



The impact of childhood sexual and physical abuse on needs for care among people with first episode psychosis

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ABSTRACT

Background: Childhood physical and sexual abuse are highly prevalent among individuals with psychotic disorders. These individuals also tend to have poor global and social functioning outcomes. At symptom remission, adequate functioning is restored in only one out of seven patients, and if childhood abuse is present, psychosocial and occupational functioning are more compromised. Lower psychosocial functioning is found to be associated with higher levels of needs for care. This longitudinal study examines how physical and sexual abuse affect the total, met, and unmet needs for care of patients with first-episode psychosis (FEP) at nine months (T1) from the onset.

Methods: We assessed a sample of 276 Italian FEP patients (M 59.1 %, age 29.9 ± 9.8). Needs for care were evaluated at both baseline (T0) and at T1 using the Camberwell Assessment of Need (CAN) scale, covering five areas: basic needs, social needs, health, functioning, and services, measuring both met and unmet needs. Physical and sexual abuse history was recorded using the Childhood Experience of Care and Abuse Questionnaire (CECA-Q).

Results: At T1, FEP patients with childhood physical or sexual abuse had higher total and met needs than non-abused patients, with physical abuse showing the strongest association with needs for care. A higher level of psychopathology, a lower global functioning, and childhood physical abuse were the main characteristics related to increased total, met, and unmet care needs.

Conclusions: These findings highlight the importance of assessing trauma history at the onset of psychosis, as this could be a crucial factor in identifying several specific needs for care and guiding treatment to address them.

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1. Introduction

Psychosis is a severe mental disorder characterized by a combination of positive symptoms, such as delusions, hallucinations, and disorganized speech or behavior, and negative symptoms, including difficulties in thinking and anhedonia. Psychotic disorders can be classified into two main categories: affective psychosis, which includes bipolar disorder and major depression with psychotic features, and non-affective psychosis, including conditions like schizophrenia and schizophrenia spectrum disorder (American Psychiatric Association, 2022). In terms of prevalence, a meta-analysis of 73 studies reported a 12-month prevalence of 4.03 per 1000 people (Moreno-Küstner et al., 2018), which is very close to the rate found in Italy. Specifically, in Verona, a city in the Northeast region of Italy, the prevalence rate of psychosis was found to be 3.41 per 1000 people (Ruggeri et al., 2000). Psychosis arises from the interplay between genetic and environmental risk factors. Established environmental risk factors include adverse childhood experiences (ACEs), obstetric complications, cannabis use, ethnic minority status, urbanicity, and advanced paternal age (Rodriguez et al., 2021, b; Stilo & Murray, 2019). Current evidence suggests a gene–environment (G&E) interaction in psychosis (Pries et al., 2020; Zwicker et al., 2018), although it remains unclear whether the combined effect is additive or multiplicative (Rodriguez et al., 2025; Trotta et al., 2016). Specifically, research suggests that individuals with psychosis may possess a genetic predisposition, particularly linked to mood-related pathways (van Os et al., 2022), that increases their sensitivity to ACEs, resulting in a profile characterized mainly by depressive and positive psychotic symptoms (Alameda et al., 2024).

Compared to healthy individuals, people affected by psychosis have higher rates of ACEs (Morgan & Gayer-Anderson, 2016; Varese et al., 2012), such as childhood physical abuse (CPA) and childhood sexual abuse (CSA), with greater effects of ACEs (specifically sexual abuse, physical abuse, emotional abuse, neglect and interpersonal loss) for non-affective psychoses than for affective ones (Turner et al., 2019). Overall, at least one severe ACE among sexual, physical, and psychological abuse, household discord, and bullying was reported by 42 % of subjects affected by psychosis versus 16 % of healthy individuals [adjusted odds ratio (adj. OR) = 3.8] (Morgan et al., 2020). The presence of severe ACEs was strongly associated with increased risk of psychosis, with adj. ORs ranging from 3.7 to 5.6 for sexual, physical, and psychological abuse (Morgan et al., 2020). Longitudinal findings also suggest that cessation of physical abuse is associated with the resolution of psychotic symptoms such as auditory hallucinations (Kelleher et al., 2013), further supporting a causal relationship. In this contest, women have been demonstrated to be more susceptible to the negative consequences of ACEs (Myin-Germeys & van Os, 2007), since severe physical abuse appears to increase the risk of developing psychosis, a pattern not observed in men (Alameda et al., 2015). Indeed, ACEs are more prevalent among female patients with psychosis than males (Fisher et al., 2009): women affected by psychosis are about three times more likely to report severe physical abuse and more likely to report sexual abuse than healthy counterparts, while no such associations were found in men. Moreover, CSA has been linked to earlier onset of psychosis in women and higher levels of negative symptoms compared to men (Comacchio et al., 2019).

It is worth also noting that physical and sexual abuse, unlike other traumatic events such as loss, illness, or natural disaster, are typically inflicted by someone emotionally close to the victim, the so-called betrayal trauma (Goldsmith et al., 2012). This relational betrayal has been linked to dissociative coping patterns that may later relate to psychotic symptoms, such as hallucinations (Gómez & Freyd, 2017). Moreover, physical and sexual abuse frequently co-occur with other traumatic experiences, contributing to a more severe and cumulative impact called revictimization (Benjet et al., 2016; Lau et al., 2005). Together, these features may help explain why these forms of abuse appear particularly harmful and strongly associated with psychosis (Ajnakina et al., 2016). Indeed, the menace and aggressiveness that characterize CSA and CPA influence cognitive and affective mechanisms linked to psychotic experiences, such as maladaptive beliefs about the self and others, cognitive biases linked to paranoia, and dissociation, which is often implicated in hallucinations (Morgan et al., 2020). These aspects can interfere with key domains such as social cognition (Rosenfield et al., 2022), including the ability to trust others (Schmitz et al., 2023), as well as broader aspects of functioning, like academic performance (Stain et al., 2014). Cognitive models propose that traumatic events such as CSA and CPA may disrupt emotional regulation and information processing, increasing susceptibility to intrusive memories and anomalous experiences (Hardy, 2017). Trauma-related intrusions, in particular, are considered a core mechanism linking early adversity with psychotic symptoms, as they influence how traumatic events are encoded and later re-experienced (Peach et al., 2021; Steel et al., 2005). Evidence shows that if sexual and physical abuse are present, functioning in chronic psychosis is more compromised (Cotter et al., 2015; Rodriguez, Aas, et al., 2021; Vila-Badia et al., 2021), specifically regarding employment and social functioning (Alameda et al., 2015; Christy et al., 2023; Gil et al., 2009). Notably, meta-analytic findings suggest that individuals with psychosis and a history of ACEs tend to have more difficulty engaging in prosocial activities compared to their counterparts without them, although general levels of functioning appear to be similar across groups (Christy et al., 2023). It is also interesting to note that patients affected by psychosis have poor outcomes in global functioning, which is only partially due to the clinical features (Galderisi et al., 2018). Furthermore, lower psychosocial functioning in individuals with psychosis is found to be related to a higher level of needs for care (Ruggeri et al., 2004).

In general, needs for care are considered health or social context-perceived problems (Ruggeri et al., 2004), influenced by an individual's personal ability to carry out daily activities and fulfill usual social roles. Since individuals with ACEs tend to exhibit more complex clinical course (Conus et al., 2010), poorer emotional regulation (De Bellis & Zisk, 2014), and compromised social and occupational functioning (Christy et al., 2023), these impairments often result in a reduced capacity for autonomy and self-management (Gouse & Kline, 2023), thereby increasing the need for mental health and social support systems. These needs include not only aspects related to the management of psychotic symptoms, but also psychosocial needs, including reintegration into working life (Åsbø et al., 2025). Furthermore, psychotic patients are at risk of experiencing financial and employment difficulties, housing problems (lack of stable and suitable home), social isolation, poor physical health, and difficulties accessing health services (Ajnakina et al., 2021; Marwaha & Johnson, 2004; Morgan et al., 2017). A systematic review highlights the important role of post-traumatic (PTSD) symptoms, negative schemas, stress sensitivity, and loneliness as mediators in the relationship between ACEs, such as

sexual and physical abuse, and psychosis, identifying these clinical features as specific needs for care to address in order to improve patients' well-being (Alameda et al., 2020). Needs for care are also related to patients' satisfaction with the care they receive and their capacity to benefit from healthcare services (Selwyn et al., 2021; Wright et al., 1998).

Needs for care can be classified as met when a problem exists but is adequately addressed through appropriate support or intervention, and as unmet when a significant problem remains unsolved or is insufficiently managed (Phelan et al., 1995). Needs for care are found to predict quality of life better than clinical and sociodemographic variables (Ådnanes et al., 2019). Indeed, patients place more importance on improvements in daily life than health ones (De Silva et al., 2013). Moreover, social functioning impairment, which is present in psychotic individuals with sexual and physical abuse, is often a key factor in motivating patients to seek assistance for care (Hirschfeld et al., 2000).

It is important to note that studies often include different types of trauma and different types of needs for care into broader categories; thus, the association between CSA and CPA and specific needs has not been examined. To the best of our knowledge, little is also known about the association between CSA/CPA and specific needs for care in first episode psychosis (FEP). It was found that, at the onset, both CSA and CPA had a slight impact on increasing needs for care, with higher total and unmet service needs in females compared to males (Comacchio et al., 2019). Moreover, it was found that CSA increases the incidence of intimacy and sexuality needs in people with non-affective psychosis, with 90 % of these remaining unmet (de Jager et al., 2021).

There is also limited information about the evolution of the needs over time in abused FEP people, considering their dynamic nature due to the heterogeneous progression of psychosis and the variable patients' ability to cope with and address them (Fitch, 2008; Maguire et al., 2013).

In the present study, we examined the longitudinal association between CSA/CPA and needs for care in a sample of patients with FEP. More specifically, we evaluated the extent to which the presence of CPA and CSA affects specific needs of care (health, basic, social, services, and functioning) 9 months after the onset of psychosis (T1), as well as the level of these needs that remained unmet. We hypothesized that abused patients have a worse outcome than non-abused patients in terms of a higher level of unmet needs at T1.

2. Methods

2.1. Design

The patients were recruited as part of the Genetics Endophenotypes and Treatment: Understanding early Psychosis (GET-UP): early Intervention and Assessment of Needs and Outcome (PIANO) Trial research project (Ruggeri et al., 2012, 2015), a multicenter longitudinal study conducted within Italian public Community Mental Health Centers (CMHCs). The GET-UP PIANO (Ruggeri et al., 2012) assessed the feasibility and effectiveness of a multi-element 9-month-long psychosocial intervention (cognitive behavioral therapy for psychosis to patients, psychosis-focused family intervention to families, and case management for FEP patients and their families) compared with treatment as usual (TAU). The research project was approved by the Ethical Committees of the coordinating center (Azienda Ospedaliera Universitaria Integrata di Verona, 20406/CE, Date 14/05/2009) and by the Ethical Committees of each participating center. FEP patients provided written informed consent after being informed about the study.

2.2. Participants

A total of 444 FEP patients were recruited consecutively in the GET-UP PIANO research project centers from April 1, 2010, to March 31, 2011 (Ruggeri et al., 2015). Out of them, 276 completed the assessment of ACEs and of needs for care [at both baseline (T0) and after 9 months (T1)], and they constituted the cohort included in the analysis of the present study. Since FEP is generally a phase of high diagnostic instability, patients were included if, at T1, they received an ICD-10 diagnosis for psychosis. The diagnoses were made by consensus of a panel of clinicians that considered all available information with the Item Group Checklist (IGC) of the Schedule for Clinical Assessment in Neuropsychiatry (SCAN). Inclusion criteria for identifying FEP were: (1) age between 18 and 54 years; (2) residence within the catchment areas of Veneto Region, Emilia-Romagna Region, or of the cities of Milan, Florence, and Bolzano; (3) presence of at least one of the following symptoms: hallucinations, delusions, disorganized speech, psychomotor disturbances, bizarre or grossly inappropriate behavior, or two of the following: apathy, social withdrawal, episodes of severe excitement, purposeless destructiveness, intense fear, or marked self-neglect; (4) first lifetime contact with Mental Health Services due to these symptoms. Instead, exclusion criteria were: (1) use of antipsychotic medication for more than 3 months for a similar condition; (2) mental disorders due to a general medical condition; (3) moderate to severe intellectual disability based on clinical assessment; and (4) psychiatric diagnoses not meeting ICD-10 criteria for psychosis. More detailed information on recruitment and clinical assessment can be found elsewhere (Ruggeri et al., 2012).

2.3. Instruments

Participants were assessed with a set of standardized instruments. Childhood abuse was investigated using the Childhood Experience of Care and Abuse Questionnaire (CECA-Q) (Bifulco et al., 2005; Giannone et al., 2011), which was administered as part of the GET-UP PIANO project. Indeed, patients were asked through a semi-structured self-report interview if they had experienced physical or sexual abuse before the age of 17 years. For the purposes of the present study, we used only the binary information derived from the CECA-Q regarding the presence of at least one experience of physical abuse (yes/no) and of sexual abuse (yes/no). Needs for care were assessed using the European version of the Camberwell Assessment of Need (CAN) (McCrone et al., 2000; Phelan et al., 1995; Ruggeri

et al., 1999). This self-report interview comprises 22 items grouped into five conceptual domains: health (psychotic symptoms, drugs, alcohol, safety to self, safety to others, psychological distress, and physical health); basic (accommodation, food, and daytime activities); social (sexual expression, social networks, and intimate relationships); service (information, telephone use, transport, and benefits) and functioning (basic education, money, childcare, self-care, looking after the home). Each item is scored 0 (no problem), 1 (there is a problem that is met given an ongoing intervention), or 2 (actual serious problem and no interventions received, unmet need), leading to three summary scores: total number of needs, met needs, and unmet needs (McCrone et al., 2000). The theoretical ranges for the CAN total and each dimension (resulting from the number of summed items) score are as follows: total (0–22), health (0–7), basic (0–3), social (0–3), services (0–4), functioning (0–5). Internal consistency (Cronbach's alpha) in our sample was 0.69 for total needs (McCrone et al. (2000) estimated 0.48 for total needs).

Psychopathology was assessed by using the Positive and Negative Syndrome Scale (PANSS) (Kay et al., 1987; Pancheri et al., 1995). This is a 30-item interview-based scale rated on a 7-point Likert scale, which yields scores for positive, negative, and general symptoms (1 = absent, 7 = extreme). The Positive and Negative Scales have a good internal consistency in our sample, with a Cronbach's alpha coefficient of 0.86.

Finally, global functioning was assessed using the Global Assessment of Functioning (GAF) (American Psychiatric Association, 1994; Andreoli et al., 2002). This is a scale that assesses social, occupational, and psychological functioning of individuals with a score that goes from 0 (functioning seriously impaired) to 100 (extremely high functioning). Startup and colleagues (Startup et al., 2002) reported that the GAF has good inter-rater reliability and serves as a valid summary of symptoms.

We collected data on socio-demographic characteristics, admission at a psychiatric ward at T1, and whether patients belonged to the psychosocial intervention or TAU group.

2.4. Statistical analysis

The characteristics were described by using distributions for categorical variables and means (SD) for continuous variables. Comparisons of care needs between abused and non-abused patients were performed, despite the non-normality of the distributions for all CAN dimensions (Kolmogorov-Smirnov tests, $p < 0.001$), using t -tests for independent samples. This choice was based on the robustness of the t -test to violations of the normality assumption when sample sizes exceed 30 units due to the Central Limit Theorem, which states that the distribution of sample means will be approximately normal regardless of the population distribution, as the sample size increases. Cohen's d was estimated as the effect size. A sensitivity analysis was conducted by hypothesizing a “worst-case scenario” where patients who did not give any information about a history of abuse were considered to have been abused. Linear regression models with CAN scores at T1 as the dependent variable and each characteristic as the independent variable were estimated (Beta coefficients are adjusted for the same CAN dimension as the dependent variable at T0). Finally, multivariate linear regression models with CAN scores at T1 as the dependent variable and the characteristics that resulted significantly ($p < 0.05$) associated in the

Table 1
Socio-demographic and clinical characteristics of the sample ($n = 276$).

	N or Mean
Gender, N (%)	
Female	113 (40.9)
Male	163 (59.1)
Age at Onset, mean (SD)	29.9 (9.8)
Education, N (%)	7 missing
Up to Junior High School	97 (36.1)
Secondary School/University Degree	172 (63.9)
Paid Employment, N (%)	7 missing
No	165 (61.3)
Yes	104 (38.7)
Marital status, N (%)	11 missing
Unmarried	
	204 (77.0)
Married	61 (23.0)
Diagnosis, N (%)	
Affective Psychosis	66 (23.9)
Non-Affective Psychosis	210 (76.1)
Childhood Abuse, N (%)	
Physical Abuse (13 missing)	76 (28.9)
Sexual Abuse (22 missing)	42 (16.5)
Psychosocial intervention, N (%)	
No	92 (33.3)
Yes	184 (66.7)
GAF at T1, mean (SD)	61.6 (16.0)
PANSS total at T1, mean (SD)	2.29 (0.60)
Admissions at a psychiatric ward in the 9-month FU period, N (%)	
No	234 (84.8)
Yes	42 (15.2)

univariate models as the independent variables (Beta coefficients are adjusted for the same CAN dimension as the dependent variable at T0). These models were estimated only for physical abuse or sexual abuse, which resulted significantly ($p < 0.05$) associated in the univariate models. All tests were bilateral at a significance level of <0.05 . Analyses were executed by SPSS 29 for Windows.

3. Results

By referring to the whole 444 patients' cohort of the GET UP trial, the 276 patients included in the analyses did not differ from the 168 not included with respect to socio-demographics (Chi-square test: gender $p = 0.784$; education $p = 0.151$; paid employment $p = 0.374$; marital status $p = 0.131$), clinical characteristics (t-test for independent samples: age of onset $p = 0.380$; Chi-square test: diagnosis $p = 0.231$), and global functioning GAF at T0 (t-test for independent samples: $p = 0.744$). A significant difference was found for psychopathology, as measured by the PANSS total score at T0 (t-test for independent samples: $p = 0.007$), with a mean (SD) score of 2.29 (0.60) for the included patients and 2.46 (0.77) for the non-included patients.

Table 1 presents the sociodemographic and clinical characteristics of the sample ($N = 276$; 59 % male, mean age 30 years). Regarding diagnosis, 210 (76 %) patients received a diagnosis of non-affective psychosis. CPA was reported by 28.9 % of participants and CSA by 16.5 %. The 13 patients who did not give information about physical abuse did not differ from the 263 who gave it with respect to key characteristics (t-test for independent samples: age of onset $p = 0.600$, GAF at T0 $p = 0.938$, PANSS total score at T0 $p = 0.444$; Chi-square test: gender $p = 0.122$, diagnosis $p = 0.942$). Analogously, the 22 patients who did not give information about sexual abuse did not differ from the 254 who gave it with respect to the same key characteristics (t-test for independent samples: age of onset $p = 0.928$, GAF at T0 $p = 0.353$, PANSS total score at T0 $p = 0.280$; Chi-square test: gender $p = 0.997$, diagnosis $p = 0.892$). Concerning ACEs, 23 patients declared to have been both physically and sexually abused. They constitute 30.3 % of the 76 who declared to have been physically abused and 54.8 % of the 42 who declared to have been sexually abused.

By exploring the prevalence of physical abuse, no difference was found for sex (the percentage of abused was 28.2 % for females and 30.5 % for males; $p = 0.684$, Chi-square test) nor for diagnosis (the percentage of abused was 35.6 % for affective psychosis and 27.8 % for non-affective psychosis; $p = 0.248$, Chi-square test). By considering the prevalence of sexual abuse, a difference was found for both sex (the percentage of abused was 26.0 % for females and 13.0 % for males; $p = 0.014$, Chi-square test) and for diagnosis (the percentage of abused was 28.3 % for affective psychosis and 15.9 % for non-affective psychosis; $p = 0.043$, Chi-square test).

Physically abused patients ($n = 76$) were asked information about their relationship with the perpetrator: 30 did not give information about this; 65.2 % of responders declared that their mother and/or father physically abused them. The mean age of onset of abuse was 8.0 (SD 3.8), with a median of 7 years (min-max 2–17). Eight patients were unable to recall the age of abuse. Similarly, we asked sexually abused patients ($n = 42$) about their relationship with the perpetrator: 17 did not give information about this; 92.0 % of responders declared that the perpetrator was a person known to the family, and 44.0 % that the perpetrator was a family member. The mean age of onset of abuse was 10.6 (SD 4.2), with a median of 11 years (min-max 4–17). Nineteen patients were unable to recall the age of onset. No information on duration was collected.

During the 9-month FU period, 15 % of the sample was hospitalized in a psychiatric ward.

CAN mean values at T0 are presented in Table S1 in the Supplementary Materials.

Table 2 shows the comparison between abused patients (physically or sexually, respectively) and patients with no abuse history with respect to the levels of needs for care at T1.

By referring to total needs, patients with CPA report significantly higher levels of total ($p < 0.001$), social ($p < 0.001$), basic ($p = 0.003$), and services-related needs ($p = 0.003$) compared with patients with no abuse history. Patients with CSA have significantly higher levels of total ($p = 0.008$), social ($p = 0.010$), and basic needs for care ($p = 0.006$) than patients without abuse. No significant comparison was found for health and functioning CAN domains for patients with CPA or CSA.

By considering the met and unmet needs at T1, participants with CPA have significantly higher levels of total met ($p < 0.001$) and total unmet needs ($p = 0.022$), higher met basic needs ($p < 0.001$), met and unmet social needs ($p = 0.017$ and 0.041 , respectively), and unmet service needs ($p = 0.015$) than participants without abuse. Instead, sexually abused participants present higher levels of total met ($p = 0.003$) and total unmet ($p = 0.043$) needs, and higher levels of both met basic and met social needs ($p = 0.008$ and 0.013 , respectively) compared to individuals without abuse. No significant comparison was found between sexual abuse and any unmet needs in dimensions. An exploratory analysis showed that at T1 sexually abused participants present a higher prevalence of severe problems in the CAN items' intimate relationship and sexual relationship with respect to not sexually abused subjects (15.2 % vs 10.5 %; 14.7 % vs 9.3 %), even if the difference does not reach statistical significance (data available from the Authors). The sensitivity analysis hypothesizing the "worst-case scenario", where patients who did not give any information about a history of abuse were considered to have been abused, gave a percentage of abused patients of 34.4 % ($n = 95$) for both types of abuse. The comparisons between the two groups (abused vs. not abused) in needs at T1 showed that only the dimension 'Unmet Social' lost its significance, with a p -value of 0.069, and a mean (SD) of 0.45 (0.81) for the abused group (data available from the Authors).

To explore the characteristics of patients that may have influenced the needs for care at T1, the univariate linear regression Beta coefficient between each characteristic and the CAN total, met, and unmet needs at T1 was estimated, after adjustment for the CAN baseline level (see Supplementary Materials: Tables S2a, S2b, and S2c).

The presence of CPA is associated with higher levels of total needs for care ($p < 0.001$) and with social, basic, and service-related domains ($p < 0.01$) at T1. Furthermore, we found that patients hospitalized within the 9-month follow-up period and those with higher PANSS scores at T1 had higher levels of total needs at T1 ($p < 0.01$ and $p < 0.001$, respectively). On the other hand, patients with higher GAF scores at T1 had lower levels of total needs ($p < 0.001$) and lower levels of all needs for care domains ($p < 0.001$) (see Supplementary Table S2a).

Table 2Comparisons of the total, met (M), and unmet (U) needs at T1 between abused (physically and sexually, respectively) patients and patients with no abuse history (*t*-test for independent samples).

CAN at T1 mean (SD)	Physical abuse				Sexual abuse			
	Abused (n = 76)	Not abused (n = 181)	(95 % CI), p-value	Cohen's d	Abused (n = 42)	Not abused (n = 181)	(95 % CI), p-value	Cohen's d
Total needs	3.70 (2.68)	2.40 (2.23)	(−1.94 to −0.66), <0.001	0.55	3.45 (2.56)	2.40 (2.23)	(−1.83 to −0.28), 0.008	0.46
Health	1.21 (1.07)	0.96 (0.96)	(−0.53–0.03), 0.085	0.25	1.12 (0.93)	0.96 (0.96)	(−0.52–0.20), 0.374	0.17
Basic	0.63 (0.82)	0.34 (0.64)	(−0.49 to −0.10), 0.003	0.43	0.68 (0.82)	0.34 (0.64)	(−0.58 to −0.10), 0.006	0.50
Social	1.13 (1.13)	0.65 (0.93)	(−0.76 to −0.20), <0.001	0.49	1.11 (1.12)	0.65 (0.93)	(−0.81 to −0.11), 0.010	0.48
Services	0.45 (0.72)	0.22 (0.47)	(−0.39 to −0.08), 0.003	0.42	0.30 (0.64)	0.22 (0.47)	(−0.27–0.01), 0.361	0.17
Functioning	0.41 (0.66)	0.25 (0.63)	(−0.35–0.03), 0.089	0.25	0.41 (0.71)	0.25 (0.63)	(−0.40–0.09), 0.212	0.24
Met needs	2.61 (2.11)	1.69 (1.58)	(−1.45 to −0.39), <0.001	0.53	2.72 (2.10)	1.69 (1.58)	(−1.71 to −0.37), 0.003	0.62
MHealth	0.93 (0.87)	0.79 (0.88)	(−0.39–0.11), 0.272	0.16	0.88 (0.82)	0.79 (0.88)	(−0.42–0.24), 0.585	0.10
MBasic	0.52 (0.71)	0.23 (0.50)	(−0.45 to −0.14), <0.001	0.52	0.49 (0.69)	0.23 (0.50)	(−0.45 to −0.07), 0.008	0.48
MSocial	0.65 (0.96)	0.38 (0.69)	(−0.49 to −0.05), 0.017	0.35	0.72 (0.97)	0.38 (0.69)	(−0.61 to −0.07), 0.013	0.46
MServices	0.28 (0.51)	0.17 (0.38)	(−0.22–0.01), 0.078	0.25	0.18 (0.39)	0.17 (0.38)	(−0.15–0.13), 0.865	0.03
MFunctioning	0.29 (0.55)	0.19 (0.52)	(−0.26–0.06), 0.207	0.19	0.28 (0.63)	0.19 (0.52)	(−0.30–0.11), 0.363	0.18
Unmet needs	1.12 (1.68)	0.60 (1.36)	(−0.96 to −0.08), 0.022	0.35	1.17 (1.47)	0.60 (1.36)	(−1.12 to −0.02), 0.043	0.41
UHealth	0.28 (0.64)	0.17 (0.48)	(−0.26–0.04), 0.152	0.21	0.24 (0.61)	0.17 (0.48)	(−0.26–0.12), 0.450	0.14
UBasic	0.11 (0.32)	0.11 (0.36)	(−0.10–0.09), 0.934	0.01	0.19 (0.46)	0.11 (0.36)	(−0.22–0.06), 0.245	0.21
USocial	0.49 (0.84)	0.27 (0.67)	(−0.42 to −0.01), 0.041	0.29	0.39 (0.69)	0.27 (0.67)	(−0.36–0.13), 0.346	0.17
UServices	0.17 (0.54)	0.05 (0.26)	(−0.23 to −0.03), 0.015	0.35	0.12 (0.42)	0.05 (0.26)	(−0.18–0.04), 0.181	0.26
UFunctioning	0.13 (0.46)	0.06 (0.27)	(−0.16–0.04), 0.210	0.19	0.13 (0.42)	0.06 (0.27)	(−0.18–0.05), 0.299	0.20

These findings suggest that patients with more severe clinical conditions and more compromised global functioning (GAF) present higher levels of all needs for care at T1.

Moreover, both CPA ($p < 0.01$) and CSA ($p < 0.05$) correlate with higher levels of total met needs for care (Table S2b), while only physical abuse determines higher levels of total unmet needs ($p < 0.05$) (Table S2c). As it emerged for total needs, the PANSS and GAF scores at T1 also correlate with levels of both total met and unmet needs ($p < 0.001$) at T1.

Regarding met needs domains (Table S2b), it emerged that CPA determines higher levels of met basic needs ($p < 0.001$) at T1, and PANSS total score at T1 determines a higher level of met health, basic, and functioning needs (all with $p < 0.001$). Instead, GAF scores at T1 are associated with lower levels in the same CAN-met domains at T1 ($p < 0.001$).

Regarding unmet needs domains at T1 (Table S2c), CPA is associated with higher levels of unmet service needs ($p < 0.01$), PANSS total score at T1 determines a higher number of health, basic, social, services unmet needs domains ($p < 0.001$) and GAF score at T1 determines lower levels of unmet health, basic, social and services domains ($p < 0.001$) and unmet functioning domain ($p < 0.01$) at T1.

Given the statistically significant correlations for physical abuse or sexual abuse ($p < 0.05$) in the univariate linear regression models, we carried out multivariate linear regression analysis to explore if these correlations remained significant, also by adjusting for variables that can influence the needs for care at T1 (after adjustment for the level of needs for care at the onset).

Table 3a shows that the presence of childhood physical abuse continues to determine higher levels of total needs ($p < 0.001$), higher levels in basic ($p < 0.01$), social ($p < 0.01$), and services ($p < 0.05$) needs for care at T1, adjusted for the same CAN dimension. On the other hand, CSA only correlates with a higher number of basic needs ($p < 0.05$) at T1. Multivariate analysis also confirms that patients with higher PANSS total scores at T1 have a higher number of total needs ($p < 0.001$) and patients with higher GAF scores at T1 have fewer total needs for care ($p < 0.001$) at T1.

The estimation of the adjusted R-square shows that 42.9 % of total needs is explained by the presence of physical abuse, PANSS, and GAF scores.

Table 3b shows that both CPA and CSA are significantly related to total met needs at T1 ($p < 0.01$); moreover, the correlation between a higher PANSS total score at T1 and a higher number of met needs ($p < 0.001$) is confirmed.

The Adjusted R-square suggests that 25 % of met needs are determined by the presence of physical or sexual abuse and PANSS score.

Concerning the needs for care domains, we find statistically significant correlations between physical abuse and met basic needs ($p < 0.001$) at T1 and between sexual abuse and met basic ($p < 0.05$) and social needs for care ($p < 0.05$) at T1.

Table 3c shows a statistically significant correlation between PANSS total scores at T1 and higher unmet needs ($p < 0.05$) at T1, and between GAF scores at T1 and lower unmet needs at T1 ($p < 0.01$). We also find correlations between physical abuse and unmet services needs ($p < 0.05$) at T1, and between higher PANSS total scores at T1 and unmet services needs ($p < 0.001$) at T1. The adjusted R-squared of 33.4 % suggests that a third of unmet services needs is due to the presence of psychopathological severity and childhood physical abuse.

4. Discussion

The current study is the first one to explore the longitudinal association between CPA, CSA and specific needs for care (both met and unmet) 9 months after the psychotic onset.

Our first finding is that physically and sexually abused FEP patients have higher levels of total and met needs than non-abused patients at T1, with the strongest association between CPA and needs for care, compared to CSA. These findings are consistent with previous literature, showing that CSA and CPA are associated with higher needs for care complexity among patients with psychosis. Specifically, previous works found that having experienced traumatic events leads to a more complex clinical course (Conus et al., 2010), a reduction in quality of life (Alameda et al., 2015), and suboptimal care compliance, which could be due to a lack of trust in healthcare systems and emotional instability due to past trauma (Hensel et al., 2016). These elements can result in a higher number of unmet needs, as partially confirmed by our study. In our sample, participants with physical abuse have higher levels of unmet needs (in social and services domains) after 9 months, while sexual abuse is not associated with any type of unsatisfied needs. We would have

Table 3a

Multivariate linear regression models for CAN Total dimensions at T1. Beta coefficient adjusted for CAN Total at T0.

	CAN at T1				
	Total Needs	Basic		Social	Services
Paid Employed	–	–	–	0.164**	–
Admitted to a psychiatric ward in the 9-month FU	0.039	0.127*	0.089	–	–
GAF at T1	–0.211***	–0.052	–0.066	–0.117	–0.077
PANSS total score at T1	0.342***	0.350***	0.359***	0.156*	0.214**
Childhood Physical Abuse	0.169***	0.139**	–	0.157**	0.126*
Childhood Sexual Abuse	–	–	0.104*	–	–
Adjusted R-squared	42.9 %	36.7 %	33.7 %	24.4 %	23.8 %

*** $p < 0.001$

** $p < 0.01$

* $p < 0.05$.

Table 3b

Multivariate linear regression models for CAN Met dimensions at T1. Beta coefficient adjusted for CAN Met at T0.

	CAN Met at T1				
	Met Needs		MBasic		MSocial
Non Affective Psychosis	–	–	–	–	–0.114
Admitted to a psychiatric ward in the 9-month FU	0.041	0.037	0.135*	0.117*	–
GAF at T1	–0.148	–0.149	–0.066	–0.114	–
PANSS total score at T1	0.282***	0.280***	0.239***	0.197**	–
Childhood Physical Abuse	0.164**	–	0.195***	–	–
Childhood Sexual Abuse	–	0.156**	–	0.118*	0.131*
Adjusted R-squared	25.0 %	24.8 %	29.3 %	25.5 %	7.2 %

*** $p < 0.001$ ** $p < 0.01$ * $p < 0.05$ **Table 3c**

Multivariate linear regression models for CAN Unmet dimensions at T1. Beta coefficient adjusted for CAN Unmet at T0.

	CAN Unmet at T1	
	Unmet Needs	UServices
Male gender	–0.145***	–
Secondary School/University Degree	–0.056	–
Admitted to a psychiatric ward in the 9-month FU	0.059	–
GAF at T1	–0.205**	0.034
PANSS total score at T1	0.180*	0.272***
Childhood Physical Abuse	0.113	0.122*
Adjusted R-squared	34.2 %	33.4 %

*** $p < 0.001$ ** $p < 0.01$ * $p < 0.05$

expected to find that those patients who had experienced sexual abuse would experience more needs for care in the social domain, which includes sexual expression and intimate relationships. Previous studies report sexual abuse as one of the factors that contributes to determining unsatisfied needs in the socio-relational area (Cloutier et al., 2021; de Jager et al., 2021; McCann et al., 2019). Indeed, a previous work found that 90 % of intimacy and sexuality needs remained unmet over time in adults with psychosis and with a history of sexual abuse (de Jager et al., 2021). The lack of association between sexual abuse and needs for care in our sample may be explained by the fact that participants in the study of Jager and colleagues are up to 50 years old, suggesting that additional factors (e.g., relapses, other comorbidities and iatrogenic factors related to long-term treatments) may emerge if chronicity occurs, increasing needs for care, and making them even more difficult to be satisfied (de Jager et al., 2021). Our sample is characterized by younger subjects with a mean age of 30 years, in line with previous work done in Community Mental Health Services (Pollard et al., 2023).

In our sample, however, the presence of physical abuse was found to be correlated with unsatisfied needs for care in the social area and related to services. In this regard, it can be hypothesized that patients previously exposed to physical abuse have greater difficulty in recognizing their own needs with respect to establishing interpersonal relationships, thus constituting a category of greater vulnerability (Berenson & Andersen, 2006). As this is new data, found for the first time in our sample, further studies are necessary to confirm this association in other cultural contexts or care settings. It is also interesting to note that abused patients do not differ from non-abused patients in the needs domains of health and functioning, reasonably suggesting that ACEs have a greater impact specifically on psychosocial dimensions, as found by other studies (Cotter et al., 2015; Turner et al., 2019; Vila-Badia et al., 2021).

The second finding of our study concerns the variables that may determine a higher level of needs for care after 9 months from the onset, considering the value of needs for care at the onset. CPA was confirmed to be associated with higher total needs (in social, basic, and service domains), met needs (in the basic domain), and unmet needs (in the service domain). We found a weak association between CSA and basic total and met needs and social needs. No association was found between CSA and unmet needs, indicating that patients with a history of sexual abuse may have better access to or engagement with the healthcare system, which has successfully addressed or is currently addressing their care needs. Various studies highlight the profound impact of sexual abuse on individual development compared to physical abuse (Bebbington et al., 2011; Bell et al., 2019; Read et al., 2003). This could align with our findings, suggesting that the healthcare system might prioritize addressing the needs associated with sexual abuse, potentially due to its perceived severity, leaving behind the needs raised by CPA. However, this does not necessarily imply a fully effective response from the healthcare staff, as prior literature also indicates significant gaps in meeting the needs of individuals with sexual trauma (de Jager et al., 2021). Indeed, it should be noted that traumatic experiences can influence how individuals interact with healthcare, particularly sexual abuse, which has been associated with reduced trust in medical personnel and increased healthcare-avoidance behaviors (Selwyn et al., 2021).

This occurs because trauma survivors often feel misunderstood when healthcare staff do not recognize the role that trauma plays in shaping their symptoms and health needs (Green et al., 2012). This lack of recognition and being labeled as “difficult” can lead to

feelings of disconnection and mistrust toward medical professionals, while concurrently eliciting frustration and discomfort from healthcare staff (Robiner & Petrik, 2017). These contrasting results highlight the need to expand the research in this area, with a particular focus on studying CPA and CSA separately. Investigating their individual roles in clinical outcomes is crucial, as existing literature often examines their effects collectively, obscuring their distinct impacts (Schäfer & Fisher, 2011; Thomas et al., 2019).

In addition, participants with more severe clinical conditions due to higher levels of symptoms and more impaired global functioning at T1 were also found to have significantly higher levels of total needs for care (in all domains) at that time, as well as satisfied (in basic, health, and functioning domains) and unmet (in all domains) needs.

Moreover, our results indicate that higher levels of total needs are associated with being hospitalized during the follow-up period. Indeed, the acute care demands of inpatients underline the urgency for interventions post-discharge to prevent a cycle of rehospitalization (Chen et al., 2022; Cheng et al., 2017).

The association between clinical severity and higher unmet needs for care in psychotic patients is well-documented in the literature, both in FEP (Goldstone, 2020; Ochoa et al., 2012; Turner et al., 2019) and chronic psychoses (Fleury et al., 2013; Ochoa et al., 2003; Wiersma et al., 2009). These studies showed the patients exhibited higher levels of unmet needs, specifically regarding social support, occupational rehabilitation, and symptom management. Additionally, it was found that patients with higher unmet needs seek mental health services less frequently compared to those with higher met needs, suggesting a relationship between limited access to services and the persistence of unmet needs over time (Fleury et al., 2013). It should be noted that our study is a trial, and we found no difference in unsatisfied needs for care in the two treatment groups, suggesting that, despite belonging to the experimental group receiving psychotherapy in a case-management context, the needs for care tend to be unsatisfied. This extends what is present in the literature (Alonso et al., 2007), suggesting that even when care is optimal, or there is attention from user services, or innovative treatments are offered, needs may remain unsatisfied if not specifically addressed (Pathare et al., 2018).

In sum, the variables most significantly involved in determining higher levels of needs for care (both total, met and unmet) are clinical severity, lower global functioning and the presence of CPA, indicating that patients with a history of physical abuse might struggle to access appropriate care (Alcalá et al., 2018), which could degenerate into worse symptoms and functioning (Harvey et al., 2016; Shah et al., 2014; Turner et al., 2019).

The variables most strongly associated with higher unmet needs were the PANSS and GAF scores, which showed strong significance, particularly in the service domain, while the presence of CPA had a weaker but still significant association. No association emerged between CSA and unmet needs, as discussed above.

Using multivariate models to correct our analyses for confounding factors, such as symptomatology and global functioning, we confirmed that CPA determines more total needs (in basic, social, and services domains) and more met basic needs. CSA correlates weakly with more total basic needs, specifically in the basic and social needs domain. Unmet needs remained significantly associated only with CPA for the domain of services, which include transport, digital communication, benefits, and information on condition and treatment. This sheds light on the isolation experienced by FEP patients, particularly those with a history of abuse (Elliott et al., 2005; Sheikh, 2018), which may make them less likely to utilize phones (Young et al., 2020) or public transportation (Malinowski et al., 2023).

It is perhaps precisely due to a lack of recognition of this type of unsatisfied needs that patients at the onset of psychosis and with a history of abuse could sometimes be less compliant with treatment paths (Spidel et al., 2015). Without adequate information about their condition and available support measures, including social welfare resources, these patients may struggle to engage with essential services, further deepening their isolation beyond what is already caused by psychotic symptoms (Åsbø et al., 2025).

From a theoretical perspective, various models have been proposed to explain the relationship between ACEs and psychosis, further emphasizing the importance of trauma as a key factor influencing needs for care. The model proposed by Hardy (Hardy, 2017) focuses on trauma memories, their processing, and emotional regulation, highlighting the vulnerable aspects that give rise to a series of intrusive experiences. According to this model, trauma and intrusions are phenomenologically related in psychosis through multiple mechanisms. Additionally, cognitive theories of psychosis suggest that post-traumatic intrusions are a primary mechanism underlying the relationship between trauma and psychotic symptoms (Peach et al., 2021). The strength of the contextual integration of trauma-related intrusions is argued to lie in its explanation of how encoding processes influence the frequency and nature of subsequent intrusive experiences. Although intrusions can occur in several disorders, contextual integration is considered a key variable in understanding how experienced trauma relates to subsequent psychiatric symptoms (Steel et al., 2005). Furthermore, both post-traumatic intrusions and trauma-related beliefs mediate the relationship between ACEs and hallucination severity (Peach et al., 2019).

Finally, regarding the association between sexual abuse and needs for care, it is thought that CSA is a traumatic event that can lead to enduring intrapersonal and interpersonal difficulties, with a significant impact on intimate relationships. Sexual abuse may cause cognitive and emotional distortions that are difficult to integrate into one's self-concept. The outcomes of CSA are influenced by various external and individual factors, such as family cohesion and use of recreational drugs, often referred to as "third variables", which can affect sexual development at any stage. At the end, coping strategies play a crucial role in shaping these outcomes, creating a feedback loop that influences the psychological and relational consequences of abuse (Zwickl & Merriman, 2011).

5. Strengths and limitations

Some strengths and limitations should be considered when discussing the results of our study. The first strength is that trauma was evaluated as physical and sexual abuse, different from most studies that tend to unify traumatic experiences into a single category. Moreover, a comprehensive assessment of needs across multiple domains was performed, specifically addressing met and unmet needs for care, linked to trauma. Finally, multivariate analysis was carried out to correct the association found due to confounding factors.

However, the period of follow-up was limited to 9 months, preventing the discovery of additional information about the evolution of needs for care over a longer period. There is the possibility of recall bias related to the retrospective nature of trauma data collection, which could impact the accuracy of patient responses. However, psychotic patients were found to be reliable in reporting their history of traumatic events (Fisher et al., 2011). It should also be noted that the cohort included in the analyses showed slightly lower symptom severity at baseline compared to participants who did not complete CECA-Q and CAN. Moreover, since ACEs were not the primary focus of the GET-UP PIANO project, PTSD was not assessed. This represents a limitation of the present study, as psychosis-related PTSD is often linked to previous histories of trauma. Furthermore, the presence of traumatic events was analyzed in a dichotomous way without diversifying the intensity of the experience. Also, the possible coexistence of both physical and sexual abuse in the anamnesis of the same patient was not considered, with a possible cumulative effect on the outcome measures. However, including individuals who had experienced only one type of abuse would have significantly reduced the sample size, potentially compromising the robustness of the analyses. Finally, no testing for homogeneity of the sample was conducted because the 276 patients were enrolled from 87 CMHCs, with 18 of them recruiting only one patient and one recruiting 12 patients. However, the potential sampling bias is mitigated by the fact that all CMHCs involved in the GET-UP are located in the northern Italian regions, with similar delivery of mental health care, allocated resources, performance indicators, and characteristics of the catchment areas. Moreover, data were derived from an RCT, with enrollment criteria applied uniformly across all CMHCs.

6. Conclusions

Our results underline the importance of a systematic assessment of CSA and CPA and of needs for care in patients with psychosis, in order to identify this particularly vulnerable sub-population early. The integration of information related to trauma with that related to needs for care would enable the identification of areas in which the patient experiences difficulties, in order to develop personalized therapeutic and rehabilitative interventions. This, in turn, would improve the quality of life and reduce the risk of chronicity and deterioration of global functioning.

Our finding of greater needs for care relating in particular to the social sphere and services in physically abused patients suggests the usefulness of implementing targeted interventions, such as trauma-focused cognitive-behavioral therapy (CBT), trauma processing therapy (TPT), psychoeducational interventions, group therapies and interventions aimed at strengthening social skills, as well as all those support measures for daily activities that allow the maintenance of autonomy. Future research should focus on addressing the high number of patients' needs, and in doing so, it could be beneficial to develop personalized and continuous interventions focused on better symptom management, psychological support, and more empathetic, trauma-oriented approaches to care.

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Declaration of competing interest

The authors declare that there is no conflict of interest.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.chiabu.2025.107863>.

Data availability

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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