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

Silvia Alemany[1, 2]*; Rosa Ayesa-Arriola[2, 3]*; Bárbara Arias[1,2]; Mar Fatjó-Vilas[1,2]; Manuel I. Ibáñez[4]; Generós Ortet[4]; Benedicto Crespo-Facorro[2, 3]; Lourdes Fañanás[1,2].

[1]*Anthropology Unit, Department of Animal Biology, Faculty of Biology, University of Barcelona, Barcelona, Spain; Biomedicine Institute of the University of Barcelona (IBUB).*

[2]*Centre for Biomedical Research Network on Mental Health (CIBERSAM), Spain.*

[3]*University Hospital Marqués de Valdecilla, IFIMAV, Department of Psychiatry, School of Medicine, University of Cantabria, Santander, Spain.*

[4]*Department of Basic Psychology, Clinical and Psychobiology, Faculty of Human and Social Sciences, Univerity Jaume I, Castelló, Spain.*

*These authors contributed equally to this work.

Location of work and address of corresponding author:

Alemany, S. Unitat d'Antropologia, Dep. Biologia Animal, Facultat Biologia, Universitat de Barcelona. Av. Diagonal 645, 08028, Barcelona, Spain. Telephone number: (+34) 93 402 1461 Fax number: (+34) 93 403 5740. Email address: silvia.alemany@ub.edu

Abstract

Purpose: The present study aimed to extend the literature on childhood trauma and psychosis examining the impact of child abuse across the continuum of psychosis, from subclinical psychosis to first episode of psychosis (FEP).

Methods: The study included a total of 198 individuals divided in three groups: 1) 48 FEP patients, 2) 77 individuals scoring above the 75th percentile in the Community Assessment of Psychic Experiences (CAPE (1)) which were classified as "High CAPE" group; and 3) 73 individuals scoring below the 25th percentile classfied as "Low CAPE" group. Childhood abuse (physical and sexual) was assessed using self-report instruments. Fisher's exact tests were performed to compare the frequency of individuals exposed to childhood abuse between the groups. Three comparisons were performed: 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%, 26% and 1%, respectively. FEP group significantly presented a higer rate of individuals exposed to child abuse compared to Low CAPE ($p<.000$) and High CAPE groups ($p<.004$). High CAPE individuals also presented significantly more cases of individuals exposed to child abuse compared to the Low CAPE group ($p<.000$).

Discussion: These results provide support for the existence of an etiological continuum with increasing presence of the risk factor, childhood abuse, underlying a phenotypic continuum of severity from low levels of subclinical psychosis to FEP.

Significant outcomes:

- There is a high prevalence of childhood abuse in patients with a first-episode psychosis (FEP).
- Childhood abuse was associated with positive but not negative symptoms.
- Individuals presenting subclinical psychosis presented a frequency of childhood abuse higher than the control group but lower than the FEP group.
- An etiological continuum of severity of childhood abuse may underlie psychosis spectrum disorders.

Limitations:

- The sample size of the FEP group was modest.
- Childhood abuse was assessed with different instruments among groups.

1. Introduction

Psychological stress occurring during either childhood or adulthood has been related to psychosis (2). 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 (3). Furthermore, the presence of childhood trauma is linked with negative effects on the course and outcome of the psychotic disorder (4-7). In this regard, examining the role of childhood traumatic experiences in first episode psychosis (FEP) constitutes a relevant issue since a history of childhood trauma is predictive of a worsened course of psychotic disorders, including poorer social outcomes (8) and greater positive and dissociative symptoms at first episode (9-10). Interestingly, a recent study reported that the frequency of childhood trauma was higher in FEP patients compared to controls but FEP patients and individuals at risk for psychosis did not significantly differ for the exposure to childhood trauma (11). However, from a dimensional perspective, considering psychosis as a continous phenotype, we may expect that the risk factor, childhood trauma, would be also distributed in a continuum of frequency, intensity or severity finding an increasing presence of the risk factor 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 abovementioned, psychosis can be defined as a continous phenotype the distribution of which extends into the general population (12). This is consistent with the evidence indicating that psychotic symptoms are experienced not just by patients but also by individuals from the general population (13-15). In the abscence of illness or need for treatment, these milder forms of psychotic symptoms are referred to as subclinical psychotic symptoms or psychotic experiences (PEs) (16). The occurrence of PEs has been rerported to be predictive of

later development of clinical psychotic disorders (17-19). Thus, individuals reporting PEs can be considered to represent a group at risk for psychosis illness (16, 19).

Considering these evidences, the present study aimed to extend the literature on childhood trauma and psychosis examining the impact of childhood abuse in i) several clinical aspects of FEP cases and ii) across the continuum of psychosis, from subclinical psychosis to first episode of psychosis. We expected that childhood abuse was more frequent among FEP individuals compared to both at risk and control subjects but that at risk subjects reported also a higher rate of childhood abuse events than controls.

2. Sample and Methods

Sample

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, comunity mental health services and other community health care workers in the entire region of Cantabria. The patients met the following criteria: 1) 15-60 years of age; 2) l iving in the catchment area; 3) experiencing their first episode of psychosis; 4) no prior treatment with antipsychotic medication or, if previously treated, a total life time of adequate antipsychotic treatment of less than 6 weeks; and 5) DSM-IV criteria for brief psychotic disorder, schizophreniform disorder, schizophrenia, not otherwise specified (NOS) psychosis or schizoaffective disorder. The diagnoses were confirmed by the Structured Clinical Interview for DSM-IV (SCID-I) (20) conducted by an experienced psychiatrist, 6 months on from the baseline visit. Further details about this sample can be found elsewhere (21).

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 friteria for the general population sample the presence of any major medical illness affecting brain function, neurological conditions, current substance abuse (alcohol or any illicit drug), neurological conditions, history of head injury and personal history of psychiatric medical treatment. Further details about this sample can be found elsewhere (22). One hundred 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: i) 48 patients (mean age=29.1; SE=8.4; 47% males) with a FEP; ii) 77 individuals (mean age=22.7; SE=5.4; 40% males) presenting high subclinical psychosis and iii) 73 individuals (mean age=22.5; SE=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.

Measures

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 illnes (DUI) was defined as the time from the first unspecific 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; (23)) and the Scale for the Assessment of Negative Symptoms (SANS; (24)). 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 fattening, apathy and anhedonia) symptoms (25).

Subclincial psychosis was assessed by means of the positive and negative dimensions of the Community Assessment of Psychic Experiences (CAPE; (1)). 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 (26). 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 (26-27).

Childhood abuse was assessed using an adapted version of the Scale of stressful events during childhood-adolescence (28) and the Stressful life events screening questionnaire-Revised (29) in the FEP sample. In the High CAPE and Low CAPE groups childhood abuse was assessed using the Childhood Trauma Questionnaire (30). Briefly, individuals exposed to child abuse in the FEP sample were considered those reporting an affirmative answer to any item regarding sexual or physical abuse. According to the scoring guidelines of the CTQ (30), in the High CAPE and Low CAPE groups, individuals with scores indicating moderate to extreme severity of the exposure to child physical or sexual abuse were classified as exposed to child abuse.

Statistical analyses

T-tests were performed to compare means between exposed and no-exposed to child abuse for clinical measures in the FEP group (two-tailed p-values). Fisher's exact tests were performed to compare the frequency of exposed and no-exposed to child abuse individuals between the

groups since one of the cells has a frequency of less than five cases. Three comparisons were performed: i) FEP vs.Low CAPE; ii) FEP vs. High CAPE and iii) High CAPE vs. Low CAPE.

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 no exposed to child abuse for the clinical variables SAPS, SANS, negative dimension, disorganized dimensions, DUP or DUI. However, FEP patients exposed to child abuse reported significantly higer scores for the positive dimensions (t=-2.2; *df*=46; p=.03) and for hallucinations within this dimension (t=-2.2; *df*=46; p=.04).

In regard to the main aim of the present study, the groups significantly differ regarding the frequency of individuals exposed to child abuse. The group with the highest frequency of child abuse is the FEP group (52% exposed to child abuse) followed by the High CAPE group (26% exposed to child abuse). The control group presented the lowest frequency of child abuse (1%) (Table 2). FEP group significantly presented a higer rate of individuals exposed to child abuse compared to the control group (p<.000) and also compard to High CAPE group (p=.004). High CAPE individuals also presented significantly more cases of individuals exposed to child abuse compared to the Low CAPE group (p<.000).

4. Discussion

We found that the frequency of child abuse in both patients and risk subjects for psychosis, two different groups of individuals within the psychotic spectrum, was higher than in the control group. In addition, patients exposed to child abuse reported a higher rate of positive symptoms. In this regard, it has been shown that childhood trauma may alter presentation of psychosis at first admission (10). Although, we did not found significant differences between exposed and no-exposed patients for most of the clinical variables, in accordance with previous research (31), exposed patients presented significantly higher scores for the positive dimension of

psychotic symptoms and hallucinations but not for negative symptoms. Both psychological and neurobiological mechanisms have been proposed to explain why childhood maltreatment may be preferentially associated with the development of positive symptoms in FEP (32-33).

With respect to the main aim of the present study, the prevalence of individuals exposed to childhood abuse among the FEP patients (52%) was similar to that reported for childhood physical abuse by Üçok and colleagues (40.9%) (10) which is higher than the prevalences reported for childhood adversity in non-clinical samples (25% - 32%) (34). The fact that individuals at psychometric risk for psychosis (High CAPE group) also presented a high prevalence of childhood abuse is in accordance with previous research, although others have found even higher prevalences (35).

In accordance to our expectation, FEP presented the highest frequency of individuals exposed to childhood abuse even compared to at risk individuals. This result provides support for the existence of an etiological continuum with increasing presence of childhood trauma from subclinical psychosis to FEP. Thus, reinforce the definition of psychosis as a continuous phenotype which risk factors that are also continuously distributed.

Of note, these findings are in contrast with a recent study which found that childhood trauma among ultra high risk for psychosis (UHR) was as common as among first-episode schizophrenia patients (11) although it has to be pointed out that probably UHR includes individuals with more severe subclinical psychotic symptoms that those included in our High CAPE group.

These results 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, (35) pointed to the role of childhood sexual abuse as predictor of onset of psychosis in ultra high risk population. 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 (36). Also, a hospitalization for acute psychosis can itself be traumatic, and this effect can be compounded by having experienced prior traumatic events (9, 37). 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 routinary protocols.

Our findings should be interpreted in the context of several limitations. First, childhood abuse was assessed using different instruments in the sample of FEP and in the samples drawn from the general population. Second, the sample size was modest especially in the FEP group. Third, the study design was cross-sectional, limiting conclusions that can be made about causality.

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 *Comissionat per a Universitats i Recerca*, DIUE, *Generalitat de Catalunya* (grant number 2009SGR827) and *Fundació Caixa Castelló-Bancaixa* (grant numbers P1·1B2010-40 and P1·1B2011-47).

Declaration 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 and consultant fees from Pfizer.

The remaining authors report no competing interests.

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

	FEP	High CAPE	Low CAPE
Gender, % male	29 (60%)	40 (52%)	36 (49%)
Age (mean, SD)	29.8 (8.7)	22.7 (5.4)	22.5 (3.7)
Age at onset (mean, SD)	29.1 (8.3)	-	-
DUP (mean, SD)	6.5 (10.3)	-	-
DUI (mean, SD)	10.6 (17.5)	-	-
SAPS (mean, SD)	14.3 (4.3)	-	-
SANS (mean, SD)	5.8 (5.9)	-	-
Positive dimension (mean, SD)	7.5 (2.6)	-	-
Negative dimension (mean, SD)	3.6 (5.1)	-	-
Desorganized dimension (mean, SD)	6.8 (3.4)	-	-
CAPE Positive (mean, SD)	-	29.3 (4.6)	19.7 (2.8)
CAPE Negative (mean, SD)	-	29.6 (4.1)	16.8 (2.3)

Table 2. Exposure to childhood abuse among the three groups. Percentage of individuals exposed for each group is indicated in brackets.

	Childhood abuse		
	Never or mininum severity	**Exposed or moderated-extreme severity**	**Total**
First episode psychosis	23	25 (52%)	48
High CAPE	57	20 (26%)	77
Low CAPE	72	1 (1%)	73
Total	152	46	198

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