



Brief report

Positive schizotypy and trait dissociation as vulnerability factors for post-traumatic distress

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Objective. This study investigated whether trait positive schizotypy or trait dissociation was associated with increased levels of data-driven processing and symptoms of post-traumatic distress following a road traffic accident.

Methods. Forty-five survivors of road traffic accidents were recruited from a London Accident and Emergency service. Each completed measures of trait positive schizotypy, trait dissociation, data-driven processing, and post-traumatic stress.

Results. Trait positive schizotypy was associated with increased levels of data-driven processing and post-traumatic symptoms during a road traffic accident, whereas trait dissociation was not.

Conclusions. Previous results which report a significant relationship between trait dissociation and post-traumatic symptoms may be an artefact of the relationship between trait positive schizotypy and trait dissociation.

Cognitive models of PTSD (Brewin, 2001; Ehlers & Clark, 2000) highlight the critical role of peri-traumatic information processing (i.e. processing at the time of the traumatic event) in determining whether an individual will suffer from subsequent trauma-related intrusions or 'flashbacks'. Ehlers and Clark (2000) argue that a temporary shift in perceptual, or data-driven processing, whereby the 'trauma memory is poorly elaborated and inadequately integrated into its context in time, place, subsequent and previous information' (p. 7) underlies the formation of 'flashbacks'. Whilst cognitive models of PTSD predominantly focus on how trauma-related intrusions are developed and maintained, little is known about which type of individual may be particularly vulnerable to data-driven processing during a trauma, and the consequent symptomatology. Although there are some reports of trait dissociation predicting

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symptoms of PTSD (e.g. Murray, Ehlers, & Mayou, 2002), this relationship remains to be clarified.

It is widely recognized that PTSD is only one of a number of potential reactions to traumatic events. For instance, there has been a recent increase in interest in the relationship between stressful or traumatic events and psychotic symptoms (see Morrison, Frame, & Larkin, 2003 for a review). There is much evidence that people with psychosis have suffered a high number of traumatic experiences (e.g. Neira, Bromet, Sievers, Lavelle, & Fochtmann, 2002). However, methodological difficulties have limited the opportunity to directly study the impact of stressful and traumatic events on a patient sample. Research in the area of psychosis has benefited from adopting a continuum approach, where psychotic experiences are considered to occur throughout the normal population (e.g. Claridge, 1990). On this basis, the term 'schizotypy' has been used to describe personality traits which occur within the normal population. It is of interest to note that individuals who score high on positive schizotypy (the dimension associated with the positive symptoms of schizophrenia) also tend to score high on trait dissociation (Merckelbach, Rassin, & Muris, 2000; Startup, 1999).

The current study aims to investigate the reactions of individuals who score high on a measure of positive schizotypy (Mason, Claridge, & Jackson, 1995) to a stressful or traumatic event. Given the relationship between schizotypy and dissociation, we aim to explore which of these two variables is more strongly associated with data-driven processing and subsequent PTSD symptomatology. We recruited people who had recently been involved in a road traffic accident and had required hospital treatment.

Method

Participants

Forty-five individuals (16 female and 29 male) were recruited from the Accident and Emergency Department of Kings College Hospital, London. They were interviewed between 7 and 31 days after being involved in a road traffic accident. The average age was 34.2, ranging from 20 to 56 years.

Measures

The Revised Dissociative Experiences scale (DES-II; Carlson & Putnam, 1993)

Participants indicate the percentage of time they have a given dissociative experience in their daily life, from 0 (never) to 100% (always), on each of 28 items.

The Oxford-Liverpool Inventory of Feelings and Experiences (O-LIFE; Mason et al., 1995)

In order to maintain validity and reliability, the whole 160 item questionnaire was used. However, only the positive schizotypy subscale, unusual experiences, is subsequently reported.

Post-traumatic Diagnostic scale (PDS; Foa, Cashman, Jaycox, & Perry, 1997)

Participants rate how much they were affected by each of the PTSD symptoms specified in DSM-IV (APA, 1994). Items range from 0 (never) to 3 (5 times/week or more/very severe/nearly always).

Data-Driven Processing scale (DDP; Ehlers, 1998: As cited in Halligan, Michael, Clark, & Ehlers, 2003)

The DDP is an 8-item measure that assesses the extent to which participants report primarily engaging in surface level perceptual processing during their trauma for example, 'It was just like a stream of unconnected impressions following each other'.

Procedure

Participants gave their written informed consent to the study. Their demographic details and accident characteristics were then obtained. The DES-II was completed, followed by the O-LIFE, PDS, and DDP measures.

Results

All data were of a near normal distribution. Parametric correlations were carried out between all measures with age, and *t* tests were performed to explore any differences with relation to gender. None reached significance. The mean PDS symptom score (14.2) indicated a moderate level of symptoms associated with PTSD (Foa *et al.*, 1997).

Multiple regression analyses were performed in order to investigate associations with post-traumatic symptoms (PDS). The personality measures (DES-II and UnEx) were entered into Step 1, and data-driven processing (DDP) added in Step 2. As can be seen from Table 1, UnEx is significantly associated with PDS, whereas DES-II is not. However, the relationship between UnEx and PDS was subsumed by the significant relationship between DDP and PDS, suggesting that DDP may be a mediator between UnEx and PDS. The mediating role of DDP was confirmed by a Sobel test ($z = 2.68, p < .01$).

Table 1. Regression analyses for associations with PDS

Step	β^a	<i>t</i>	<i>p</i>
(1) DES-II	0.054	0.334	.74
UnEx	0.390	2.403	.02
(2) DES-II	0.055	0.379	.71
UnEx	0.170	1.083	.28
DDP	0.487	3.490	.001

PDS, post-traumatic diagnostic scale; DES-II, dissociative experiences scale; UnEx, unusual experiences subscale of the O-LIFE indicating positive schizotypy; DDP, data-driven processing scale.

^aStandardized β values.

Items in the PDS ask participants to rate their experiences during the previous month. Participants within this study were instructed to only consider the length of time since their RTA, which was 1 month or under. There was no relationship between the number of days between the RTA and the interview, and subsequent PDS total score ($r = -.03, p = .83$).

Discussion

The current study explored the relationship between positive symptom schizotypy, trait dissociation and post-traumatic symptomatology following a road traffic accident.

The key results are that positive schizotypy was significantly associated with post-traumatic symptoms, whereas trait dissociation was not. Importantly, peri-traumatic information processing style (data-driven processing) was shown to mediate the relationship between personality type (positive schizotypy) and post-traumatic symptoms. Thus, these results support the role of data-driven processing within the development of PTSD (Ehlers & Clark, 2000), but fail to support the role of trait dissociation as a vulnerability factor (Murray *et al.*, 2002). It is of interest that part of the association between schizotypy and dissociation can be explained by common items within the questionnaires, which have been removed in a previous study (Startup, 1999). However, despite the strong association between the personality types (Merckelbach *et al.*, 2000; Startup, 1999), the current results suggest distinct relationships with post-traumatic symptomatology. It would, therefore, seem important to include a measure of positive schizotypy within future studies to help clarify this issue.

The conclusions that can be drawn from the current study are limited by the retrospective nature of the data (within a 1 month post-trauma), and the cross-sectional analyses. However, the current finding of a relationship between positive schizotypy and post-traumatic symptoms is supported by an earlier prospective, controlled laboratory experiment in which non-clinical participants watched a stressful-film (Holmes & Steel, 2004). Results showed a significant relationship between positive schizotypy and the frequency of film-related intrusive memories which occurred within the subsequent week. The current results also support the relationship between positive schizotypy and post-traumatic symptoms observed within individuals referred for psychological treatment of PTSD (Marzillier & Steel, 2007).

Current and previous results suggest that positive schizotypy may be an important factor in understanding peoples' responses to stressful and traumatic events. These findings have been incorporated into a recent information processing account of traumatic intrusions in psychosis (Steel, Fowler, & Holmes, 2005). This approach is based on high scoring schizotypes exhibiting a 'baseline' information processing style which is akin to a high level of data-driven processing. Any further shift in data-driven processing resulting from a traumatic event will therefore make these individuals particularly prone to more frequent traumatic intrusions. Further, high scoring schizotypes difficulties in source monitoring difficulties (Laroi, Van der Linden, & Marczewski, 2004) may result in a failure to identify such intrusions as originating from the memory of a previously experienced event. Within this context, individuals may make an external appraisal as to the origin of their traumatic intrusions. The experience of 'having distressing images or thoughts placed into your head', that is 'thought insertion' is an experience frequently reported by some individuals diagnosed with schizophrenia. It is therefore possible, for at least some individuals, that a vulnerability to data-driven processing during stressful events, and the consequent intrusive memories, may be relevant to the transition to psychosis.

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