Re-experiencing phenomena following a disaster: The long-term predictive role of intrusion symptoms in the development of post-trauma depression and anxiety

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ABSTRACT

Background: Contention in the literature regarding the diagnostic utility of intrusion symptoms highlights that they have high sensitivity but low specificity in predicting PTSD. They are highly prevalent following a range of traumatic events, and across a range of disorders. The prevalence of intrusion symptoms in the absence of PTSD suggests their relevance to the development of other psychopathology. Therefore, the predictive role of intrusion symptoms for other post-trauma psychopathology was examined using data from an epidemiological, longitudinal sample of adults recruited in childhood.
Method: From 5 phases of data collection for this sample, these analyses focused on the 20 year and 28 year follow-ups ($n=583$). Lifetime exposure to trauma was assessed using a modified set of 10 Criterion-A events from the Composite International Diagnostic Interview (CIDI), with PTSD assessed in reference to a self-nominated worst lifetime event, and other DSM-IV disorder also assessed using the CIDI.
Results: Results showed that the presence of intrusion symptoms without PTSD at the 20 year follow-up was predictive of increased risk at 28 years for depressive but not anxiety disorders.
Limitations: There was limited psychopathology in the sample, reducing the power to examine many individual disorders. Furthermore, trauma history and psychiatric symptoms were retrospectively reported, introducing the possibility of recall bias.
Conclusion: Together the findings suggest that intrusion symptoms may play an aetiological role in the development and/or maintenance of disorders other than PTSD.

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1. Introduction

Theoretical modelling has emphasised how traumatic memories account for the relationship between trauma and other PTSD symptoms (McFarlane, 1992; McFarlane, 2010a, 2010b; Strachey et al., 1955). Contention exists however, regarding the diagnostic utility of these symptoms to PTSD. Intrusions (memories, nightmares, flashbacks and other uncontrolled reactivity to traumatic stimuli), have high sensitivity but low specificity in predicting PTSD, but are highly prevalent following trauma (McFarlane, 1988; Michael et al., 2005; North et al., 1999; Shalev, 1992). Additionally, clinical studies show that intrusions are common in disorders other than PTSD (Brewin et al., 1996, 1998a; Carlier et al., 2000; Parry and O'Kearney, 2013; Kuyken and Brewin, 1994; Reynolds and Brewin, 1998; Spenceley and Jerrom, 1997; Whitaker et al., 2008).

Longitudinal studies have also shown associations between intrusions and depression and anxiety (Joseph et al., 1994, 1995; Kraaij and Garnefski, 2006), in particular a positive dose-response relationship between intrusions and depression and anxiety over time (Brewin et al., 1998b; Epping-Jordan et al., 1999; Hipkins et al., 2004). These findings suggest intrusions may (1) be involved in the aetiology of these disorders, and/or (2) be indicative of a predisposition to poorer mental health outcomes more generally. Some evidence supports a general disorder pathway (and shared neurobiology) (Olff et al., 2005); intrusions may otherwise emerge in the context of other disorders as an epiphenomenon (Parry and O'Kearney, 2013). Previous research however is limited by cross-sectional designs, focus on clinical samples, and by use of self-report measures.

This longitudinal epidemiological study examines the utility of intrusions for predicting disorders other than PTSD over time, in a sample of adults exposed to a natural disaster in childhood. Specifically, we examined whether intrusions, in the absence of PTSD, could predict 12-month DSM-IV anxiety and depressive disorder 6 to 8 years later using a structured diagnostic interview.

Table 1
Simple logistic regressions of Intrusions in those who did not meet PTSD criteria at Phase 4, predicting 12 month CIDI disorder at Phase 5 ($n=583$).

	Excluded due to pre-trauma disorder	Intrusion criteria not met ($n=316$)	Intrusion criteria met ($n=267$)	OR	p
MDD (hierarchy)	35	3 (0.9%)	12 (4.5%)	5.07 (1.41, 18.17)	0.013
Dysthymia	3	1 (0.3%)	2 (0.7%)	2.41 (.22, 26.77)	ns
Any post-trauma depression	**36**	**4 (1.3%)**	**13 (4.9%)**	**4.08 (1.31, 12.66)**	**0.015**
Panic disorder	10	3 (0.9%)	2 (0.7%)	0.81 (0.13, 4.90)	Ns
Agoraphobia	6	–	–	–	–
Specific phobia	41	12 (3.8%)	14 (5.2%)	1.53 (0.69, 3.38)	Ns
Social phobia	38	3 (0.9%)	11 (4.1%)	4.80 (1.32, 17.39)	0.017
OCD	14	2 (0.6%)	1 (0.4%)	0.60 (.05, 6.68)	Ns
GAD	14	2 (0.6%)	5 (1.9%)	1.08 (.59, 16.01)	Ns
Any post-trauma anxiety	**76**	**20 (6.3%)**	**22 (8.2%)**	**1.53 (0.81, 2.88)**	**Ns**
PTSD[*]	–	9 (2.8%)	11 (4.1%)	1.48 (0.61, 3.64)	Ns
Any post-trauma disorder	**96**	**23 (7.3%)**	**29 (10.9%)**	**1.82 (1.02, 3.23)**	**0.043**

[*] Note all PTSD cases pre-dating Phase 5 excluded from analyses.

2. Material and methods

2.1. Participants

The sample comprised adults originally from the South-East of South Australia. Details of the recruitment of the broader sample have been provided elsewhere (McFarlane and Van Hooff, 2009). To date, there have been 5 phases of data collection; this study is limited however to phases 4 (20 year follow-up) and 5 (28 year follow-up). The analysis sample (with data from both Phase 4 and Phase 5) included 583 adults aged 30–43 years ($M=36.5$, $SD=2.2$) of which 52% were female ($n=314$).

2.2. Measures

2.2.1. Lifetime trauma

Lifetime trauma was assessed at phase 4 using a modified set of 10 Criterion-A events from the Composite International Diagnostic Interview (CIDI) (World Health Organization, 1997). Participants were asked to nominate their worst lifetime event, with PTSD assessed in reference to this. Number of traumas was calculated according to the number of different event types reported.

2.2.2. Post trauma DSM-IV disorder

DSM-IV disorder at phase 4[1] and 12-month DSM-IV disorder at phase 5 were assessed using the CIDI, a structured, standardised, comprehensive computer assisted interview based on the Diagnostic and Statistical Manual for Mental Disorders – 4th edition (DSM-IV; American Psychiatric Association, 1994). At phase 4, the CIDI 2.1 (Kessler and Üstun, 2004) was used. Phase 5 employed the World Mental Health Version of the CIDI (WMH-CIDI 3.0).[2]

Consistent with DSM-IV, participants met intrusion criteria for PTSD if they endorsed at least one intrusion symptom. Phase 4 DSM-IV Disorder and 12 month DSM-IV disorder at Phase 5 were also summarised as follows: any affective disorder (Major Depressive Disorder and dysthymia), any anxiety disorder (panic disorder, obsessive compulsive disorder, generalised anxiety disorder, specific phobia, social phobia, and agoraphobia) and any

disorder (combining all affective and anxiety). Phase 5 12-month DSM-IV PTSD was examined separately as an outcome variable.

2.3. Procedure

Phases 4 and 5 data collection used similar protocols, with details presented elsewhere (McFarlane and Van Hooff, 2009).

2.4. Statistics

Descriptive statistics were used to examine the frequency and proportion of participants with intrusions, with and without PTSD at Phase 4. After removing those who met lifetime PTSD criteria at phase 4 ($N=68$), Simple and multiple logistic regressions were conducted using phase 4 intrusions as the predictor, and Phase 5 DSM-IV disorders as the outcome. As well as pre-trauma disorder, female gender, age at worst trauma, and number of traumas, Phase 4 disorders were included as covariates in all models.

3. Results

At Phase 4, following their worst trauma 535 participants (62.8%) had intrusions, with only 68 (12.7%) meeting DSM-IV criteria for lifetime PTSD.

Simple logistic regressions using the sample at Phase 5 ($N=583$) showed that in the absence of meeting criteria for PTSD, intrusions at Phase 4 predicted 12-month Major Depressive Disorder (MDD), any affective disorder, Social Phobia and any disorder (see Table 1) assessed at Phase 5. The strongest association was with twelve month MDD at Phase 5: those who reported intrusions were 5 times more likely than those who did not, to have MDD.

As can be seen in Table 2, when the predictive effects of intrusions at Phase 4 on 12-month psychiatric disorder at Phase 5 were examined in multivariate models, the significant relationship with depressive disorder remained. Those respondents who had intrusions at Phase 4 were more than 4 times more likely to have a 12 month depressive disorder at Phase 5, even after accounting for post-trauma depressive disorder measured at Phase 4, pre-trauma depressive disorder, and a range of demographic variables. The only other significant predictor was Phase 4 depressive disorder. For anxiety[3] and CIDI disorders more generally, the most important predictors were Phase 4 disorders, with no effects of intrusions at Phase 4. However, it is important to note

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[1] DSM-IV disorder at phase 4 was limited to disorder that developed following the age at which the worst lifetime trauma was experienced. Participants who reported experiencing a disorder prior to their worst event ($N=121$) were excluded from analyses to ensure the sample only included post-trauma episodes of each disorder. For example, 'any depression' excluded those with any pre-trauma depression, 'any anxiety' excluded those with any pre-trauma anxiety, and 'any CIDI disorder' excluded those with any pre-trauma anxiety or depression.

[2] Research psychologists who had extensive experience and training in telephone recruitment, interviewing and psychiatric assessment conducted the interviews. A panel consisting of a psychiatrist and three research psychologists reviewed the scoring of structured interviews on a weekly basis.

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[3] Note that there were no significant effects for any individual anxiety disorder variables in the multivariate models.