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Psychometric properties of the Childhood Experience of Care and Abuse Questionnaire (CECA.Q) in a sample of individuals with schizophrenia from Poland

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Abstract

Aim of the study: The Childhood Experience of Care and Abuse Questionnaire (CECA.Q) is a semi-structured self-report that has been developed to record a history of adverse childhood experiences (ACEs). Moreover, the CECA.Q has been widely used in subjects with psychotic disorders. In this study, we aimed to investigate psychometric properties of the Polish version of the CECA.Q in individuals with schizophrenia spectrum disorders.

Material and methods: The CECA.Q was administered to 127 individuals with schizophrenia spectrum disorders (aged 39.1 ± 13.8 years, 48.0% males). Internal consistency was assessed using the Cronbach's α and polychoric correlations. Confirmatory factor analysis (CFA) was performed using the unweighted least squares estimation method.

Results: The Cronbach's α was as follows: 0.835 for mother antipathy, 0.780 for mother neglect, 0.845 for father antipathy, 0.849 for father neglect, 0.787 for mother physical abuse, 0.831 for father physical abuse and 0.870 for sexual abuse, indicating acceptable-to-good internal consistency. Correlations of single item scores with the total scores of specific categories of ACEs were significant. The CFA confirmed factorial structure of the CECA.Q with acceptable goodness-of-fit indices.

Conclusions: The present study indicates good psychometric properties of the CECA.Q in subjects with schizophrenia spectrum disorders. This self-report can be implemented by studies investigating ACEs in this clinical population in Poland.

childhood maltreatment; stress; psychosis; self-report; questionnaire

INTRODUCTION

Adverse childhood experiences (ACEs), including sexual, physical and emotional abuse are reported by more than one third of individuals with psychotic disorders [1]. The meta-analysis performed by Varese et al. [2] demonstrated that ACEs increase a risk of psychosis; and this association was significant regardless of

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the study design. Convincing evidence also indicates that a history of ACEs might be strongly associated with clinical characteristics of psychosis in adults. Indeed, it has been found that individuals with psychotic disorders reporting ACEs show higher severity of psychopathological symptoms [3] and cognitive impairments as well as worse clinical [4] and functional outcomes [5].

The mechanisms linking ACEs and psychosis risk remain complex. A history of ACEs has been associated with a number of biological alterations related to dopaminergic neurotransmission, pro-inflammatory state, metabolic dysregulation or dysfunction of the hypothalamic-pituitary-adrenal (HPA) axis that appear in individuals with psychosis [6]. Moreover, various psychological mechanisms have been reported to mediate the association between ACEs and psychosis. According to a recent meta-analysis, these include dissociation, emotional dysregulation, post-traumatic stress disorder symptoms and negative schemata [7]. However, it unlikely that this association follow a simple pathogenetic pathway. First, it should be noted that ACEs also contribute to the development of other mental disorders. Second, the majority of patients with psychosis do not report a history of ACEs. One hypothesis providing explanation for these observations is that ACEs act upon other vulnerabilities that make individuals more prone to develop psychosis. These vulnerabilities might include genetic backgrounds and environmental factors that affect critical periods of brain development. For instance, it has been shown that certain genetic polymorphisms may impact a risk of psychotic-like experiences or overt psychosis [8]. These include, i.e., variants located in genes encoding proteins involved in dopaminergic neurotransmission and functioning of the hypothalamic-pituitary-adrenal (HPA) axis. Furthermore, there is evidence that ACEs interact with other environmental insults, such as obstetric complications, substance use or stressors in the adulthood. Another possible scenario is that ACEs only mask the effects of their antecedents (e.g., social disadvantage) or cascading consequences (e.g., those related to poor support after experiencing ACEs). Consequently, it has been postulated that adopting more complex models may better explain or predict the development of psychosis than investigating single risk factors.

Nevertheless, recording a history of ACEs in subjects with psychosis might be important from clinical and research perspectives. Therefore, a number of self-reports have been developed and are being widely administered in this field of research. These tools are represented by the Childhood Experience of Care and Abuse Questionnaire (CECA.Q) [9]. The CECA.Q records a number of ACEs with respect to various aspects of parental care, physical abuse and sexual abuse. However, psychometric properties of the CECA.Q have not been widely investigated and little is known about them from samples of individuals with psychosis. Moreover, the Polish version of the CECA.Q has not been investigated so far. Therefore, in this study, we aimed to investigate psychometric properties of the Polish version of the CECA.Q in individuals with schizophrenia spectrum disorders.

METHODS

Participants

Participants were 127 inpatients with schizophrenia spectrum disorders recruited in the years 2016 – 2020 at three clinical sites: 1) Department and Clinic of Psychiatry at Wroclaw Medical University, Wroclaw, Poland; 2) Department and Clinic of Psychiatry at Pomeranian Medical University, Szczecin, Poland and 3) Inpatient Psychiatric Unit, Municipal General Hospital, Ostrów Wielkopolski, Poland. Among them, there were 42 individuals admitted due to first-episode psychosis and 85 individuals hospitalized because of psychotic exacerbation during schizophrenia and schizoaffective disorder. Participants with first-episode psychosis were diagnosed with schizophrenia, schizoaffective disorder, schizophreniform disorder, delusional disorder or brief psychotic disorder. The DSM-IV criteria were implemented to establish psychiatric diagnoses. Additionally, the Operational Criteria for Psychotic Illness (OPCRIT) checklist was used to validate DSM-IV diagnoses [10]. There were following exclusion criteria: 1) age below 18 or over 65 years; 2) comorbid substance dependence (except for nicotine dependence); 3)

severe somatic conditions and 4) inability to provide written informed consent.

PROCEDURES

Permission was obtained from the original author of the CECA.Q. The protocol of this study was approved by the Ethics Committee at Wroclaw Medical University (Wroclaw, Poland).

Two independent translators were involved in translation of the CECA.Q into Polish language. Both translators discussed all discrepancies and reached the consensus about the final version of the CECA.Q. Next, the backward translation was performed by another translator. The back-translated version was compared to the original version of the CECA.Q and necessary corrections were made. Face validity of the final version was assessed qualitatively after administration of the CECA.Q to 20 patients with schizophrenia. They were interviewed about any difficulties in completing the CECA.Q. No corrections were made to the CECA.Q version used among this group of individuals with schizophrenia.

Before recruitment of all participants, aims of the study were explained and all of them signed in written informed consent. Participants were requested to fill in the CECA.Q. Additionally, information about age, sex and education level was obtained. Clinical manifestation on the day of recruitment was recorded using the Positive and Negative Syndrome Scale (PANSS) [11]. The majority of participants (n = 125) were medicated on the day of recruitment (mean chlorpromazine equivalent dosage was 357.7 ± 388.7 mg/day).

The CECA.Q – contents and scoring

The CECA.Q is a semi-structured, self-report that was developed to record several categories of ACEs before the age of 17 years. These categories are as follows:

1. Mother and father neglect refers to a parent's lack of interest in material care, health, school activities and friendships. This category is evaluated for each biological parent or parent surrogate with whom the child lived for at least 12 months. There are 8 items (item numbers: 2, 3, 5, 7, 12-15) scored between 1 ("no, not at all") and 5 ("yes definitely") to record neglect of each parent (the maximum score is 40). Items 2, 3, 5, 12, 13 and 14 should be reversed before summing. Higher scores indicate higher levels of parental neglect.
2. Mother and father antipathy can be described as hostility, coldness or rejection expressed by parents or surrogate parents towards the child. This category of ACEs is recorded for each biological parent or parent surrogate with whom the child lived for at least 12 months. There are 8 items (item numbers: 1, 4, 6, 8-11 and 16) scored between 1 ("no, not at all") and 5 ("yes definitely") to evaluate each parent's antipathy (the maximum score is 40). Items 8 and 11 should be reversed before summing. Higher scores reflect higher levels of parental antipathy.
3. Physical abuse refers to repeated hitting by parents or other older household members. This category is assessed by the question: "When you were a child or teenager were you ever hit repeatedly with an implement (such as a belt or stick) or punched, kicked or burnt by someone in the household?" If the answer is "yes", additional questions about physical abuse need to be answered: age at onset of physical abuse, whether the child was hit on more than one occasion (score 1 if the answer is "yes"), how the child was hit (belt or stick or punched/kicked; score 1 if either present), whether any injuries were present (bruises, black eyes or broken limb; score 1 if yes) and whether the perpetrator was out of control (score 1 if yes). These questions need to be answered separately for each parent. The total score ranges between 0 and 4 for each parent. Higher scores indicate higher levels of physical abuse.
4. Sexual abuse can be defined as a physical contact or approach of a sexual nature by any adult to the child. Willing sexual contacts with peers are not captured by this definition. Sexual abuse is recorded by three screening questions: "When you were a child or teenager did you ever have any unwanted sexual experiences?", "Did an-

yone force you or persuade you have sexual intercourse against your wishes before age 17?" and "Can you think of any upsetting sexual experiences before age 17 with a related adult or someone in authority, e.g., teacher?". There are three possible answers to these questions: "yes", "no" and "unsure". "Yes" and "unsure" responses are considered to indicate a history of sexual abuse. If these answers are recorded, 8 questions about the severity and age at exposure onset need to be answered separately for first experience and other experiences. Answers to these questions have dichotomous responses ("yes" – 1 point and "no" – 0 points). The severity score of each exposure ranges between 0 and 7. Higher scores indicate higher severity of sexual abuse.

Additionally, the CECA.Q includes subscales for parental loss, parental psychological abuse and role reversal. Parental loss is defined as any death of mother or father or any continuous separation of at least one year before the age of 17. Parental loss is assessed by six items of various categories evaluating age at parental loss, reasons and duration of separation. Due to this diversity psychometric properties of them were not assessed. In turn, parental psychological abuse and role reversal were not validated against interview, and were also excluded from data analysis.

STATISTICS

Internal consistency was assessed by calculating the Cronbach's alpha and polychoric correlations. The following levels of internal consistency were considered: acceptable ($0.08 > \alpha > 0.07$), good ($0.09 > \alpha > 0.08$) and excellent ($\alpha > 0.009$) [12]. The level of significance was set at $p < 0.05$ in case of polychoric correlations. Confirmatory factor analysis (CFA) was performed using unweighted least squares (ULS) estimation method. Several goodness of fit indices were analyzed, including the χ^2/df ratio, GFI and NFI. Model fit was considered acceptable if the χ^2/df ratio was ≤ 5 (13), GFI and NFI were > 0.09 (14,15). Data analysis was performed using the Statistical Package for Social Sciences (SPSS) and the AMOS, versions 27.

RESULTS

General characteristics of the sample are reported in Table 1. Out of 127 participants (aged 39.1 ± 13.8 years, there were 61 males and 66 females. Frequency rates of specific categories of ACEs were as follows: 79.5% for any ACEs, 33.1% for mother antipathy, 27.6% for mother neglect, 35.4% for father antipathy, 28.3% for father neglect, 27.6% for mother physical abuse, 37.8% for father physical abuse and 22.8% for sexual abuse.

Table 1. General characteristics of the sample.

	Mean ± SD or n (%)
Age, years	39.1 ± 13.8
Sex, males (%)	61 (48.0)
Education, years	13.2 ± 2.8
CECA.Q – mother antipathy, severity score	21.3 ± 8.2
CECA.Q – mother antipathy, yes	42 (33.1)
CECA.Q – mother neglect, severity score	16.8 ± 7.4
CECA.Q – mother neglect, yes	35 (27.6)
CECA.Q – father antipathy, severity score	22.3 ± 9.1
CECA.Q – father antipathy, yes	45 (35.4)
CECA.Q – father neglect, severity score	18.6 ± 7.9
CECA.Q – father neglect, yes	36 (28.3)
CECA.Q – mother physical abuse, severity score	0.5 ± 1.0
CECA.Q – mother physical abuse, yes	35 (27.6)
CECA.Q – father physical abuse, severity score	0.9 ± 1.3
CECA.Q – father physical abuse, yes	48 (37.8)
CECA.Q – sexual abuse, severity score	0.4 ± 1.2
CECA.Q – sexual abuse, yes	29 (22.8)
CECA.Q – any ACEs, yes	101 (79.5)
PANSS – total score	85.7 ± 30.3
CPZeq, mg/day	357.7 ± 388.7

Abbreviations: CECA.Q – the Childhood Experience of Care and Abuse Questionnaire; CPZeq – chlorpromazine equivalent dosage; PANSS – the Positive and Negative Syndrome Scale

Results of reliability analysis and confirmatory factor analysis are shown in Table 2.

Table 2. Results of reliability analysis and confirmatory factor analysis.

Category of ACEs	Item	Cronbach's alpha after item removal	Correlation with total category score*	Standardized regression weights
Mother antipathy	1	0.803	0.733	0.732
	4	0.826	0.546	0.526
	6	0.809	0.669	0.682
	8	0.819	0.622	0.563
	9	0.801	0.719	0.750
	10	0.803	0.750	0.792
	11	0.830	0.420	0.484
	16	0.834	0.494	0.449
Mother neglect	2	0.746	0.652	0.613
	3	0.732	0.632	0.690
	5	0.746	0.668	0.603
	7	0.803	0.372	0.388
	12	0.746	0.606	0.669
	13	0.708	0.739	0.392
	14	0.751	0.516	0.907
	15	0.797	0.398	0.609
Father antipathy	1	0.823	0.688	0.686
	4	0.819	0.719	0.705
	6	0.813	0.746	0.772
	8	0.848	0.517	0.379
	9	0.807	0.758	0.813
	10	0.809	0.769	0.810
	11	0.851	0.481	0.363
	16	0.833	0.634	0.554
Father neglect	2	0.809	0.745	0.810
	3	0.811	0.784	0.841
	5	0.823	0.651	0.685
	7	0.862	0.605	0.363
	12	0.817	0.630	0.791
	13	0.807	0.759	0.848
	14	0.829	0.616	0.657
	15	0.872	0.579	0.157
Mother physical abuse	1	0.744	0.892	0.876
	3	0.741	0.913	0.916
	5	0.783	0.666	0.510
	7	0.794	0.636	0.469
Father physical abuse	2	0.724	0.901	0.950
	4	0.763	0.868	0.838
	6	0.842	0.681	0.523
	8	0.788	0.802	0.649

Sexual abuse	1	0.828	0.828	0.849
	2	0.826	0.830	0.901
	3	0.831	0.806	0.504
	4	0.821	0.854	0.789
	5	0.851	0.688	0.517
	6	0.854	0.591	0.427
	7	0.870	0.519	0.344

*all p-values < 0.001

Before removing specific items from the CECA.Q, Cronbach's alpha was as follows: 0.835 for mother antipathy, 0.780 for mother neglect, 0.845 for father antipathy, 0.849 for father neglect, 0.787 for mother physical abuse, 0.831 for father physical abuse and 0.870 for sexual abuse, indicating acceptable-to-good internal consistency. After removing item 7 from the mother neglect scale, Cronbach's alpha increased to 0.803. All polychoric correlations between single item scores and total category scores were significant ($p < 0.001$). The CFA confirmed the primary structure of the CECA.Q, with fit indices indicating acceptable model fit (GFI = 0.093, NFI = 0.095 and the $\chi^2/df = 3.45$).

DISCUSSION

This study confirmed factorial structure of the CECA.Q and demonstrated that this questionnaire is characterized by acceptable-to-good internal consistency. Acceptable-to-good internal consistency were also reported in a sample of 171 London by Bifulco et al. (9), who developed the CECA.Q. The authors showed that the Cronbach's alpha was 0.81 for parental antipathy and 0.80 for parental neglect. Rates of specific ACEs found in our study were also similar to those found in previous studies. For instance, the meta-analysis by Bonoldi et al. estimated the prevalence of childhood sexual, physical and emotional abuse in subjects with psychosis at 26%, 39% and 34%, respectively (1).

Findings from this study should be interpreted in light of potential limitations. Importantly, caution should always be taken to the way a history of ACEs is being collected. First, it is important to note that self-reports might be characterized by a recall bias, especially when detailed information about exposure is being recorded. However, a research approach that is based on other sources of information, e.g., records of courts or other institutions, interviews with close relatives, can also be biased. For instance, close relatives might be directly or indirectly involved in the exposure to ACEs. In turn, records of courts or other institutions might be biased by a lack of reliable information. Indeed, it has been shown that victims not always disclose a history of ACEs because of the feelings related to shame, guilt and humiliation (16,17). These considerations indicate that there is no universal and reliable approach to investigating a history of ACEs in adulthood.

It is also important to note that we did not assess the test-retest reliability of the CECA.Q reports. At least theoretically, factors related to clinical manifestation, e.g., psychopathological symptoms and cognitive impairments might impact the stability of reports in individuals with psychosis. However, Fisher et al. (18) found that the CECA.Q reports of childhood sexual abuse, parental neglect, antipathy and physical abuse remain stable over a 7-year observation period in subjects with first-episode psychosis. The authors also demonstrated that psychopathological symptoms are not associated with reports of ACEs. Similar findings regarding test-retest reliability of the CECA.Q reports over 3 months were also provided by the study performed in subjects with schizophrenia spectrum disorders (19). Finally, Simpson et al. (20) found that reports of ACEs are stable over 3 months in subjects with first-episode psychosis and healthy controls when they are recorded by another self-report – the Childhood Trauma Questionnaire.

CONCLUSIONS

In conclusion, the present study indicates good psychometric properties of the CECA.Q in subjects with schizophrenia spectrum disorders. This questionnaire can be implemented by studies investigating ACEs in this clinical population. However, additional studies are needed to assess validity of the CECA.Q subscales that were not analyzed in this study, i.e., those recording parental psychological abuse and role reversal.

Conflict of interest
None to declare.

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