Dissociation as an outcome of childhood trauma, adult personality, and adjustment

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Abstract
The aim of this study was to investigate dissociation, measured as a continuous dimension from normal experiences through to the severe symptoms characteristic of dissociative identity disorder, by modelling dissociation as an outcome of childhood trauma, adult personality and adjustment. A questionnaire package was completed by a sample of 279 adults ($M = 27.80$ years, $SD = 12.77$), 47 males and 231 females. Participants completed the Dissociative Experiences Scale II (DES-II), the NEO Five-Factor Inventory (NEO-FFI), the Resilience Scale (RS), the Childhood Trauma Questionnaire (CTQ), and the Creative Experiences Questionnaire (CEQ). Structural equation analyses using AMOS generated a model that fit the data well ($\chi^2/df = 1.87$). Inspection of significant paths in the model found, consistent with theory and existing research, that childhood trauma had a direct link to dissociation (regression weight = .13). A benefit of the modelling approach was the capacity to identify a complex pattern of relationships by which personality (neuroticism and agreeableness) and adjustment (fantasy proneness and resilience) mediated the relationship between childhood trauma and dissociation.

Introduction
Dissociation is a common feature of everyday life, but is still a poorly understood phenomenon. According to Ross (1997), non-clinical dissociation is normal and is evident when a person is in an altered state of consciousness, for example, when absorbed in a movie. Ross suggests that normal dissociation can be adaptive: we need divided consciousness to talk on the phone, and stir the pot on the stove at the same time. However, when an individual has inherently pathological dissociative experiences, dissociation can become maladaptive, interrupting daily living to the point where normal functioning becomes difficult (Ross, 2004). There is ongoing debate about how individuals develop pathological dissociation with a number of views as to its aetiology. One view suggests the dissociative disorders originate primarily in childhood trauma, another that they are largely iatrogenic in origin with symptoms resulting from therapist suggestion. A further view suggests dissociation is related more to fantasy proneness or to personality variables.

There are studies that raise doubts about the direct link between childhood abuse and dissociation (e.g., Mulder, Beautrais, Joyce, & Fergusson, 1998), but a growing body of work supports a traumagenic model of dissociation (e.g., Akyüz, Sar, Kugu, & Dogan, 2005; Bremner & Marmar, 1998; Chu, 1998; Chu, Frey, Ganzel, & Matthews, 1999; Irwin, 1999; Putnam, Guroff, Silberman, Barban, & Post, 1986). However, some writers (e.g., Cima, Merckelbach, Hollnack, & Knauer, 2003) have questioned whether childhood trauma alone can account for high dissociation scores. Studies have found dissociation is also related to fantasy proneness (e.g., Geraets, Merckelbach, Jelicic, Smeets, & van Heerden, 2006), and personality variables, such as neuroticism (Groth-Marnat & Michel, 2000; Richardson, Murray, & Bates, 2005).

The personality trait neuroticism (N) is associated with maladjustment, depression, anxiety, and vulnerability to stress in individuals. N also appears to be positively associated with dissociation. Two Australian studies (Groth-Marnat & Jeffs, 2002; Richardson et al., 2005) found that N was the strongest personality predictor of dissociation. In addition, Richardson et al. found that negative agreeableness (A) was related to dissociation, but that the strongest predictor was childhood trauma.

Studies have also found links between N and higher levels of fantasy proneness, a construct of interest in the present study (e.g., Elzinga, Bermond, & van Dyck, 2002). Sánchez-Bernados and Avia (2004) found fantasy proneness to be a
maladaptive aspect of personality, and argued that the observed relationship between N and fantasy proneness is consistent with a connection between fantasy proneness and dissociation, a dimension associated with N.

A growing number of researchers now argue that it is perhaps fantasy proneness that predicts whether an individual is likely to be more dissociative (e.g., Merckelbach, Campo, Hardy, & Giesbrecht, 2005; Merckelbach, Horsemelenberg, & Schmidt, 2002). According to Giesbrecht and Merckelbach (2006), fantasy proneness occurs when an individual has an extensive involvement in fantasy and daydreaming. However, the relationship between dissociation and fantasy proneness appears not to be a simple one. Geraerts et al. (2006) argue that fantasy proneness influences the link between self-reported trauma and dissociation, and suggest that, apart from trauma, fantasy proneness contributes to dissociation. Others support this view (Pekala, Angelini, & Kumar, 2001; Pekala et al., 1999). Therefore, it is possible that childhood trauma, personality, and fantasy proneness interact in the development of dissociative disorders.

Not all individuals who have experienced severe childhood trauma and fantasy proneness develop pathological dissociation. So, what is it that makes these people more resilient than others? Resilience is defined as “the process of, capacity for, or outcome of, successful adaptation despite challenging or threatening circumstances” (Masten, Best, & Garmezy, 1990, p.426). Wagnild and Young (1993) also add the idea of flexibility and the ability to respond to environmental forces.

Few studies directly link dissociation and resilience, or resilience and personality. Valentine and Feinauer (1993) reported that many adults who were sexually abused as children have led successful lives in adulthood. Two further studies found that resilience was negatively related to N, and also moderated the relationship between childhood emotional neglect and current psychiatric symptoms (Campbell-Sills, Cohan, & Stein, 2006; Nakaya, Oshio, & Kaneko, 2006).

The aim of this present study was to investigate dissociation by modelling dissociation as an outcome of childhood trauma, adult personality, resilience and fantasy proneness. On the basis of prior research, it was hypothesised that both higher childhood trauma scores and fantasy proneness scores would relate to higher overall dissociation scores. It was also predicted that higher childhood trauma scores would be related to higher fantasy proneness scores, and to higher N scores. A further expectation was that higher N scores would be related to higher fantasy proneness scores and to higher dissociation scores.

### Method

#### Participants

In order to obtain a heterogeneous sample, participants were recruited through a number of avenues including: an undergraduate psychology subject pool at a Melbourne university; a snowball sample commencing with associates of the researchers; a community counselling centre; an Internet survey; and clinicians with an interest in dissociative phenomena. A total of 279 participants completed the study ($M = 27.80$ years, $SD = 12.77$), 47 males and 232 females. One participant did not indicate gender.

#### Measures

Participants completed a questionnaire containing (a) demographic data, and (b) measures for personality, dissociative experiences, fantasy proneness, resilience, and childhood trauma.

Personality was measured by the 60-item NEO Five-Factor Inventory (NEO-FFI) (Costa & McCrae, 1992), which consists of five domains: Neuroticism (N), Extraversion (E), Openness (O), Agreeableness (A), and Conscientiousness (C). Respondents rated each item on a 5-point Likert scale from one to five, with 1 = “strongly disagree or definitely false,” to 5 = “strongly agree or definitely true.” Domain scores were obtained by summing each respondent’s score on the 12 items for each domain after reverse coding negatively worded items. Costa and McCrae reported adequate reliability for each of the domains.

Dissociation was measured on the Dissociative Experiences Scale-II (DES-II) (Carlson & Putnam, 1993), which is a 28-item self-report measure of the frequency of different dissociative experiences (absorption and imaginative involvement, identity alteration, and amnesia for dissociative states). Participants circled a percentage for each item (from 0% to 100%) to indicate the amount of time they experience each phenomenon. Item scores are summed and averaged, giving a total score between 0 and 100. Bernstein and Putnam (1986) reported a high test-retest reliability ($r = 0.84$).

Fantasy proneness was measured by the 25-item self-report Creative Experiences Questionnaire (CEQ) (Merckelbach, Horsemelenberg, & Muris, 2001). The CEQ requires yes/no answers. The yes-answers were summed to obtain a total score ranging from 0 to 25, with higher scores indicating higher levels of fantasy proneness. Merckelbach et al. reported adequate internal consistency ($\alpha = 0.76$).

The Resilience Scale (RS) (Wagnild & Young, 1993), used to assess resilience, is a 25-item self-report scale measured on a 7-point Likert scale. The values of each response are summed, with higher scores indicating greater resilience. Wagnild and Young reported high internal reliability ($\alpha = 0.91$).

History of childhood abuse and neglect was assessed by the Childhood Trauma Questionnaire.
(CTQ) (D.P.Bernstein & Fink, 1998), a 28-item self-report inventory. Five 5-item subscales and a 3-item lie scale make up the 28 items, which are measured on a 5-point Likert scale. Only the total scale score was used in this study. Higher scores indicate greater severity of childhood trauma. Bernstein and Fink reported good internal consistency.

**Procedure**

Undergraduate psychology students at a Melbourne university were invited to participate, with some gaining course credit. Snowball sampling was used amongst the adult associates of the researchers. Participants were also recruited from clinical sources, and an internet survey, to ensure an adequate range of DES-II and scores. Questionnaires were left at a number of counselling clinics across Melbourne. Prepaid envelopes were offered with the questionnaires for their return. The Internet survey was posted on the University site, which was completed and submitted electronically.

**Results**

SPSS 14.0 for Windows was used to conduct General linear analyses and Amos 6 for Windows for Structural Equation Modelling (SEM). The distribution of the DES-II scores suggests that the sampling strategy achieved a range of dissociation severity. When using the DES-II cut-off score of 30 (Carlson & Putnam, 1993) clinical levels of dissociation were reported by 23.3% of the sample. Internal reliability was good for all scales, and distributions of scores were consistent with existing norms for Australian samples. DES and CTQ scores were positively skewed (1.13, and 1.18 respectively).

SEM, using Maximum Likelihood estimation, was conducted to explore the relationships between dissociation and possible predictors. SEM has the capacity to account for measurement error (Kline, 2005) and relationships amongst dependent variables more effectively than can regression analyses. Latent variables models were used with one indicator for each latent construct (i.e., total scale score) corrected for measurement error (Munck, 1979).

Six indices were used to evaluate goodness-of-fit (Kline, 2005): significance of chi-square (p > .05 indicating satisfactory fit); normed chi-square ($\chi^2$/df, 1 – 3); Root Mean Square Error of Approximation (RMSEA, < .08); Standardised Root Mean-Square Residual (SRMR, < .05); Comparative Fit Index (CFI, > .95); and the Tucker-Lewis Index (TLI, > .95).

Four models were examined to determine the variables that best explained dissociation. Pathways for the starting model were generated based on: (a) preliminary regression analyses (see Richardson et al., 2005) showing N and A to be the strongest independent personality predictors of dissociation; (b) theoretical and empirical grounds for inclusion of childhood trauma, fantasy proneness, and resilience (see Table 1).

This strategy generated a poor fitting model ($\chi^2$(1)=21.08, p<.001). There were four non-significant pathways. When these were addressed, the second model was a good fit ($\chi^2$(4)=8.24, p=.08). However, modification indices suggested adding a further path from A to resilience.

When this path was added, the resultant model was a good fit ($\chi^2$(3)=3.99, p=.26). One path was non-significant, i.e., from A to dissociation. When this was removed, the resultant fourth model was also a good fit ($\chi^2$(4)=7.49, p=.11), but not as parsimonious as the third model. The chi-square difference between the third and fourth models was not significant ($\chi^2$(1)=3.50, p>.05), so the third model was chosen as the final model (See Figure 1).

| Table 2: Pearson’s Correlations Between Dependent Variable, Dissociation, and Predictor Variables, Childhood Trauma, Resilience, Fantasy Proneness, and NEO Personality Variables |
|-----------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Variables                  | DES             | CTQ             | Resilience      | Fantasy         | N               | E               | O               | A               | C               |
| DES                        | 1.000           | .38***          | - .31***       | .50***          | .40***          | -.29***         | -.05**          | -.34***         | -.26***         |
| CTQ                        |                 | 1.000           | -.25***        | -.40***         | -.40***         | -.40***         | .03             | -.16**          | -.06            |
| Resilience                 |                 |                 | 1.000          | .51***          | -.63***         | -.30***         | .13***          | .24***          | .48***          |
| Fantasy                    |                 |                 |                | -.02            | -.02            | -.04            | .21***          | -.28***         | -.28***         |
| N                           |                 |                 |                |                 | .40***          | -.04            | -.01            | -.28***         | -.28***         |
| E                           |                 |                 |                |                 |                 | -.46***         | -.04            | .20***          | .20***          |
| O                           |                 |                 |                |                 |                 |                 | -.08            | .09             | .09             |
| A                           |                 |                 |                |                 |                 |                 |                 |                 |                 |
| C                           |                 |                 |                |                 |                 |                 |                 |                 |                 |

$N=279$
suggests that dissociation is at least partly caused by traumatic relationships in childhood, and the participants’ responses in the present study are consistent with that view. This finding supports previous studies (Akyüz et al., 2005; Chu & Dill, 1990; Chu et al., 1999; Irwin, 1999) that reported childhood abuse was related to elevated levels of dissociation. The second pathway of note showed childhood trauma was related to fantasy proneness. Fantasy proneness was, in turn, related to dissociation. This finding supports research by both Cima et al. (2003) and Geraerts et al. (2006), who found that fantasy proneness mediated the link between trauma and dissociation. The third pathway showed that childhood trauma was positively related to N, which in turn was negatively related to resilience, and thence negatively related to dissociation. Although previous research has found that N is a significant predictor of dissociation (Groth-Marnat & Jeffs, 2002; Richardson et al., 2005), the present study, by adding resilience into the model, showed that there may be other variables that mediate this link. This finding continues to emphasise the distress associated with dissociation, and perhaps its roots in vulnerable temperament. The fourth noteworthy pathway showed an unexpected positive relationship between fantasy proneness and resilience. It seems some individuals may use fantasy proneness to increase resilience and thereby reduce dissociation. Therefore, fantasy proneness may not necessarily be maladaptive.

Limitations of the study included the use of self-report measures allowing for the possibility of socially desirable responses. The study also demanded a heterogeneous sample (to provide a range of DES-II and DES-T scores) rendering generalisation to the broader population problematic. Finally, the study was cross-sectional and hence conclusions about the causal nature of adult personality, childhood trauma, or adjustment on dissociative tendencies cannot be inferred.

The present study adds incrementally to our understanding of dissociation. Previous studies espousing the traumagenic, adjustment, or personality models have seemingly been at odds. However, in the present data these models are added to and reconciled. The links between dissociation, trauma, personality, and adjustment are not simple and require further research, especially emphasising the role that resilience can play in reducing the effect of pathological dissociation on individuals.

**Discussion**

Structural equation modelling generated a good fitting model that enabled exploration of trauma, personality, and adjustment as predictors of dissociation. Findings were both consistent with past research and raised suggestions for future exploration.

Four pathways in the final model were of note. As expected, a significant direct pathway was found between childhood trauma and dissociation, suggesting that childhood trauma has a direct relationship with dissociation. The trauma model suggests that dissociation is at least partly caused by traumatic relationships in childhood, and the participants’ responses in the present study are consistent with that view. This finding supports previous studies (Akyüz et al., 2005; Chu & Dill, 1990; Chu et al., 1999; Irwin, 1999) that reported childhood abuse was related to elevated levels of dissociative symptoms.

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**References**


