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Assessment of posttraumatic symptoms in patients with first-episode psychosis

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Abstract

Posttraumatic Stress Disorder (PTSD) is common among patients with psychotic disorders. The present study examined the internal reliability and comparability of the Impact of Event Scale (IES) in a sample of 38 patients with first-episode psychosis and 47 controls exposed to severe physical and/or sexual abuse. The IES total score and both subscales showed high internal consistency in both groups (Cronbach alpha coefficients of approximately .9 or above). Given their equivalent trauma reporting, the lack of differences in IES scores between patients and controls seems to indicate that patients are likely to report accurately and neither exaggerate nor minimize their posttraumatic symptoms. Overall, the findings suggest that the IES can be used to assess symptoms of posttraumatic stress in patients with psychotic disorders as in other populations.

Keywords

trauma; post-traumatic stress; first-episode psychosis; reliability

Introduction

High rates of trauma exposure exist amongst people with psychosis (Morgan and Fisher, 2007) and not surprisingly, therefore, elevated rates of Posttraumatic Stress Disorder (PTSD), ranging from 17% to 46%, have also been reported in this group (Fan et al., 2008; Gearon et al., 2003). Moreover, having a comorbid diagnosis of PTSD has been demonstrated to negatively impact on the course of severe mental illness (Mueser et al., 2002), indicating that it needs to be identified and treated to improve patients' outcomes.

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Despite this, recognition of PTSD among patients with psychosis and other severe mental disorders is low with only about 2% of patients receiving a documented diagnosis of PTSD (Mueser et al., 1998). Indeed, some controversy still exists regarding the appropriateness of established measures of PTSD in psychosis patients (Rosenberg et al., 2001). Only a few studies have investigated self-rating PTSD instruments, which are more apt for routine screening in clinical practice than lengthy interviews, and these have demonstrated reasonable internal consistency and test-retest reliability (Goodman et al., 1999; Mueser et al., 2001). However, the findings of these studies are limited by reliance on convenience samples of patients with chronic psychotic disorders. Therefore, in this report, data from the Aetiology and Ethnicity of Schizophrenia and Other Psychoses (AESOP) epidemiological study were used to explore the internal reliability and comparability of a commonly used self-rating instrument of posttraumatic symptoms (Impact of Event Scale [IES]; Horowitz et al., 1979) in first-episode psychosis patients and controls who reported childhood sexual or physical abuse.

Method

Participants

The sample was drawn from the AESOP case-control study conducted in 1997–2000 (see Morgan et al., 2006, for full details). Briefly, all patients aged 16–65 years who presented to psychiatric services for the first time with a psychotic disorder within tightly defined catchment areas in Southeast London and Nottingham (UK) were approached. Diagnoses were determined on the basis of consensus meetings involving one of AESOP's principal investigators (J.L., R.M., P.J.) using data from the Schedules for Clinical Assessment in Neuropsychiatry (SCAN; World Health Organisation [WHO], 1994).

For the control group a random sample of individuals aged 16–64 years, who had screened negative for psychotic disorders, was recruited from the population of the same geographical areas as the cases. The sampling procedure was adapted from that used by the Office of Population and Census Statistics Psychiatric Morbidity Survey (Jenkins and Meltzer, 1995). Ethical approval was obtained from the Nottingham and the South London and Maudsley research ethics committees.

In the current analysis, only participants with a history of sexual or physical abuse were included.

Measures

The Childhood Experience of Care Abuse Questionnaire (CECA.Q; Bifulco et al., 2005) was used to retrospectively elicit information concerning childhood abuse before the age of 16 years. The CECA.Q has been shown to have good psychometric properties in community and psychosis samples (Bifulco et al., 2005; Fisher et al., 2011). Physical abuse was considered present if participants reported that either a mother or father figure had hit them more than once prior to 16 years of age and it had resulted in an injury or could have caused harm. Sexual abuse was defined as at least one experience prior to 16 years with an adult or an individual at least 5 years older than the recipient that involved physical contact.

To screen for posttraumatic symptoms, participants reporting physical and/or sexual abuse on the CECA.Q completed the 15-item IES (Horowitz et al., 1979), one of the most widely used self-report measures of posttraumatic stress (Joseph, 2000). Satisfactory internal reliability has been reported for the total IES score and the Intrusion and Avoidance subscales (Horowitz et al., 1979).

Psychotic symptoms over the previous month were assessed using the SCAN (WHO, 1994) as soon as possible after first contact with psychiatric services. Principle axis factor analysis of this data yielded 5 symptom dimensions (Demjaha et al., 2009): Reality Distortion (hallucinations, delusions and thought disorder); Negative symptoms (motor retardation, poverty of speech, flat and incongruous affect and poor non-verbal communication); Depression; Mania; and Disorganisation (incoherent speech and emotional turmoil).

Data analysis

Cronbach's alpha coefficient was calculated to assess the internal consistency of the relevant IES items for each subscale separately for psychosis patients and controls. Mann Whitney U tests were conducted to investigate whether IES scores were similar amongst psychosis patients compared to controls, which was expected given that both groups had experienced severe physical or sexual abuse. This non-parametric test was used as the IES scores were positively skewed. Spearman's correlation coefficient was used to explore the degree of correlation between symptom dimension scores and each of the IES subscales in the patient sample.

Results

Information on childhood abuse was available on 181 psychosis patients and 246 controls (see Fisher et al., 2009, for full details), of whom 63 patients and 70 controls reported experiencing physical and/or sexual abuse. Complete IES data were available on 38 patients (60% female; mean age=31) and 47 controls (53% female; mean age=38), though no significant demographic differences were found between these participants and those without IES data (results not shown). Of this final sample, 20 (53%) patients and 25 (53%) controls reported physical abuse only, 8 (21%) patients and 12 (26%) controls reported contact sexual abuse only, whilst both forms of abuse were reported by 10 (26%) patients and 10 (21%) controls. For the latter group who completed the IES twice (once in relation to physical abuse and again for sexual abuse), the index event with the highest IES total score was used for the analysis and this pertained to physical abuse for half of the cases and controls.

High levels of internal consistency were found for all IES subscales amongst both psychosis patients (Intrusion =.907; Avoidance =.906; Total =.943) and controls (Intrusion =.889; Avoidance =.940; Total =.950). In accordance with the criteria outlined by Bland and Altman (1997), these alpha coefficients demonstrate that the IES has extremely good internal reliability even amongst those with a diagnosis of psychosis and indeed is suitable for use in a clinical context (alphas approximately 0.9 or above).

The mean, median and range of scores for each IES subscale are presented in Table 1 separately for psychosis cases and controls together with statistical comparisons between the two groups. Participants with and without psychosis reported similar levels of posttraumatic stress symptoms over the week prior to interview and almost identical proportions met approximated criteria for clinical disorder (cut off of 35 on IES-Total; Neal et al., 1994).

Higher IES intrusion scores were significantly associated with lower endorsement of positive psychotic symptoms (reality distortion dimension). None of the other symptom dimensions demonstrated significant correlations with either the intrusion or avoidance IES subscales. However, the second largest correlation coefficient was evident for depression and intrusions, indicating a positive association between these symptoms, though it failed to reach conventional levels of statistical significance ($p=.151$). Approximately half of the sample scored 0 on the IES suggesting that they were not currently experiencing any posttraumatic symptoms, but the correlations remained largely the same when they were

excluded from the analysis. Additionally, restricting the analysis to those scoring in the top quartile on each IES subscale did not substantially alter the results (data not shown), indicating that the findings were similar even when considering only those with the most severe posttraumatic symptoms.

Discussion

The findings of this study suggest that the IES has excellent internal reliability amongst psychosis patients, which is comparable to other samples of traumatised individuals (Joseph, 2000). Moreover, most psychotic dimensions as measured by the SCAN demonstrated no significant associations with posttraumatic symptoms. However, a significant negative correlation between the IES intrusion score and positive psychotic symptoms on the SCAN was found. This result was somewhat unexpected but fits with Ivezić et al.'s (2000) conclusions that hallucinations are qualitatively different from re-experiencing phenomena in PTSD. Alternatively, deficits in autobiographical memory, which have been frequently described in patients with schizophrenia, could be responsible for this relationship. An increase in delusions and thought disorder in persons who report fewer traumatic intrusions could be explained by assuming that, in these patients, traumatic memory intrusions are not recognized as such, and then form the basis for psychotic symptoms (Moskowitz et al., 2008). Another reason for the negative correlation between positive psychotic symptoms and intrusions could be the composition of the SCAN reality distortion subscale. While hallucinations have been associated with both traumatic experiences (e.g. Hardy et al., 2005) and posttraumatic stress disorder (e.g. Gracie et al., 2007), the negative correlation could be due to the delusions and thought disorder components. Finally, as numerous correlations were calculated between the subscales of the IES and the subscales of the SCAN, the significant negative relationship between intrusions and positive psychotic symptoms might reflect a type I error.

These findings extend results of previous studies utilising convenience samples of mainly chronic patients and the inclusion of a control group allowed us to validate the findings in the psychosis group. A limitation of this study is the use of the IES which does not measure hyperarousal and therefore has limited content validity as a measure of PTSD diagnosis. The relatively small sample size resulted in insufficient power to robustly detect statistically significant correlations between the IES and psychosis symptom dimensions. Moreover, as no clinical interview was used to confirm clinical diagnoses of PTSD, no conclusions can be drawn about the utility of the IES as a screening instrument for the disorder in people with a first episode of psychosis. Furthermore, not all participants who reported childhood abuse in the AESOP study completed the IES and although there were no demographic differences between completers and non-completers it is possible that the sample may have been biased. Therefore, replication is required in larger, more representative samples before any firm conclusions can be drawn. Nevertheless, this study provides preliminary evidence that the IES can be used to assess posttraumatic symptoms in patients with psychotic disorders as reliably as in other populations.

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References

- Bifulco A, Bernazzani O, Moran PM, Jacobs C. The childhood experience of care and abuse questionnaire (CECA.Q): validation in a community series. *Br J Clin Psychol.* 2005; 44:563–581. [PubMed: 16368034]
- Bland JM, Altman DG. Cronbach's alpha. *BMJ.* 1997; 314(7080):572. [PubMed: 9055718]
- Demjaha A, Morgan K, Morgan C, Landau S, Dean K, Reichenberg A, Sham P, Fearon P, Hutchinson G, Jones P, Murray R, Dazzan P. Combining dimensional and categorical representation of psychosis: the way forward for DSM-V and ICD-11? *Psychol Med.* 2009; 39:1943–1955. [PubMed: 19627645]
- Fan X, Henderson D, Nguyen D, Cather C, Freudenreich O, Evins A, Borba C, Goff DC. Posttraumatic stress disorder, cognitive function and quality of life in patients with schizophrenia. *Psychiatry Res.* 2008; 159:140–146. [PubMed: 18423611]
- Fisher HL, Craig TK, Fearon P, Morgan K, Dazzan P, Lappin J, Hutchinson G, Doody GA, Jones PB, McGuffin P, Murray RM, Leff J, Morgan C. Reliability and comparability of psychosis patients' retrospective reports of childhood abuse. *Schizophr Bull.* 2011; 37:546–553. [PubMed: 19776204]
- Fisher H, Morgan C, Dazzan P, Craig TK, Morgan K, Hutchinson G, Jones PB, Doody GA, Pariante C, McGuffin P, Murray RM, Leff J, Fearon P. Gender differences in the association between childhood abuse and psychosis. *Br J Psychiatry.* 2009; 194:319–325. [PubMed: 19336782]
- Gearon JS, Kaltman S, Brown C, Bellack AS. Traumatic life events and PTSD among women with substance use disorders and schizophrenia. *Psychiatr Serv.* 2003; 54:523–528. [PubMed: 12663840]
- Gracie A, Freeman D, Green S, Garety PA, Kuipers E, Hardy A, Ray K, Dunn G, Bebbington P, Fowler D. The association between traumatic experience, paranoia and hallucinations: a test of the predictions of psychological models. *Acta Psychiatr Scand.* 2007; 116:280–289. [PubMed: 17803758]
- Goodman LA, Thompson KM, Weinfurt K, Corl S, Acker P, Mueser KT, Rosenberg SD. Reliability of reports of violent victimization and posttraumatic stress disorder among men and women with serious mental illness. *J Trauma Stress.* 1999; 12:587–599. [PubMed: 10646178]
- Hardy A, Fowler D, Freeman D, Smith B, Steel C, Evans J, Garety P, Kuipers E, Bebbington P, Dunn G. Trauma and hallucinatory experience in psychosis. *J Nerv Ment Dis.* 2005; 193:501–507. [PubMed: 16082293]
- Horowitz M, Wilner N, Alvarez W. Impact of Event Scale: a measure of subjective stress. *Psychosom Med.* 1979; 41:209–218. [PubMed: 472086]
- Ivezic S, Bagaric A, Oruc L, Mimica N, Ljubic T. Psychotic symptoms and comorbid psychiatric disorders in Croatian combat-related posttraumatic stress disorder patients. *Croat Med J.* 2000; 41(2):179–183. [PubMed: 10853048]
- Jenkins R, Meltzer H. The national survey of psychiatric morbidity in Great Britain. *Soc Psychiatry Psychiatr Epidemiol.* 1995; 30:1–4. [PubMed: 7892612]
- Joseph S. Psychometric evaluation of Horowitz's Impact of Event Scale: a review. *J Trauma Stress.* 2000; 13:101–113. [PubMed: 10761177]
- Morgan C, Dazzan P, Morgan K, Jones P, Harrison G, Leff J, Murray R, Fearon P. First episode psychosis and ethnicity: initial findings from the AESOP study. *World Psychiatry.* 2006; 5:40–46. [PubMed: 16757995]
- Morgan C, Fisher H. Environmental factors in schizophrenia: childhood trauma--a critical review. *Schizophr Bull.* 2007; 33:3–10. [PubMed: 17105965]
- Moskowitz, A.; Nadel, L.; Watts, P.; Jacobs, WJ. Psychosis, trauma and dissociation: Emerging perspectives on severe psychopathology. Moskowitz, A.; Schäfer, I.; Dorahy, MJ., editors. Wiley; London: 2008. p. 65-78.
- Mueser KT, Goodman LB, Trumbetta SL, Rosenberg SD, Osher C, Vidaver R, Auciello P, Foy DW. Trauma and posttraumatic stress disorder in severe mental illness. *J Consult Clin Psychol.* 1998; 66:493–499. [PubMed: 9642887]
- Mueser KT, Rosenberg SD, Goodman LA, Trumbetta SL. Trauma, PTSD, and the course of severe mental illness: an interactive model. *Schizophr Res.* 2002; 53:123–143. [PubMed: 11728845]

- Mueser KT, Salyers MP, Rosenberg SD, Ford JD, Fox L, Carty P. Psychometric evaluation of trauma and posttraumatic stress disorder assessments in persons with severe mental illness. *Psychol Assess.* 2001; 13:110–117. [PubMed: 11281032]
- Neal LA, Busuttill W, Rollins J, Herepath R, Strike P, Turnbull G. Convergent validity of measures of post-traumatic stress disorder in a mixed military and civilian population. *J Trauma Stress.* 1994; 7:447–455. [PubMed: 8087405]
- Rosenberg SD, Mueser KT, Friedman MJ, Gorman PG, Drake RE, Vidaver RM, Torrey WC, Jankowski MK. Developing effective treatments for posttraumatic disorders among people with severe mental illness. *Psychiatr Serv.* 2001; 52:1453–1461. [PubMed: 11684740]
- World Health Organisation. Schedules for the Clinical Assessment of Neuropsychiatry. World Health Organisation; Geneva: 1994.

Table 1
Comparison of IES scores between psychosis patients and controls.

IES score	Patients (N=38) <i>Mean (SD)</i> <i>Median (range)</i>	Controls (N=47) <i>Mean (SD)</i> <i>Median (range)</i>	<i>U</i> <i>(p)</i>	Patients >34	Controls <34	χ^2 <i>(p)</i>
Intrusion	6 (8.3) 1 (0 - 27)	4 (6.4) 0 (0 - 23)	785.5 (.297)	-	-	-
Avoidance	6 (9.6) 0 (0 - 36)	8 (12.0) 0 (0 - 34)	888.0 (.961)	-	-	-
Total	12 (16.9) 1 (0 - 54)	12 (17.6) 0 (0 - 57)	857.5 (.737)	15.8%	14.9%	.013 (.572)

Notes. IES: Impact of Event scale; *p*: p-value; SD: Standard deviation; *U*: Mann Whitney test statistic; χ^2 : Chi-squared test statistic.

Table 2
Spearman's rho correlations of IES scores with psychotic symptom dimensions amongst patients

Symptom dimension	IES – Intrusion <i>rho (p)</i>	IES – Avoidance <i>rho (p)</i>	IES – Total <i>rho (p)</i>
Reality distortion	–.362 (.046)	–.210 (.257)	–.267 (.147)
Negative symptoms	.085 (.753)	.189 (.483)	.158 (.560)
Depression	.342 (.151)	.230 (.343)	.328 (.171)
Mania	–.215 (.205)	–.084 (.625)	–.140 (.414)
Disorganisation	.044 (.801)	.100 (.562)	.070 (.685)

Notes. IES: Impact of Event scale; *p*: p-value; Rho: Spearman's correlation coefficient.