Schizophrenia Research 165 (2015) 52–59

Contents lists available at ScienceDirect

Schizophrenia Research

journal homepage: www.elsevier.com/locate/schres

Childhood adversity specificity and dose-response effect in non-affective first-episode psychosis☆,☆☆

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ARTICLE INFO

Article history:
Received 5 January 2015
Received in revised form 13 March 2015
Accepted 15 March 2015
Available online 11 April 2015

Keywords:
Case control
Psychological trauma
Abuse
Neglect
Risk

ABSTRACT

Background: Reviews conclude that childhood and adolescence sexual, physical, emotional abuse and emotional and physical neglect are all risk factors for psychosis. However, studies suggest only some adversities are associated with psychosis. Dose-response effects of several adversities on risk of psychosis have not been consistently found. The current study aimed to explore adversity specificity and dose-response effects of adversities on risk of psychosis.

Method: Participants were 101 persons with first-episode psychosis (FEP) diagnosed with ICD-10 F20 – F29 (except F21) and 101 non-clinical control persons matched by gender, age and parents' socio-economic status. Assessment included the Childhood Trauma Questionnaire and parts of the Childhood Experience of Care and Abuse Questionnaire.

Results: Eighty-nine percent of the FEP group reported one or more adversities compared to 37% of the control group. Childhood and adolescent sexual, physical, emotional abuse, and physical and emotional neglect, separation and institutionalization were about four to 17 times higher for the FEP group (all $p < 0.01$). The risk of psychosis increased two and a half times for each additional adversity. All associations between specific adversities and psychosis decreased when they were adjusted for other adversities.

Conclusion: Our findings suggest that there is a large shared effect of adversities on the risk of psychosis. Contrary to the call for further research into specific adversities, we suggest a search for mechanisms in the shared effects of traumatization. Clinical implications are thorough assessment of adversities and their possible effects.

1. Introduction

Childhood and adolescence adversities are now considered risk factors for psychosis (Matheson et al., 2012; Varese et al., 2012b; Bonoldi et al., 2013; Van Nierop et al., 2014b). However, some researchers advise they might be indicators or proxies of social and environmental causal factors (Cutajar et al., 2010; Murray et al., 2013), while others hold that they themselves are causal (Varese et al., 2012b; Carr et al., 2013). Some even suggest that only few adversities increase the risk of psychosis (Fisher et al., 2010).

Prospective and case-control studies have found associations between psychosis and different childhood and adolescent adversities. These include sexual abuse (Fennig et al., 2005; Cutajar et al., 2010; Elklit and Shevlin, 2011; McCabe et al., 2012; Varese et al., 2012a); emotional abuse (Whitfield et al., 2005; McCabe et al., 2012; Varese et al., 2012a); physical abuse (Whitfield et al., 2005; Aas et al., 2011;

☆ Financial support. The study was supported by The Regional Health and Research Foundation, Zealand (AMT Grant number 12-000095) and The Lundbeck Foundation (AMT Grant number R93-A8804).

☆☆ This paper is part of the OPUS Zealand research project: Family Intervention in First-episode Psychosis. An investigation of metacognition, expressed emotion and caregiver experiences. From January 1, 2012 the project has the following research group: Erik Simonsen, MD, PhD (PI). Ulrik Haahr, MD (PI). Christopher Hoeier Trier, MSc in Psychology. Marlene Buch Pedersen, MSc in Psychology. Hanne-Grethe Lyse Nielsen, RN. Mette Sjoestroem Petersen, MA (ed) in Educational Psychology, Jens Einar Jansen, PhD. Ulf Soegaard, MD. Anne Marie Trauelsen, MD. From September 1. 2014 Signe Dunker Svendsen, RN.From Psychiatric Research Unit, Psychiatry Region Zealand, Denmark. Early Psychosis Intervention Center, Psychiatry East Region Zealand, Denmark.

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http://dx.doi.org/10.1016/j.schres.2015.03.014
0920-9964/

McCabe et al., 2012; Varese et al., 2012a); parental loss/separation (Agid et al., 1999; Aas et al., 2011); and emotional and physical neglect (McCabe et al., 2012; Varese et al., 2012a). Several of these studies found that the risk of psychosis was associated with some but not other adversities (Aas et al., 2011; McCabe et al., 2012). There is no clear pattern of particular adversities increasing the risk of psychosis. Moreover, in these studies, the adversities in question were not adjusted for other adversities, making it impossible to draw conclusions about whether specific adversities confer a greater risk of psychosis.

Several studies, however, have adjusted for other adversities. They find different adversities to be central for risk of psychosis: physical abuse from the mother (Fisher et al., 2010); physical abuse and violence at home (Shevlin et al., 2007); physical abuse and parental discord (Rubino et al., 2009); sexual and emotional abuse (Daalman et al., 2012) and sexual abuse and victim of serious injury, illness or assault (Bebbington et al., 2004). Additionally, a population study examining specificity between different adversities and psychotic outcomes found that emotional neglect as well as physical, sexual and emotional abuse were equally associated with hallucinations, delusions and paranoia (Van Nierop et al., 2014a). Thus, even studies with greater methodological rigor, regarding specificity, show mixed results as to which specific adversity drives the risk for psychosis. Further to this, adversities often appear together in persons with psychotic disorders (Rosenberg et al., 2007; Ramsay et al., 2011; DeRosse et al., 2014).

While the body of psychosis research has been focused upon a search for specific adversities as risk factors, research into mechanisms and phenomenology of childhood and adolescent adversity may provide clues as to why this approach has not found conclusive results. The focal point in this research has been that persistent adversities are considered traumatizing if they are overwhelming and prevent the organism's return to physiological homeostasis. This mechanism is irrespective of the specific acts or lack of acts, and any abuse or neglect is potentially traumatizing (De Bellis, 2001). There are many examples of unspecific effects of traumatization: the immediate brain response of increased locus coeruleus activity is seen in relation to both fight, flight and freeze responses (Perry and Pollard, 1998; De Bellis, 2001); the stress of different adversities, which is suggested to exert similar effects on cortico-limbic development (Teicher, 2010); and findings of individuals exposed to abuse and/or neglect having changes in brain connectivity networks as a group when compared to persons with no such history (Teicher et al., 2014).

Additionally, no trauma treatment targets single adversities, but rather the consequences caused by traumatization. CBT, which is considered the most validated treatment for children and adolescents with PTSD (Silverman et al., 2008) focuses upon the cognitive, emotional and social consequences of traumatization (Cohen et al., 2006). Likewise, neurodevelopmental treatments seek to improve brain function where it has been impeded by traumatization (Perry, 2006).

An investigation of the construction of adversity assessment tools also calls into question the possibility that specific adversity subcategories tap discrete and encapsulated experiences. For example, in the construction of the Childhood Trauma Questionnaire (CTQ) the created subcategories were not discrete: physical abuse was associated with therapist observation of both physical and emotional abuse (Bernstein et al., 2003).

The mixed findings of associations between different specific adversities and risk of psychosis together with correlations between specific adversities, may suggest that the adversities represent an integrated phenomenon. This raises the issue of whether the focus upon the influence of specific adversities in psychosis research is preventing us from seeing their full effect.

Alongside the substantial overlap between different childhood and adolescence adversities, there are indications of a dose-response effect on the risk of psychosis (Whitfield et al., 2005; Anda et al., 2006; Lataster et al., 2006; Shevlin et al., 2007; Arseneault et al., 2011; Heins et al., 2011; Fawzi et al., 2013). However, some studies have not found an effect (Fisher et al., 2010; Sahin et al., 2013). A dose-response effect implies that each adversity adds extra risk or has an interactive effect in the development of psychosis.

The current study aims, in a case-control design, to explore the relation between adversity specificity and dose-response effect in an epidemiological sample of persons with non-affective first-episode psychosis compared to a non-clinical control group.

2. Method

2.1. Participants

2.1.1. FEP group

Denmark has a nationwide early intervention program (OPUS) for persons with first-episode psychosis (FEP) (Petersen et al., 2005). Inclusion criteria at the time of the study were an ICD-10 diagnosis F20-29, except F21, that was not due to organic causes; as well as being in the 18-35 age range. Exclusion criteria were a previous diagnosis of psychosis. Substance abuse was not an exclusion criterion. The catchment area was Region Zealand (N = 816,359). Everyone commencing treatment between April 1 2011 and April 1 2013 was approached for participation. Additional study criteria were exclusion of persons with insufficient Danish skills to complete the interviews.

2.1.2. Control group

Inclusion criteria were living in Region Zealand, Denmark and being 17 to 34 years of age. Exclusion criteria were any previous psychiatric disorder and insufficient Danish skills to complete the interview. Substance abuse was not an exclusion criterion.

Control persons were matched 1: 1 by gender, age (+/− 1 year), and parental education (+/− 1 one on a 5 point scale). Control persons were recruited through advertisement in newspapers, educational institutions, libraries, and sport clubs, and by word of mouth. They were included from October 1 2013 to May 22 2014. The advertisement did not mention trauma.

2.2. Measures

2.2.1. Adversities

The Childhood Trauma Questionnaire (CTQ) was used for trauma assessment (Bernstein et al., 2003). We used the Danish validated version (Bernstein and Fink, 2011). The CTQ consists of five subcategories, each represented by five questions. The CTQ subcategories were dichotomized using the cut-off scores from moderate to severe as suggested by Bernstein et al. (Bernstein and Fink, 2011). These were 6 for males and females for sexual and physical abuse, 8 for males and 10 for females for emotional abuse, 7 for males and females for physical neglect, and 13 for males and 12 for females for emotional neglect. Separation and institutionalization were assessed with the Childhood Experience of Care and Abuse Questionnaire (CECA.Q) (Smith et al., 2002; Bifulco et al., 2005).

2.2.2. Psychopathology

The OPCRIT diagnostic system was used to obtain ICD-10 diagnoses, based on patient records and a Positive and Negative Symptom Scales (PANSS) interview (Kay et al., 1987). The latter was extended to include life-long symptoms (McGuffin et al., 1991). A psychologist or medical doctor trained by a senior psychiatrist administered the instruments. Control participants were screened with the Mini International Neuropsychiatric Interview (MINI) 6.0 for any prior and present psychiatric diagnoses (Sheehan et al., 2008, p. 0). The first author administered it. Psychiatric illness in first-degree relatives included depression, bipolar, autism and psychotic disorders. These were assessed by interview, either of the person in question or for the FEP group the parent.