retrospective nature of the study designs, relying on the recollection of childhood maltreatment and the higher number of female subjects enrolled in the studies.

Despite some of the limitations, this robust data demonstrated a strong correlation between CAE and BP; specifically, sexual abuse in females, maternal separation, economic difficulty, and family history of mental illness.

Additionally, CAE was found to affect the clinical outcomes of BP, such as AAO, chronicity, psychotic episodes, and suicidality. The results also suggest that schizophrenic spectrum disorders, bipolar disorder and major depressive disorder are associated with different childhood adverse events. For example, maternal separation and family economic difficulties were more common in subjects with BP while, escape from home, cannabis use, physical abuse, psychological abuse and loneliness more prevalent in the subjects with SSD. Additionally, females who have recollections of childhood abuse are at an increased risk for depressive symptoms of bipolar disorder. Psychosocial interventions that are geared towards limiting childhood adverse events may reduce the incidence of mental illness, specifically bipolar disorder.

Now that we are aware of this information, how can we make changes to create better patient outcomes? We need to be the voice for children who are experiencing trauma. This could be in the form of making better assessments of the home life that a newborn will be entering by asking key questions of a new mother. It could be creating better screening tools for pediatric well checks by assessing for abuse, maternal separation, and financial difficulties. It

could also be training teachers to look for signs of trauma that their students may be experiencing. Most importantly, if we are aware of the trauma that may be occurring, we need to speak up to help facilitate better patient outcomes and potentially reducing the incidence of mental illness.

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