The Complex Overlap between Dissociation and Schizotypy

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6.1 Introduction

Dissociative experiences include subjective phenomena such as derealization, absorption and memory complaints. In their mild form, such experiences are quite common in the normal population (Ross, Joshi and Currie, 1991). Dissociative symptoms are typically conceptualized as forming a continuum that ranges from the minor absentmindedness of everyday life to major forms of psychopathology (Fischer and Elnitsky, 1990). Dissociation is particularly pronounced in patients suffering from dissociative disorders (e.g. depersonalization disorder [DPD], dissociative identity disorder [DID]). Historically, dissociation has been considered a defence mechanism that enables the individual to withdraw psychologically from the impact of overwhelming traumatic events (Gershuny and Thayer, 1999). This view dates back to nineteenth-century psychologist Pierre Janet (1894) who coined the term of dissociation and emphasized its relation to psychological trauma. A habitual tendency to dissociate would, however, promote psychopathology (Hacking, 1995). Following this tradition, some authors emphasize the causal relationship between dissociation and trauma (Gast et al., 2001; Gershuny and Thayer, 1999; Irvin, 1998). However, others argue that ‘there is no good evidence for a traumatic etiology of DID or any other dissociative disorder’ (Kihlstrom, 2005: 14; see also Merckelbach and Muris, 2001). Thus, the precise role of antecedent trauma in dissociation still remains a matter of scientific debate.
6.2 Overlap between Measures of Dissociation and Schizotypy

Schizophrenia is a condition that has several symptoms in common with the dissociative disorders (see Chapter 11). Thus, patients diagnosed with schizophrenia also report prominent symptoms of dissociation (e.g. Merckelbach et al., 2005; Ross and Keyes, 2004), while patients with DID actually report more Schneiderian first-rank symptoms of schizophrenia than do schizophrenic patients (Ross et al., 1990). A close look at the literature reveals that the overlap between schizophrenic symptoms and dissociation is not limited to clinical samples. Specifically, dissociation, as measured by the Dissociative Experiences Scale (see below; Bernstein and Putnam, 1986), has been found to robustly correlate with self-report measures of schizotypy. The concept of schizotypy is based on the premise that clinically relevant psychotic symptoms have their low-intensity counterparts in the general population. While these symptoms are not necessarily associated with distress, they are thought to represent a liability to schizophrenia (Lenzenweger, 2006).

6.2.1 The Dissociative Experiences Scale as a Measure of Dissociation

The official inclusion of dissociative disorders in the third edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM III; American Psychiatric Association, 1980) inspired the development of the Dissociative Experiences Scale (DES; Bernstein and Putnam, 1986). Today, the DES is the standard instrument to quantify the frequency of dissociative symptoms (Holmes et al., 2005; Kihlstrom, 2005). The DES has been used extensively in both clinical and nonclinical samples (Van IJzendoorn and Schuengel, 1996). DES items refer to autobiographical amnesia, derealization, depersonalization and absorption. Respondents are asked to indicate how often (in percentage of the time) they experience the phenomena described by the items. A sample item would be: ‘Some people sometimes find writings, drawings, or notes among their belongings that they must have done but cannot remember doing. Mark the percentage of the time this happens to you.’

The DES total score consists of the arithmetic mean of all 28 items, and can vary between 0 and 100. Higher values reflect an increased self-reported frequency of dissociative experiences; values above 25 or 30 indicate potential psychopathology (Putnam et al., 1996). By means of a meta-analysis, Van IJzendoorn and Schuengel (1996) underpinned the validity of the DES by investigating the relation between this instrument and various alternative measures of dissociation. Additionally, the DES was found to exhibit an excellent internal consistency (*Cronbach’s α* = 0.93) and good temporal reliability, with test–retest correlations ranging from 0.74 to 0.84 (Holtgraves and Stockdale, 1997).

6.2.2 The Dissociative Experiences Scale and Schizotypy Measures

The DES has been shown to be associated with scores on a wide range of schizotypy or psychoticism measures. For example, Pope and Kwapił (2000) had their undergraduate sample fill out the DES and several widely used scales to measure various aspects of schizotypy, namely the Perceptual Aberration Scale (PAS; Chapman, Chapman and Raulin, 1978) and...
the Magical Ideation Scale (MIS; Eckblad and Chapman, 1983). The authors found correlations of $r = 0.43$ and $r = 0.44$ between dissociation and schizotypy as indexed by PAS and MIS, respectively. Similarly, Merckelbach, Rassin and Muris (2000) reported for their undergraduate sample an overlap of $r = 0.64$ between the DES and the Claridge Schizotypal Personality Scale (STA; Claridge and Broks, 1984).

Evidence for the link between the DES and measures of schizotypy is not limited to nonclinical samples. Thus, in a sample of patients in treatment for trauma-related disorders, Allen and Coyne (1995) found that the DES was related to the schizophrenia scale of the MMPI-2 (for similar findings, see Allen, Coyne and Console, 1996, 1997). Likewise, Gleaves and Eberenz (1995) reported a correlation of $r = 0.59$ between DES scores and schizotypal symptomatology, as measured with the MMPI-2 schizotypal scale. A study by Simeon et al. (2004, see also Chapter 15) represents a notable exception to investigators finding a robust dissociation–schizotypy link. These authors investigated the dissociation–schizotypy link in a sample of patients with Depersonalization Disorder (DPD). In line with previous findings, they found that the DPD group scored higher on measures of dissociation (DES) and schizotypy (PAS, MIS) than healthy controls, and that these scores were correlated. However, when patients with comorbid Axis II disorders were excluded, this ‘pure’ DPD group exhibited only heightened PAS scores and the dissociation scores were no longer significantly related to schizotypy scores. The findings are somewhat difficult to interpret, however, given the limited sample size of the ‘pure’ DPD group and the sizable (but nonsignificant) correlations between the DES and the MIS scale.

To sum up, the dissociation–schizotypy link has been demonstrated across a wide range of different populations in studies relying on different schizotypy and psychoticism measures, which underscores the validity of the dissociation–schizotypy link (Moskowitz, Barker-Collo and Ellson, 2005). It raises the question as to how this overlap should be interpreted. Four possibilities have been put forward in the literature. These are: (1) that dissociation and schizotypy measures tap one undifferentiated dimension (Watson, 2001), (2) that both are the manifestation of the superordinate trait, openness to experience (Merckelbach, Rassin and Muris, 2000), (3) that both share a traumatic etiology (Startup, 1999) and (4) that dissociation and schizotypy are related to a common cognitive deficit (Giesbrecht et al., 2007a).

### 6.3 Why Dissociation and Schizotypy Overlap

#### 6.3.1 One Undifferentiated Dimension

To begin with, one has to consider the possibility that dissociation and schizotypy measures assess one undifferentiated dimension. Evidence for this comes from Merckelbach, Rassin and Muris (2000), who obtained a correlation of $r = 0.64$ between the DES and the STA (see also Startup, 1999), which is as high as convergent correlations typically reported for concurrent measures of dissociation (Van Ijzendoorn and Schuengel, 1996). However, the most convincing data to address this issue comes from a study by Watson (2001), who compared the fit of two models in two large samples by means of confirmatory factor analyses. The first model assumed that dissociation and schizotypy tapped a single, undifferentiated dimension and the second was a two-factor model, which assumed that dissociation and schizotypy represented two different, but related, dimensions. His factor analysis led
Watson (2001) to conclude that ‘a two-factor model (a) generally provided an excellent overall fit and (b) fit the data significantly better than a one-factor model’ (p. 533).

It has been suggested that the overlap between dissociation and schizotypy, or at least part of it, might be due to shared test item content. For example, the DES item ‘Some people have the experience of looking in a mirror and not recognizing themselves’ closely resembles the PAS item ‘Now and then, when I look in the mirror, my face seems quite different than usual’ and the STA item ‘When you looked in a mirror, have you ever felt that your face seemed different?’. This issue has been addressed by several authors by excluding overlapping items from their analyses. For example, Giesbrecht et al. (2007a) eliminated STA items 9, 11, 27, 32, which correspond to DES items 11, 12, 2 and 27, respectively. Moreover, they excluded STA item 35, which alludes to a tendency to daydream, which is also present in various DES items (e.g. items 14, 18, 20). In another study, Merckelbach and Giesbrecht (2006) excluded items 3, 11, 12 and 15 from the PAS scale, and items 3 and 4 from the MIS scale. The authors of both studies report that even after this correction, the overlap between dissociation and schizotypy remains substantial. In line with these findings, Watson (2001) and Startup (1999) noted that the overlap is hardly affected by the exclusion of shared item content. To conclude, the dissociation–schizotypy link cannot be fully accounted for by assuming that both measures reflect the same underlying dimension.

6.3.2 Openness to Experience

A second interpretation assumes that the dissociation–schizotypy overlap is primarily attributable to the underlying influence of ‘openness to experience’ (Merckelbach, Rassin and Muris, 2000). *Openness to experience* refers to ‘receptiveness to new ideas, approaches and experiences’ (McCrae and Costa, 1990, pp. 41–42). It is one of the factors of the Big Five model of personality (Goldberg, 1981), and consists of six facets: fantasy, aesthetics, feelings, actions, ideas and values (Costa and McCrae, 1992). This interpretation assumes that both dissociation and schizotypy are nested under the same superordinate trait. Specifically, dissociation, aberrant perception and magical thinking may reflect the fantasy facet of the superordinate trait ‘openness to experience’. To this end, Watson (2001) administered the Big Five Inventory (BFI; John and Svrivasta, 1999), in addition to dissociation and schizotypy measures, to two samples of undergraduates (N = 471 and N = 457); while he found a ‘substantial’ overlap between measures of dissociation and schizotypy, he concluded that the overlap was ‘not simply attributable to the underlying influence of traits such as neuroticism or openness’ (p. 531).

A related line of research investigated the role of fantasy proneness in the dissociation–schizotypy link (Giesbrecht et al., 2007a; Merckelbach and Giesbrecht, 2006; Merckelbach, Rassin and Muris, 2000). Fantasy proneness is closely allied with ‘openness to experience’ and was first introduced by Wilson and Barber (1983) to describe the characteristics of a small group of individuals which they labelled fantasizers. These individuals spend a large portion of the day fantasizing, have extremely vivid fantasies and childhood memories, and experience strong bodily concomitants of fantasies. In addition, fantasizers report out-of-body and other paranormal experiences. Fantasy proneness shows a robust relationship with measures of dissociation and schizotypy with correlations around 0.50 (Giesbrecht and Merckelbach, 2006; Merckelbach, Horselenberg and Schmidt, 2002; Merckelbach, Rassin and Muris, 2000). Merckelbach, Rassin and Muris (2000)
administered dissociation and schizotypy measures along with the Creative Experiences Questionnaire (CEQ; Merckelbach, Horselenberg and Muris, 2001), a measure of fantasy proneness. When they corrected for the influence of fantasy proneness, the relationship between dissociation and schizotypy decreased but remained significant (for a similar finding, see Giesbrecht et al., 2007a).

In sum, then, both openness to experiences and fantasy proneness do contribute to explaining a small part of the variance, but both fail to explain a substantial part of the dissociation–schizotypy overlap (Merckelbach and Giesbrecht, 2006; Merckelbach, Rassin and Muris, 2000).

6.3.3 Traumatic Etiology

A third interpretation rests on the assumption that both schizotypy and dissociation share a common traumatic etiology. It is often assumed that dissociation is the consequence of severe traumatic experiences, notably childhood sexual abuse (Holmes et al., 2005). For example, Gershuny and Thayer (1999: 647) claim that ‘when emotional pain is acute and deemed unbearable by the sufferer, dissociation may be called upon as means of escape’. These dissociative symptoms should manifest themselves in the form of ‘freezing, analgesia and emotional numbing [which] are elicited automatically’ (Nijenhuis et al., 1998: 65). According to this line of thinking, after the initial use of dissociation to cope with a highly aversive event, dissociation becomes automatized, and can occur on a habitual basis in response to even minor stressors. Today, the idea that trauma directly causes dissociation is prominent in the clinical literature (but see Kihlstrom, 2005; and Merckelbach and Muris, 2001 for opposing positions), and is often presented as an uncontroversial issue or even an undisputed fact (Gast et al., 2001; Gershuny and Thayer, 1999; Irvin, 1998).

Recently, interest in the role of childhood trauma in psychosis has re-emerged and led Read et al. (2005) to review the pertinent literature. They concluded that the literature suggested that child abuse was ‘a causal factor for psychosis and ‘schizophrenia’ (p. 330). Their interpretation is underpinned by high rates of self-reports of traumatic experiences in psychotic patients (e.g. Read et al., 2004), and in general population samples (Berenbaum, 1999; Janssen et al., 2004). Moreover, they support their idea with (a) the observation that there seems to be a dose–response relationship between trauma and psychosis and (b) the statistical finding that the relationship between psychosis and trauma remains intact even when controlling for a number of possible confounders. However, while one might get the impression from Read et al.’s (2005) review that there is a large body of research supporting the idea that trauma causes schizophrenia, the evidence for a casual relation between childhood trauma and psychosis is at least controversial (for a critical review, see Morgan and Fisher, 2007). One weakness in this research domain is that many studies on the traumatic etiology of schizophrenia are based on self-reports of aversive childhood experiences, while we do not know how accurate these self-reports are (Pope and Hudson, 1995).

A number of studies have sought to test the traumatic etiology of the dissociation–schizotypy link (Giesbrecht et al., 2007a; Irwin, 2001; Startup, 1999). For example, Startup (1999) investigated whether correlations between the DES and the O-LIFE, another measure of psychosis, were mediated by childhood trauma. To this end, he included one yes/no question on sexual abuse and another on physical abuse, but found that much of the covariance between DES and O-LIFE scores remained unexplained even
after controlling statistically for the two childhood trauma questions. However, Startup’s (1999) childhood trauma measure was very crude at best and its inherently limited variability may have masked a more substantial effect. Resolving this shortcoming, Irwin (2001) employed the Childhood Trauma Questionnaire (CTQ; Bernstein et al., 1994) that measures abuse and neglect during childhood retrospectively using 60 five-point Likert scales. Notwithstanding the inclusion of a more refined and well-established measure of retrospective childhood trauma, Irwin found that childhood trauma could not fully account for the overlap between dissociation and schizotypy and concluded that ‘the relationship between dissociative tendencies and schizotypy is not an artefact of childhood abuse’ (p. 331; for a similar finding, see Giesbrecht et al., 2007a).

However, it might be the case that the dissociation–schizotypy link is not due to childhood trauma per se, but the result of current post-traumatic intrusions. These intrusions may in turn lead to a breakdown of reality testing (Morrison, Frame and Larkin, 2003). In line with this idea, Holmes and Steel (2004) found that individuals scoring high on schizotypy experienced heightened levels of trauma-related intrusions when they had been exposed to emotionally provocative material. Inspired by this line of thinking, Merckelbach and Giesbrecht (2006) recruited undergraduate students scoring high (>30) and low (<13) on the DES. Consistent with prior findings (Pope and Kwapil, 2000), participants scoring high on the DES scored higher on both the PAS and the MIS than participants scoring low on the DES. Then, we investigated whether this pattern of findings was due to current trauma-related distress, measured by the Impact of Event Scale (IES; Horowitz, Wilner and Alvarez, 1979). Even after IES levels were controlled for statistically, group differences in PAS and MIS remained significant. This clearly indicated that, even when defined in terms of ongoing intrusions and avoidance of thinking about aversive events, trauma-related distress did not account for the dissociation–schizotypy link.

Thus, neither childhood trauma nor trauma broadly defined (i.e. trauma-related distress) substantially accounts for the covariance between dissociation and schizotypy.

6.3.4 Cognitive Deficits

Another possible source of the dissociation–schizotypy link are attentional and memory deficits, as they are hallmark features of both dissociation (e.g. Bernstein and Putnam, 1986) and schizophrenia (e.g. Lee and Park, 2005; Pukrop et al., 2003). Germane to this issue are studies showing that dissociative tendencies are related to minor deficits in executive functioning (Giesbrecht et al., 2004) and subtle neuropsychological deficits in depersonalization disorder (Guralnik et al., in press; Guralnik, Schmeidler and Simeon, 2000), while schizotypy levels are related to poor attentional performance (Gooding, Matts and Rollmann, 2006). Moreover, dissociative tendencies are known to correlate substantially with the Cognitive Failures Questionnaire (CFQ; Merckelbach, Rassin and Muris, 2002; Wright and Osborne, 2005), a self-report measure of everyday lapses and slips in memory, action and perception (Broadbent et al., 1982), and the CFQ is also related to performance on sustained attention tests (Robertson et al., 1997). However, the possible contribution of subtle cognitive deficits to the dissociation–schizotypy link has been largely ignored. Recently, Giesbrecht et al. (2007a) showed that cognitive failures as measured by the CFQ do account for a small, but significant, part of the dissociation–schizotypy overlap.
6.3.5 The Combined Influence of Fantasy Proneness, Cognitive Failures and Childhood Trauma

So far, we have reviewed studies investigating the extent to which four distinct factors may account for the dissociation–schizotypy overlap. We concluded that none of these factors was able to account for more than a small part of the overlap. Further, fantasy proneness, cognitive failures and retrospective reports of childhood trauma are only weakly to modestly correlated with each other (Merckelbach, 2002). Therefore, it might be the case that all these factors account for a different portion of the overlap. This possibility was investigated by Giesbrecht et al. (2007a) who administered measures of fantasy proneness, cognitive failures and retrospective reports of childhood trauma along with instruments tapping dissociation and schizotypy. In line with previous studies (Irwin, 2001; Merckelbach and Giesbrecht, 2006; Merckelbach, Rassin and Muris, 2000; Moskowitz, Barker-Collo and Ellson, 2005; Startup, 1999; Watson, 2001), these authors found that there was substantial overlap between dissociation and schizotypy. Moreover, fantasy proneness, cognitive failures and retrospective reports of childhood trauma were significantly related to both dissociation and schizotypy and each explained a small but significant part of the overlap. Most importantly, when combined, the instruments tapping the influence of fantasy proneness, cognitive failures and self-reported childhood abuse explained a considerable part (58%) of the dissociation–schizotypy link. Fantasy proneness and cognitive failures accounted for most of the overlap, while self-reported childhood trauma explained a small, albeit significant, part. As well, the results for each mediational factor separately did not fundamentally differ from other studies.

Research investigating the heritabilities of cognitive failures and fantasy proneness is highly relevant to explain the dissociation–schizotypy link. For example, Boomsma (1998) showed that ‘a substantial part of the interindividual variation in everyday cognitive failures in memory, perception and motor control can be attributed to genetic factors’ (p. 321). In addition, the proneness to fantasize can also be traced back to genetic factors. As noted, fantasy proneness is regarded as a manifestation of the superordinate personality trait ‘openness to experience’. This trait has a substantial heritability (Bergeman et al., 1993), which should, at least in part, modulate fantasy proneness. Thus, it might be the case that part of the overlap between dissociation and schizotypy is carried by genetic factors that they have in common. However, while there is strong evidence for a genetic diathesis in schizotypy (Jang et al., 2005), findings in dissociation are mixed. For example, using a twin study methodology, Lang et al. (1998) found that about half of the variability in dissociative experiences could be attributed to heritability. Another study (Waller and Ross, 1997) found no genetic influence, while a recent study in children and adolescents does lend support to the notion of a genetic predisposition of dissociation (Becker-Blease et al., 2004).

6.4 Conclusion

To conclude, the dissociation–schizotypy link seems to be extremely robust and has been nearly uniformly replicated across a wide array of measures and samples. When considered in isolation, various hypothesized mediators explain only a small part of this link but, when considered together, the joint influence of fantasy proneness, cognitive failures and childhood trauma may account for a substantial part of the dissociation–schizotypy overlap.
However, one clear limitation of nearly all the research on the dissociation–schizotypy link is its reliance on self-report instruments. Thus, future studies should directly investigate how behavioural concomitants of fantasy proneness and cognitive failures, notably, pseudomemories and attentional disruptions, respectively, affect the dissociation–schizotypy link.

Another fruitful area for future studies on dissociation and schizotypy is the sleep–wake cycle. It is well known that schizotypal characteristics are often accompanied by phenomena such as nightmares (Claridge, Clark and Davis, 1997). Similarly, dissociative symptoms go along with various sleep aberrations (Giesbrecht et al., 2006; Giesbrecht and Merckelbach, 2004, 2006; Watson, 2001) and can be readily induced by sleep deprivation (Giesbrecht et al., 2007b). Thus, it is tempting to speculate about how traumatic events or other antecedents for that matter could disrupt normal sleep and, in this way, elicit cognitive failures and fantasies that could in turn fuel dissociation and schizotypy. This speculative idea assumes a complex causal chain, but it is our opinion that only complex causal models will explain the dissociation–schizotypy link.

References


American Psychiatric Association (1980) *Diagnostic and Statistical Manual of Mental Disorders*, 3rd edn, APA, Washington, DC.


REFERENCES


REFERENCES


