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IMPACT OF CHILDHOOD TRAUMA ON RISK OF RELAPSE REQUIRING PSYCHIATRIC HOSPITALISATION IN PSYCHOSIS

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SUMMARY

Relapse in psychosis typically necessitates hospitalisation placing a significant financial burden on the health service. Exposure to childhood trauma (CT) is associated with an increased risk of psychosis, however, the extent to which this influences relapse is unclear. This report summarizes current research investigating the influence of CT on relapse requiring psychiatric hospitalisation in psychosis (RRPH-P). Seven studies were included; two revealed a positive association between CT and RRPH-P, two studies found a negative relationship and three found no significant difference between individuals with or without CT exposure. Inconsistent current evidence suggests a need for further research in this area.

DECLARATION OF INTEREST

None.
INTRODUCTION
Rate of relapse amongst individuals with psychosis is high\(^1\) and typically necessitates hospitalisation or intensive intervention from a community crisis-team. Service cost for individuals who relapse is four times greater than for those who do not\(^2\). Hence, preventing relapse of psychosis is an urgent challenge for any health service.

Severe and victimising childhood trauma (CT) may lead to worse long-term outcome of psychotic illness\(^3\) and thus more frequent relapses, though the evidence is equivocal\(^4\). This report summarizes available research investigating the influence of CT on relapse requiring psychiatric hospitalisation in patients with psychosis (RRPH-P). CT is defined as including physical, sexual or emotional abuse, or physical or emotional neglect. Relapse has ordinarily been identified as a change in symptom severity or functioning and has been indexed using clinical rating instruments. For the purpose of this report, we have defined relapse as indicating ‘hospitalisation’. As an outcome measure, hospitalisation is a clear, objective and reliable measure that has high face validity, is less vulnerable to bias and comparable across studies, and has implications for utilisation of health care resources.

METHOD
A more detailed description of the methods is available as part of Supplementary Methods. Relevant studies were identified by searching four electronic databases in February 2015 using search terms derived from those used in previous literature\(^5\). The term ‘relapse’ in this report referred to ‘hospital admissions’ only and not changes in symptom severity or functioning. Three researchers (N.P., E.F., E.K.) followed a four-phase protocol to identify relevant studies (see Supplementary Material 1 & 2). Studies were included if they examined outcome as relapse/episode of illness resulting in psychiatric hospitalisation and included adults diagnosed with affective or non-affective psychosis, who had experienced CT. Quality and methodological robustness (see Supplementary Material 3), were examined using an amended quality assessment tool\(^6\).

RESULTS
Additional material is available as part of Supplementary Results. A final set of seven studies published between 2005 and 2013 matched the inclusion and exclusion criteria\(^7\)-\(^13\). They reported on a total sample of 946 participants, mostly diagnosed with an affective psychotic disorder with almost half reporting to have experienced CT. Largely, RRPH-P data were gathered by screening clinical records and CT data were collected retrospectively using standardised self-report measures (see Table 1). Two studies\(^9,13\) used observer-rated interviews, which extract fine-grained information on CT (e.g. timing/severity) and can therefore offer a more precise measurement of the bearing of stressful life experiences on an individual than self-report measures.
Average quality score amongst the seven included studies was 8.4 out of a possible 16 (median=9; range 4-11). Only one study\textsuperscript{8} scored above the threshold suggested for methodological robustness (≥70% of total quality score). Studies were limited by modest sample size, lack of valid data collection methods and lack of adjustment for confounders.

**Relationship between Childhood Abuse and RRPH-P**

No consistent pattern demonstrating the influence of CT on RRPH-P emerged (see Table 1). Two studies\textsuperscript{7,9} reported a significant difference in RRPH-P between patients with a pre-existing disorder with or without a history of CT, with the former having more hospitalisations. Both studies included individuals who had been unwell for at least 15 years on average. However, Alvarez et al.\textsuperscript{7} reported this effect as significant only in patients with bipolar affective disorder, not in those with schizophrenia and schizoaffective disorder, despite the latter constituting the major proportion (61%) of participants included in the study.

Two studies\textsuperscript{8,11} reported a negative relationship between CT and RRPH-P. However, Conus et al. noted that individuals with a history of childhood sexual or physical abuse were more likely to disengage from treatment (p = 0.017). Interestingly, this group were the only sample with early psychosis included in this report. Larsson et al. also reported a significant non-linear association between total CT (df = 8.73, p = 0.038) and sexual abuse (df = 2.8, p = 0.009) and psychotic episodes. However, whether these psychotic episodes described resulted in psychiatric hospitalisation was not specified.

Three studies\textsuperscript{10,12,13} included in this report did not find a significant difference in RRPH-P between individuals with a history of CT and those without. Garno and colleagues did note increased past year rapid cycling in individuals with a history of childhood emotional abuse, physical abuse and emotional neglect in bipolar patients, but did not specify whether rapid cycling resulted in hospitalisation. Brown et al. found that individuals with a history of any type of childhood abuse were more likely to be admitted to psychiatric hospital involuntarily at index episode (i.e. time of recruitment into the study) compared to those with no abuse (p=0.029, OR=2.37, CI 1.10-5.14). However, a significant difference in the number of hospitalisations or number of days spent in hospital in the past 5 years was not revealed between those with a history of childhood abuse and those without. The sample included in Brown et al. overlapped with another study\textsuperscript{14} identified through reference screening, however the latter included a smaller sample size and thus was excluded from this report.
DISCUSSION

These results suggest that evidence on the effect of CT on risk of relapse of psychotic illness is limited, thus supporting a recent review and meta-analysis investigating the effects of trauma on the persistence of psychotic symptoms. Overall, the evidence does not support a consistent pattern of effect of CT on risk of hospitalisation, most likely related to heterogeneity in methodology and outcomes of interest in the studies included. Studies that demonstrated a significant association between CT and RRPH-P included chronic samples, suggesting that stage of illness may have an impact on outcome. Length of follow-up period, for the two studies that reported a follow-up period, did not appear to have an effect on the findings (see Table 1).

All of the studies included in the report scored poorly when assessed for methodological quality. Overall, the main limitations (also see Supplementary Discussion) of the reviewed studies include: i) small and heterogeneous samples, which limit the exploration of dose-response relationships, prevent comparisons and the ability to control for potential confounding effects; ii) diverse methodologies, making it difficult to compare and draw conclusions; iii) use of retrospective methods to collect CT data, which are particularly challenging in patients with psychosis because of the risk of poor event-recall; and iv) lack of adequate consideration of potential confounders, particularly those relevant to relapse e.g. cannabis use. Heterogeneity amongst the studies included in this report precluded any quantitative synthesis and estimation of a pooled effect-size of the association between CT and RRPH-P.

It is important to note that this report is limited by the restrictive criteria for the outcome of interest, that is, relapse defined as psychiatric hospitalisation, as opposed to symptom severity and/or functional decline. Hospitalisation figures, which may be influenced by factors other than relapse, may not be representative of the actual number of individuals with psychosis who experience relapse. However, measurement of hospitalisation is perhaps more reliable, objective and comparable across studies in comparison to measurements based upon the recording of change in symptom severity. Exclusion of additional types of CT (e.g. bullying/parental loss) may also limit generalisability of these findings. Despite these weaknesses, the current report suggests that there is little evidence available to suggest a discernible effect of CT on RRPH-P and highlights the need for more research. This may imply that for some individuals, social or environmental factors have less bearing on the natural path of their illness or may merely reflect that CT history is not routinely recorded in clinical practice, particularly to the extent that other risk factors for poor outcome are.
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REFERENCES
