Original article

Childhood abuse in the etiological continuum underlying psychosis from first-episode psychosis to psychotic experiences

S. Alemany a,b,*,1, R. Ayesa-Arriola b,c,1, B. Arias a,b, M. Fatjó-Vilas a,b, M.I. Ibáñez d, G. Ortet d, B. Crespo-Facorro b,c, L. Fañanás a,b

a Anthropology Unit, Department of Animal Biology, Faculty of Biology, University of Barcelona and Biomedicine Institute of the University of Barcelona (IBUB), Diagonal, 643, 08028, Barcelona, Spain
b Centre for Biomedical Research Network on Mental Health (CIBERSAM), Doctor Esquerdo, 46, 28007, Madrid, Spain
c University Hospital Marqués de Valdecilla, IDIVAL, Department of Psychiatry, School of Medicine, University of Cantabria, Avda. Valdecilla s/n, 39008 Santander, Spain
d Department of Basic and Clinical Psychology and Psychobiology, Faculty of Health Sciences, Jaume I University, 12071 Castellón, Spain

Article history:
Received 17 March 2014
Received in revised form 14 August 2014
Accepted 20 August 2014
Available online 3 October 2014

Keywords:
Child abuse
Schizophrenia and psychosis
Epidemiology

ABSTRACT

Goal: The present study aimed to examine the prevalence of child abuse across the continuum of psychosis.

Patients and methods: The sample consisted of 198 individuals divided in three groups: (1) 48 FEP patients, (2) 77 individuals scoring high in Community Assessment of Psychic Experiences (CAPE), classified as “High CAPE” group and (3) 73 individuals scoring low, classified as “Low CAPE” group. Childhood abuse was assessed using self-report instruments. Chi² tests and logistic regression models controlling by sex, age and cannabis were used to perform three comparisons: (i) FEP vs. Low CAPE; (ii) FEP vs. High CAPE and (iii) High CAPE vs. Low CAPE.

Results: The frequency of individuals exposed to childhood abuse for FEP, High CAPE and Low CAPE groups were 52.1%, 41.6% and 11%, respectively. FEP and High CAPE group presented significantly higher rates of childhood abuse compared to Low CAPE group, however, no significant differences were found between FEP and High CAPE groups regarding the frequency of childhood abuse. Conclusion: There is an increasing frequency of childhood abuse from low subclinical psychosis to FEP patients. However, childhood abuse is equally common in FEP and at risk individuals.

© 2014 Elsevier Masson SAS. All rights reserved.

1. Introduction

Psychological stress such as childhood trauma has been related to the expression of psychotic symptoms in psychotic patients, primary care patients and individuals from the general population [1,2,27,42]. Indeed, a recent meta-analysis pointed out that patients with psychosis were 2.72 times more likely to have been exposed to childhood adversity compared with controls [43]. The presence of childhood trauma is linked with negative effects on the course and outcome of the psychotic disorder [5,19,34,36]. In this regard, a growing body of research is examining the role of childhood traumatic experiences in first-episode psychosis (FEP) [7,9,32,35,37,40,44,45]. This constitutes a relevant issue since a history of childhood trauma is predictive of a worsened course of psychotic disorders, including poorer social outcomes [10] and greater positive and dissociative symptoms at first episode [32,40]. Interestingly, a recent study reported that the frequency of childhood trauma was higher in FEP patients compared to controls but FEP patients and individuals with ultra high risk for psychosis did not significantly differ for the exposure to childhood trauma [35]. However, from a dimensional perspective, considering psychosis as a continuous phenotype, we may expect that the risk factor, childhood trauma, would be also distributed in a continuum of frequency, intensity or severity showing an increasing of its presence from at risk individuals to full-blown psychosis cases. The present study aimed to test whether there is a continuum of frequency of childhood trauma underlying a continuum of severity of expression of psychosis. For this purpose we examined childhood trauma occurrence from individuals presenting low rates of subclinical psychosis to individuals presenting a FEP also including individuals scoring high for subclinical psychosis.
In this regard, as above mentioned, psychosis can be defined as a continuous phenotype the distribution of which extends into the general population [21]. This is consistent with the evidence indicating that psychotic symptoms are experienced not just by patients but also by individuals from the general population [24,29,41]. In the absence of illness or need for treatment, these milder forms of psychotic symptoms are referred to as subclinical psychotic symptoms or psychotic experiences (PEs) [23]. The occurrence of PEs has been reported to be predictive of later development of clinical psychotic disorders [11,22,31]. Furthermore, PEs has been used to characterize individuals at risk for psychosis illness [22,23].

Considering these evidences, the present study aimed to extend the literature on childhood trauma and psychosis examining the effect and frequency rates of childhood abuse in:

- several clinical aspects of FEP cases and;
- across the continuum of psychosis, from subclinical psychosis to first episode of psychosis.

We expected that childhood abuse would be more frequent among FEP individuals compared to both at risk (individuals presenting high rates of subclinical psychosis) and control subjects (individuals presenting low rates of subclinical psychosis) but that at risk subjects would also report a higher rate of childhood abuse events than controls.

2. Subjects and methods

2.1. Participants

The patient group consisted of 48 patients included in the first episode psychosis program of Cantabria, Spain (PAFIP) from January 2005 to December 2010. Referrals to the PAFIP come from the inpatient unit and emergency room at the University Hospital of Marqués de Valdecilla, community mental health services and other community health care workers in the entire region of Cantabria. The patients met the following criteria:

- 15–60 years of age;
- living in the catchment area;
- experiencing their first episode of psychosis;
- no prior treatment with antipsychotic medication or, if previously treated, a total life time of adequate antipsychotic treatment of less than 6 weeks and;
- DSM-IV criteria for brief psychotic disorder, schizophrenia, or otherwise specified (NOS) psychosis or schizoaffective disorder.

The diagnoses were confirmed by the Structured Clinical Interview for DSM-IV (SCID-I) [12] conducted by an experienced psychiatrist, 6 months on from the baseline visit. Further details about this sample can be found elsewhere [30].

The non-clinical samples were drawn from a larger sample consisting of 533 of individuals from the general population who were recruited from the campus of Jaume I University in Castelló (Spain) and from university offices and community technical schools from the metropolitan area of Barcelona (Spain). At the assessment 77% of the participants were students. The exclusion criteria for the general population sample included the presence of any major medical illness affecting brain function, neurological conditions, current substance abuse (alcohol or any illicit drug), history of head injury and personal history of past or present major psychiatric disorder. These aspects were screened by means of a short interview designed ad hoc for this study on the basis of selected items of structured scales such as SCID-I [12]. Further details about this sample can be found elsewhere [1]. One hundred and fifty individuals were selected from this sample based on their scores of subclinical psychosis (See Measures).

Thus, the current study included three groups of subjects:

- 48 patients (mean age = 29.1; SD = 8.4; 47% males) with a FEP;
- 77 individuals (mean age = 22.7; SD = 5.4; 40% males) presenting high subclinical psychosis and;
- 73 individuals (mean age = 22.5; SD = 3.7; 36% males) presenting low subclinical psychosis, which constitutes the control group of the study.

Ethical approval was obtained from local research ethics committees. All participants provided written informed consent before inclusion in the study. All procedures were carried out according to the Helsinki Declaration.

2.2. Instruments

In the FEP group, age at onset of psychosis was defined as the age when the emergence of the first continuous (present most of the time) psychotic symptoms occurred. Duration of untreated illness (DUI) was defined as the time from the first unsppecific symptoms related to psychosis (for such a symptom to be considered, there should be no return to previous stable level of functioning) to initiation of adequate antipsychotic drug treatment. Duration of untreated psychosis (DUP) was defined as the time from the first continuous (present most of the time) psychotic symptom to initiation of adequate antipsychotic drug treatment. Clinical symptoms of psychosis at study entry were assessed by means of the Scale for the Assessment of Positive Symptoms (SAPS; [4]) and the Scale for the Assessment of Negative Symptoms (SANS; [3]). The SAPS and SANS scores were used in generating dimensions of positive (scores for hallucinations and delusions), disorganized (scores for formal thought disorder, bizarre behaviour and inappropriate affect) and negative (scores for alogia, affective flattening, apathy and anhedonia) symptoms [15].

Subclinical psychosis was assessed by means of the positive and negative dimensions of the Community Assessment of Psychic Experiences (CAPE; [38]). This self-report questionnaire measures the lifetime prevalence of PEs on a frequency scale ranging from ‘never’ to ‘nearly always’. The positive dimension of the CAPE includes items mainly referring to subclinical expressions of positive psychotic symptoms (hallucinations and delusions) such as ‘do you ever feel as if things in magazines or TV were written especially for you?’. Similarly, the negative dimension of CAPE includes items assessing subclinical expressions of negative psychotic symptoms such as alogia, avolition, anhedonia and lack of interest in social relationships. An example of item is ‘do you ever feel that you experience few or no emotions at important events?’. The CAPE provides a total continuous score per dimension ranging from 20 to 80 in the positive dimension and from 14 to 56 in the negative dimension. The CAPE has been shown to have good reliability and validity [25]. According to their CAPE scores, 150 individuals were selected for the current study. Seventy-seven individuals scoring above the 75th percentile for both positive and negative dimensions were classified as the “High CAPE” group and seventy-three individuals scoring below the 25th were classified as the “Low CAPE” group, which was used as baseline or control group. This classification has been used in previous studies [25,28].

Childhood abuse was assessed using an adapted version of the Scale of stressful events during childhood-adolescence [20] and the Stressful life events screening questionnaire-Revised [13] in the FEP sample. Two items were used to assess physical abuse and two
items were used to assess sexual abuse. An example item of physical abuse is “when you were a child, did a parent, caregiver or other person ever slap you repeatedly, beat you, or otherwise attack or harm you?”. Patients were requested to answer “yes” or “no” to the items. In the High CAPE and Low CAPE groups childhood abuse was assessed using the physical and sexual abuse subscales of the Childhood Trauma Questionnaire [8]. Each of these subscales is formed by five items. An example item of physical abuse subscale is ‘people in my family hit me so hard that it left me with bruises or marks’. The score for each item ranges from 1 to 5 (‘never true’ to ‘very often true’), depending on how often, if ever, the individual was exposed to these events. The responses for each item were recoded to 0 (never true) and 1 (rarely true, sometimes true, often true and very often true). In the three samples, individuals were classified as exposed to childhood abuse if they report an affirmative response to any of the items assessing childhood physical or sexual abuse (“yes” in the case of FEP group and a different response to “never true” in the case of High CAPE and Low CAPE groups).

Cannabis use was included as dichotomous covariate. In the FEP group, a patient who consumed cannabis at least once per week during the year previous to psychosis onset was classified as exposed to cannabis. In the non-clinical samples, cannabis use was assessed with one question regarding the frequency of consumption: ‘never’, ‘once’, ‘monthly’, ‘weekly’ or ‘daily’ (this variable was then dichotomized into two categories: ‘not exposed to cannabis’; never, once; and ‘exposed to cannabis’: monthly, weekly, daily).

2.3. Analyses

T-tests were performed to compare means between exposed and nonexposed to childhood abuse for clinical measures in the FEP group (two-tailed P-values). If significant differences between exposed and nonexposed were detected, multiple regression analyses were conducted incorporating sex, age and cannabis use as covariates.

To test whether the FEP group presented the highest frequency of childhood abuse reports followed by High CAPE and Low CAPE group presented the lowest occurrence of childhood abuse, three comparisons were performed:

• FEP vs. Low CAPE;
• FEP vs. High CAPE and;
• High CAPE vs. Low CAPE.

A Chi² test was used to compare the frequencies of exposed and nonexposed individuals to childhood abuse between the FEP and High CAPE group. Fisher’s exact tests were performed to compare the frequency of exposed and nonexposed to childhood abuse individuals between FEP and Low CAPE groups and between High CAPE and Low CAPE group since one of the cells had a frequency of less than five cases. Additionally, logistic regression analyses were performed to test whether childhood abuse was associated with psychosis phenotype when including the covariates sex, age and cannabis.

3. Results

Sociodemographic and clinical data of the analyzed groups can be found in Table 1. There were no differences among FEP patients exposed and nonexposed to childhood abuse for the clinical variables SANS, SAPS, negative dimension, disorganized dimensions, DUP or DLI. However, FEP patients exposed to childhood abuse reported significantly higher scores for the positive dimension (t = −2.2, d.f. = 46; P = .03) and for hallucinations within this dimension (t = −2.2, d.f. = 46; P = .04). However, these differences did not remained significant when controlling for sex, age and cannabis use (β = 1.2; SE = .8; P = .125) (Fig. 1).

In regard to the main aim of the present study, FEP individuals were significantly more likely to had experienced childhood abuse compared to Low CAPE group (52% in FEP vs. 11% in Low CAPE; χ² = 24.7, d.f. = 1; P < .001). This result remained significant in logistic regression analyses controlling for sex, age and cannabis (β = 2.5; SE = .8; OR = 11.8, 95% CI 2.6, 54.6). High CAPE group also presented a significant higher presence of childhood abuse compared to Low CAPE group (41.6% in High CAPE vs. 11% in Low CAPE; χ² = 17.9, d.f. = 1; P < .001). This result also remained significant when controlling for sex, age and cannabis use (β = 2.9; SE = 1.1; P = .005; OR = 5.8, 95% CI 2.2, 15.5). No differences were found for childhood abuse rates between FEP and High CAPE group individuals neither including covariates (52% vs. 41.6%; χ² = 1.3, d.f. = 1; P = .251) or when including them (β = .2; SE = .5; P = .726; OR = 1.2, 95% CI .5, 3.0).

4. Discussion

We found that the frequency of childhood abuse in both patients and subjects scoring high for subclinical psychosis, two different groups of individuals within the psychotic spectrum, was higher than in the control group. Specifically, FEP and High CAPE individuals were 11.8 and 5.8 times more likely to report childhood abuse compared to individuals with low subclinical psychosis

Table 1
Sociodemographic and clinical characteristics of the different groups of the sample (FEP, High CAPE and Low CAPE).

<table>
<thead>
<tr>
<th></th>
<th>FEP</th>
<th>High CAPE</th>
<th>Low CAPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender, males (%)</td>
<td>29 (60%)</td>
<td>40 (52%)</td>
<td>36 (49%)</td>
</tr>
<tr>
<td>Age (mean, SD)</td>
<td>29.8 (8.7)</td>
<td>22.7 (5.4)</td>
<td>22.5 (3.7)</td>
</tr>
<tr>
<td>Age at onset (mean, SD)</td>
<td>29.1 (8.3)</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>DUP (mean, SD)</td>
<td>6.5 (10.3)</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>DLI (mean, SD)</td>
<td>10.6 (17.5)</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>SAPS (mean, SD)</td>
<td>14.3 (4.3)</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>SANS (mean, SD)</td>
<td>5.8 (5.0)</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Positive dimension (mean, SD)</td>
<td>7.3 (2.6)</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Negative dimension (mean, SD)</td>
<td>3.6 (1.1)</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Desorganized dimension (mean, SD)</td>
<td>6.8 (3.4)</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>CAPE Positive (mean, SD)</td>
<td>6.5 (4.6)</td>
<td>29.3 (4.6)</td>
<td>19.7 (2.8)</td>
</tr>
<tr>
<td>CAPE Negative (mean, SD)</td>
<td>29.6 (4.1)</td>
<td>–</td>
<td>16.3 (2.3)</td>
</tr>
</tbody>
</table>

Fig. 1. Percentage of individuals exposed and nonexposed to childhood abuse in each group. Statistical significant differences in the ratio of individuals exposed and nonexposed to childhood abuse between groups are shown. First-episode psychosis (FEP) group presents a significantly higher frequency of individuals exposed to childhood abuse compared to Low CAPE group. High CAPE group also presents a significantly higher rate of individuals exposed to childhood abuse compared to Low CAPE group. No significant differences were found between FEP and High CAPE groups.
respectively. However, contrary to our expectations, the prevalence of childhood abuse among FEP patients was not significantly different from that observed in subjects presenting high levels of subclinical psychosis.

Although that was an unexpected result, previous studies have also found similar rates of childhood maltreatment between at-risk subjects and FEP patients. A recent study found that childhood trauma among ultra high risk for psychosis (UHR) was as common as among first-episode schizophrenia patients [35]. Similarly, another study comparing people at high-risk for psychosis with FEP patients found a higher rate of traumatic events (including childhood maltreatment) among the at risk group [45]. It is likely that the UHR and the at high-risk groups included in that studies presented more severe subclinical psychotic symptoms than those reported by our High CAPE group individuals. For instance, almost all of the UHR individuals in the study by Sahin et al. [35] were help-seekers who directly applied to a psychiatrist or a university psychiatric outpatient unit. However, our results can be generalized to individuals of the general population not necessarily seeking for help who present a high level of subclinical psychosis based on how often they experience psychotic experiences.

Overall, these findings provide support for the association between childhood abuse and psychosis both at clinical and subclinical level and highlight the relevance of examining history of childhood trauma when characterizing and conducting follow-up studies of individuals at risk for psychosis.

With respect to the phenotypic and underlying etiological continuum of psychosis, it might be possible that the continuum of psychosis would not be underlined by a lineal continuum of increasing frequency of childhood abuse since our findings together with the previous studies abovementioned [35,45] indicate that this risk factor may be as common in FEP as in at risk individuals for psychosis. It would be of great interest to further study putative protective factors and coping strategies with childhood traumatic events in at risk individuals for psychosis.

Regarding the high prevalence of individuals exposed to childhood abuse among the FEP patients (52%), it was similar to that reported by previous studies like Üçok et al. (40.9%) [40]. Similarly, our sample of individuals at psychometric risk for psychosis (High CAPE group) presented a high prevalence of childhood abuse (41.6%) although other studies have found even higher prevalences [6]. The neurobiological correlates of childhood adversity add plausibility for results indicating that FEP or high-risk individuals for psychosis present especially high frequency of history of childhood abuse. It is now well recognized that childhood adversity may alter the functioning of the hypothalamic-pituitary-adrenal (HPA) axis, which is one of the most important brain circuits involved in regulating adaptive responses to stress. In this context, the intrusive nature of abusive experiences may indicate that they are especially likely to dysregulate the HPA axis. This dysregulation would, in turn, result in increased dopamine release in mesolimbic brain areas, which has been frequently related to the expression of psychotic symptoms [39,42].

Of note, our results suggest that the association between childhood abuse and positive symptoms in FEP patients might not be independent from the effects of cannabis use. Although patients reporting childhood abuse presented higher rates of positive symptoms and hallucinations, which would be in line with previous research [40,44], this result did not remained significant when controlling for cannabis use. Interestingly, several studies have reported an interaction effect between childhood trauma and cannabis on psychosis [17,26]. Further research is needed regarding the role of cannabis use and history of childhood abuse in FEP patients, especially regarding the presentation of positive symptoms.

Our findings have clinical implications since they encourage the development of interventions aimed to prevent childhood abuse since it may help to reduce the incidence of psychotic symptoms and episodes. For instance, it has been estimated that childhood adversity, including abusive events, may account for 26-45% of the variance of onset of psychiatric disorders [14]. Also, Bechdolf et al. pointed to the role of childhood sexual abuse as predictor of onset of psychosis in ultra high risk population [6]. Furthermore, although the causal role of childhood traumatic events in psychosis requires further research, it might be important for clinicians to consider the role of childhood trauma when planning treatment, especially psychotherapeutic work. Many abused individuals with serious mental illnesses believe that their prior traumas are causally related to their illness, and this may affect their perceptions of treatment [33]. Also, a hospitalization for acute psychosis can itself be traumatic, and this effect can be compounded by having experienced prior traumatic events [18,32]. Thus, including a comprehensive assessment of past adverse and/or traumatic events, especially those taking place during childhood and adolescence for the evaluation and the future treatment strategy could be included in routine protocols.

Finally, the current findings should be interpreted in the context of several limitations. First, the sample size was modest especially in the FEP group. For this reason our results should be interpreted with caution, particularly the odds ratios reported. Second, childhood abuse was assessed using different instruments in the sample of FEP and in the samples drawn from the general population. Third, childhood abuse was measured retrospectively, which may constitute an inherent source of bias. Nevertheless, retrospective assessment of childhood maltreatment has been shown to likely underestimate rather than over report real incidence rates [16]. Fourth, the study design was cross-sectional, limiting conclusions that can be made about causality.

Disclosure of interest

Prof. Crespo-Facorro has received honoraria for his participation as a speaker at educational events from Pfizer, Bristol-Myers Squibb, and Johnson & Johnson.

The authors declare that they have no conflicts of interest concerning this article.

Acknowledgments

We thank all participants of the study. This work was supported by research projects funded by the Ministry of Science and Innovation (grant numbers SAF2008-05674-C03-00 and 03; PNSD2008-I090; PNSD2009-I019), the Institute of Health Carlos III, CIBER of Mental Health (CIBERSAM), the Comisionat per a Universitats i Recerca, D.I.U.E, Generalitat de Catalunya (grant number 2014SGR1636) and Fundació Caixa Castelló-Bancaixa (grant numbers P1-1B2010-40 and P1-1B2011-47).

References


