

THE IMPACT OF ADVERSE CHILDHOOD EXPERIENCES ON DEPRESSION AND SUICIDALITY IN PATIENTS WITH SCHIZOPHRENIA

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SUMMARY

Background: This study aims to investigate the association of adverse childhood experiences (ACE) and depressive symptoms on suicidality in patients with schizophrenia (SCZ) in the Outpatient Consultative Department of the Riga Centre of Psychiatry and Narcology (RPNC).

Subjects and methods: A descriptive cross-sectional study was conducted in adult outpatients with SCZ who had not been hospitalized for at least three months. Suicidality was assessed using the Risk Assessment Suicidality Scale (RASS). Depressive symptoms were evaluated with the Calgary Depression Scale for Schizophrenia (CDSS), and ACE were investigated using the Childhood Trauma Questionnaire - Short Form (CTQ-SF). Statistical methods used: Chi-squared test, Fisher's exact test.

Results: In total 60 outpatients diagnosed with SCZ were interviewed. It was found that the association between ACE and the frequency of suicide attempts in the study participants during lifetime was statistically significant ($\chi^2=7.255$, $p=0.027$). Self-harm attempts during whole life also differed between participants with and without childhood abuse history ($\chi^2=9.902$, $p=0.002$). Suicidal ideation was observed statistically significantly more often in patients with ACE in comparison with those without ACE ($\chi^2=24.935$, $p<0.001$). Patients with positive childhood abuse history were also observed to be depressed more often ($\chi^2=4.659$, $p=0.031$) in comparison with patients without ACE. Suicidal ideation was found to be more frequent among respondents who were observed to be depressed (CDSS score > 6) during the interview ($\chi^2=14.614$, $p<0.001$).

Conclusions: This study contributes to the existing body of knowledge on suicide attempts, suicidal ideation, and the prevalence of depression in patients with schizophrenia (SCZ) who have a history of childhood abuse. Findings indicate that suicidal ideation is more prevalent among patients experiencing depression at the time of the interview. Personalized interventions are recommended for patients with SCZ who have adverse childhood experiences (ACE) due to their increased risk of suicide attempts.

Key words: schizophrenia – suicidality - childhood abuse – depression - suicide attempts

Abbreviations: ACE - Adverse childhood experiences; CDC - Centers for Disease Control and Prevention; CDSS - Calgary Depression Scale for Schizophrenia; CTQ-SF - Childhood Trauma Questionnaire - Short Form; ICD-10 - 10th revision of the International Classification of Diseases; RASS - Risk Assessment Suicidality Scale; RPNC - Riga Psychiatry and Narcology Center; SCZ - schizophrenia

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INTRODUCTION

Schizophrenia (SCZ) is a serious neurocognitive disorder characterized by long-term persistence of symptoms in most affected individuals for the rest of their lives (Schennach et al. 2015, Volavka & Vevera 2018, Popovic et al. 2019). Several studies have shown that life expectancy in people with SCZ is shortened by 10 to 20 years compared to the general population (Tiihonen et al. 2009, Kodesh et al. 2012, Nielsen et al. 2013, Crump et al. 2013) and 17.5% to 40% deaths in patients with SCZ are related to unnatural causes such as suicide or accidents (Hor & Taylor 2010, Bushe et al. 2010, Wildgust et al. 2010, Walker et al. 2015). Risk of suicide in patients with SCZ is up to 10% (Pompili et al. 2007, Davis et al. 2021), but reports of suicide attempts range from 18 to 55%, suggesting that true data may be underestimated (Siris 2001, Sher & Kahn 2019). Despite extensive efforts, the prevalence of suicide among these patients remains elevated, making it one of the main reasons for reduced life

expectancy (Pompili et al. 2007, Sher & Kahn 2019). For patients with SCZ ACE can be particularly disruptive in relation to the specifics of the illness. ACE can have a complex and multifaceted effect on patients with SCZ – it can exacerbate existing vulnerabilities and contribute to a higher risk of suicide (Roy 2005, Alli et al. 2019, Mall et al. 2020, Vaskinn et al. 2021). Another risk factor for suicide in patients with SCZ is depression (Sher & Kahn 2019, Husain et al. 2021). Considering the above, it seems rational to conduct additional research on this topic. This study was conducted with patients with stabilized schizophrenia to minimize confounding factors such as hallucinations and agitation, ensuring that the findings are not influenced by acute symptoms (Jongsma et al. 2018). Moreover, such patients are more likely to comply with study protocols and provide accurate self-reports (Kopelowicz et al. 2012, Fischer et al. 2013). Besides, participation in the study for the stable patients is generally safer and more ethically sound (McCann et al. 2008). The topic of the work is also relevant

because the recognition and inclusion of ACE and depression in therapeutic protocols can improve the treatment of patients with SCZ and modify the approach to reducing the frequency of suicide attempts (Roy 2005, Zhang et al. 2021, Husain et al. 2021). Identification of ACEs is thought to facilitate more effective interventions and improve treatment efficacy (Sīle 2022).

This study aims to elucidate the association between ACE and depressive symptoms with suicidality among patients with SCZ treated in the Outpatient Consultative Department of the RPNC.

SUBJECTS AND METHODS

Data Collection

The study was conducted in the period from August 24, 2023, till November 15, 2023. Adults (≥ 18 years) diagnosed with SCZ according to 10th revision of the International Classification of Diseases (ICD-10, F20; (WHO 1993) were included in the study.

The participants of the study were outpatients at RPNC who had a scheduled consultation with a psychiatrist in the outpatient department and were invited to participate in the study.

This descriptive cross-sectional study was based on several questionnaires. The inclusion criteria were a diagnosis of schizophrenia (SCZ) according to ICD-10 (F20) and at least three months without exacerbation and hospitalization.

Exclusion criteria included other comorbidities, unstable somatic disorders, and patient refusal to participate in the study. This study was approved by the Ethics Committee of Riga Stradins University, Riga, Latvia (Nr. 2–4/503/2023 from 1 August 2023) and Riga Centre of Psychiatry and Narcology (Nr. 14–02/23/8231 from 16 August 2023). Informed consent was obtained from all participants involved in the study.

Measures

Sociodemographic Determinants

The participants of the study were asked to fill out a survey consisting of a socio-demographic data questionnaire (gender, age, education, employment status, marital status, children, duration of illness).

Determinants related to childhood abuse

Childhood Trauma Questionnaire-Short Form (CTQ-SF) (Bernstein et al. 2003) was used for evaluation of the ACE. In the CTQ-SF respondents self-reported exposure to violence in childhood by filling in a questionnaire of 28 statements on the five subscales (emotional abuse, physical and sexual abuse, emotional and physical neglect) with possible range of 5 to 25. In this study participants with scores starting from low range were classified as positive for exposure of childhood abuse (≥ 7 for sexual abuse, ≥ 9 for physical

neglect and physical abuse, ≥ 12 for emotional abuse and ≥ 14 for emotional neglect).

Determinants related to suicidality

Risk Assessment Suicidality Scale (RASS) (Fountoulakis et al. 2012) was used for the analysis of suicidality of the study participants. In the framework of this study, suicidality and the frequency of suicide attempts were assessed based on the responses of the RASS scale to the following questions: “Do you often think of committing suicide if you have the chance?”, “Do you make plans concerning the method to use in order to finish your life?”, “Have you ever attempted suicide during your whole life so far?”. Self-harm history was assessed based on the responses to the question: “Have you ever hurt yourself in any way deliberately during your whole life so far?”.

Symptoms of depression

Participants were asked to answer the interview-type questions of the Calgary Depression Scale for Schizophrenia (CDSS) (Addington & Addington 2007) to evaluate depressive symptoms. The CDSS interview-type scale consists of eight structured questions and a ninth observation element, which depends on observation during the interview with possible outcome of: depression has not been observed; mild depression; moderate depression; severe depression. According to the scale instructions, if the participant got more than 6 points, the specificity and sensitivity for predicting the presence of a major depressive episode is more than 80% (Addington & Addington 2007).

Statistical analysis

All data were analyzed using IBM SPSS version 29.0.1.1. and Microsoft Excel. The association between various variables was tested using Mann-Whitney U-test, Chi-square test and Fisher's exact test.

RESULTS

Sociodemographic characteristics

Table 1. represents sociodemographic characteristics of the study participants.

The study included 60 outpatients with SCZ with 30 females (50.0%, aged 44.50±14.21) and 30 males (50.0%, aged 45.60±14.42). Mean disease duration was 14.23±8.88 years for women and 17.47±11.66 years for men. Mean number of hospitalizations for women was 5.33±4.56 times and 6.47±4.54 for men. The number of women without a life partner was 46.7% (n=14) and with a life partner 53.3% (n=16), while the number of men without a life partner was 96.7% (n=29) and 3.3% (n=1) with a life partner. The difference in marital status between genders was statistically significant ($\chi^2=18.468$, $p<0.001$) (Table 2).

Table 1. Sociodemographic characteristics of the study participants (N=60)

Variables	Female 50.0% (n=30)	Male 50.0% (n=30)	All respondents
Age	44.50±14.21	45.60±14.42	45.05±14.20
Disease duration	14.23±8.88	17.47±11.66	15.85±10.40
N of hospitalizations	5.33±4.56	6.47±4.54	5.90±4.55
Education			
Compulsory basic education	6.7% (n=2)	10.0% (n=3)	8.3 % (n=5)
General education	30.0% (n=9)	36.7% (n=11)	33.3% (n=20)
College education	26.7% (n=8)	40.0% (n=12)	33.3% (n=20)
Higher education	36.7% (n=11)	13.3%(n=4)	25.0% (n=15)
Children			
Child-free	66.7% (n=20)	86.7% (n=26)	76.7% (n=46)
Have at least 1 child	33.3% (n=10)	13.3% (n=4)	23.3% (n=14)
Employment			
Disability pension	33.3% (n=10)	40.0% (n=12)	36.7% (n=22)
Looking for a job	20% (n=6)	13.3% (n=4)	16.7% (n=10)
Employed	36.7% (n=11)	33.3% (n=10)	35.0% (n=21)
Unemployed	10.0% (n=3)	13.3% (n=4)	11.7% (n=7)
Marital status			
Single (divorced, widower, other)	46.7% (n=14)	96.7% (n=29)	71.7% (n=43)
In a relationship (married, living with partner)	53.3% (n=16)	3.3% (n=1)	28.3% (n=17)

Table 2. Gender and marital status

		Gender			χ^2	p-value
		Female N (%)	Male N (%)	Total N (%)		
Marital status	Single (divorced, widower, other)	14 (46.7%)	29 (96.7%)	43 (71.7%)	18.468	<0.001
	In a relationship (married, living with partner)	16 (53.3%)	1 (3.3%)	17 (28.3%)		
Total		30 (50.0%)	30 (50.0%)	60 (100.0%)		

Table 3. Adverse childhood experiences and lifetime history of suicide attempts

		Lifetime suicide attempts				χ^2	p-value
		Never N (%)	Once N (%)	Many times N (%)	Total N (%)		
Adverse childhood experiences	Negative	18(64.3%)	8(28.6%)	2(7.1%)	28(100.0%)	7.255	0.027
	Positive	12(37.5%)	9(28.1%)	11(34.4%)	32(100.0%)		
Total		30 (50.0%)	17(28.3%)	13(21.7%)	60(100.0%)		

Table 4. Adverse childhood experiences by gender

		Gender			χ^2	p-value
		Female N (%)	Male N (%)	Total N (%)		
Adverse childhood experiences	Negative	10 (35.7%)	18 (64.3%)	28 (100.0%)	4.286	0.038
	Positive	20 (62.5%)	12 (37.5%)	32 (100.0%)		
Total		30 (50.0%)	30 (50.0%)	60 (100.0%)		

ACE and suicidality

Positive ACE were found to be in 53.3% (n=32) of the participants and no ACE were reported by 46.7% (n=28) of participants. Among participants with positive ACE 62.5% (n=20) reported suicide attempts during whole life that was statistically significant difference compared to those without a history of childhood abuse ($\chi^2=7.255$, $p=0.027$) (Table 3).

Frequency of ACE also differed between women and men ($\chi^2=4.286$, $p=0.038$) (Table 4).

A statistically significant difference in the prevalence

of suicidal ideation was also observed according to the experience of childhood abuse where 75.0% (n=24) of the patients with ACE reported suicidal ideation during the last week while patients without ACE reported suicidal ideation in only 10.7% (n=3) of the cases ($\chi^2=24.935$, $p<0.001$) (Table 5).

ACE also had an impact on the frequency of self-harm during lifetime ($\chi^2=9.902$, $p=0.002$) with 65.6% (n=21) of the participants with positive ACE reporting self-harm episodes during lifetime compared to 25.0% (n=7) of those without ACE (Table 6).

Table 5. Association between adverse childhood experiences and suicidal ideation

		Suicidal ideation during last week			χ^2	p-value
		Not at all N (%)	Had suicidal ideation N (%)	Total N (%)		
Adverse childhood experiences	Negative	25 (89.3%)	3 (10.7%)	28 (100.0%)	24.935	<0.001
	Positive	8 (25.0%)	24 (75.0%)	32 (100.0%)		
Total		33 (55.0%)	27 (45.0%)	60 (100.0%)		

Table 6. Association between adverse childhood experiences and self-harm attempts

		Lifetime history of self-harm attempts			χ^2	p-value
		Never N (%)	At least once N (%)	Total N (%)		
Adverse childhood experiences	Negative	21 (75.0%)	7 (25.0%)	28 (100.0%)	9.902	0.002
	Positive	11 (34.4%)	21 (65.6%)	32 (100.0%)		
Total		32 (53.3%)	28 (46.7%)	60 (100.0%)		

Table 7. Adverse childhood experiences and depression symptoms

		Depression symptoms			χ^2	p-value
		None N (%)	Depression N (%)	Total N (%)		
Adverse childhood experiences	Negative	20 (71.4%)	8 (28.6%)	28 (100.0%)	4.659	0.031
	Positive	14 (43.8%)	18 (56.3%)	32 (100.0%)		
Total		34 (56.7%)	26 (43.3%)	60 (100.0%)		

Table 8. Symptoms of depression and suicidal ideation

		Suicidal ideation during last week			χ^2	p-value
		Not at all N (%)	Had suicidal ideation N (%)	Total N (%)		
Depression	None	26 (76.5%)	8 (23.5%)	34 (100.0%)	14.614	<0.001
	Depressed	7 (26.9%)	19 (73.1%)	26 (100.0%)		
Total		33 (55.0%)	27 (45.0%)	60 (100.0%)		

Symptoms of depression and ACE

Overall, 43.3% (n=26) of the study participants were observed to be depressed. The participants with positive ACE were observed to be depressed in 56.3% (n=18) of the cases in comparison with 28.6% (n=8) of those without negative ACE ($\chi^2=4.659$, p=0.031) (Table 7).

Symptoms of depression and suicidal ideation

Overall, suicidal ideation was observed in 45% (n=27) of the study participants. Suicidal ideation was reported by 23.5% (n=8) of non-depressed patients, but by 73.1% (n=19) of patients with mild to severe depression ($\chi^2=14.614$, p<0.001) (Table 8).

DISCUSSION

The study aimed to assess the association between adverse childhood experiences (ACE) and depressive symptoms and suicidality in stable outpatients diagnosed with schizophrenia (SCZ). ACE were reported by 53.3% (n=32) of the participants. Women in this study reported childhood abuse more frequently (66.7%, n=20) than men (40.0%, n=12), possibly due to greater candor. However, the subjective nature of the scales may lead to biased reports. Research suggests that retrospective studies often underestimate childhood abuse, as patients tend to underreport traumatic experiences

(Fergusson et al. 2000, Wells et al. 2020). Overall, at least one suicide attempt was reported by 50% (n=30) of participants and suicidal thoughts were observed in 45.0% (n=27) of cases. Patients with ACE (53.3%, n=32) had the highest number of suicide attempts (62.5%, n=20), frequency of suicidal ideation (75.0%, n=24) and depression (56.3%, n=18) than patients without ACE. The results of the present study are consonant with recent studies that have demonstrated that ACE increase the risk of suicide attempt and suicidal ideation in patients with SCZ (Roy 2005, Conus et al. 2010, Hassan et al. 2016, Alli et al. 2019, Zhang et al. 2021). Also, higher scores in childhood abuse questionnaires in other studies were found in patients with SCZ who had a history of suicide attempts, as opposed to patients who had no history of suicide attempts (Roy 2005, Alli et al. 2019). The results of the study are also consistent with research findings that depression is a strong risk factor for suicide attempt (Dutta et al. 2011), antisocial behavior and suicidal ideation in patients with SCZ (Conley et al. 2007), and that co-existing depression increases the frequency of suicidal ideation among these patients (Sher & Kahn 2019, Husain et al. 2021). Several studies have found a significant correlation between childhood abuse and a more severe clinical course in patients with schizophrenia (SCZ), including more severe symptoms, increased depression, and more frequent suicidal thoughts.

(Carbone et al. 2019, Prokopez et al. 2020). However, the risk factors for suicidal behavior and ideation in these patients are diverse and numerous, making it challenging to identify a specific cause.

Additionally, comorbid depression is an independent risk factor for poorer outcomes and can develop due to various factors (Samsom & Wong et al. 2015, Gardsjord et al. 2016). This still supports the study's finding that depression is linked to higher suicidal ideation in patients with SCZ. In present study symptoms of depression were observed in 43.3% (n=26) of the cases that agree with data from other studies, which is consistent with data from other studies that report a prevalence of depression around 40% among patients with SCZ (Conley et al. 2007, Buckley et al. 2009). In this study, patients without ACE had significantly lower rates of moderate (7.1%, n=2) and mild depression (21.4%, n=6) compared to those with ACE. This suggests childhood abuse is associated with greater depression severity in adults with SCZ. Another study examining ACEs and psychological functioning in patients with SCZ and bipolar disorder also found that ACEs, particularly multiple types of abuse, were associated with more severe depressive symptoms in both disorders (Köhler-Forsberg et al. 2024). In the aforementioned study, suicidal ideation was observed in 45.0% (n=27) of the cases. The data are consistent with other studies that have observed that patients with SCZ report suicidal thoughts between 29% and 79% (Hocaoglu & Babuc 2009, Duko & Ayano 2018). Among patients with suicidal ideation (45.0%, n=27) who participated in our study, depression was prevalent in 73.1% (n=19) of the cases. The findings of our study align with those of a cross-sectional study on suicidal behavior in patients with schizophrenia (SCZ), indicating that both depression and symptoms of the disease are closely linked to suicidal ideation in these individuals (Nath et al. 2021).

Limitations

This study has limitations that should be considered when interpreting its findings. First, the scales used are subjective tools for data collection, potentially leading to biased reports due to personal experiences, social biases, and the sensitive nature of the questions, which may affect answer reliability. Second, participants in the study had to recall childhood trauma, which could lead to errors or inaccurate information, especially if events were repressed in memory. Third, risk factors for suicidal behavior and ideation in SCZ patients are numerous and diverse, making it challenging to attribute specific factors to individual cases of suicidal behavior or ideation. Fourth, this study used a sample from a single centre so its findings may not be broadly applicable to other populations or settings. Finally, limitation of this study is the lack of a healthy control group and small number of participants.

CONCLUSIONS

This study adds to the currently available data about suicide attempts, suicidal ideation, and depression being more common in patients with SCZ who had ACE. The study also shows that suicidal ideation was more common in patients who were depressed during the interview. Taken together, these data suggest that personalized intervention would be recommended for patients with schizophrenia who had adverse childhood experiences due to increased risk of suicide attempts.

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Contribution of individual authors:

Both authors make contributions to conception and design, acquisition of data, analysis and interpretation of data, the literature search and the drafting of the text.

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