

Dissociative Symptoms and the Acute Stress Disorder Diagnosis in Children and Adolescents: A Replication of the Harvey and Bryant (1999) Study

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Acute stress disorder (ASD) is a good predictor of posttraumatic stress disorder in adult populations, although the emphasis on dissociation symptoms within the diagnosis has been questioned. Recent studies suggest that ASD may also have application to children and adolescents. The present study examined properties of ASD within youth. A large (N = 367) multisite sample of 6- to 17-year-old children and adolescents exposed to motor vehicle accidents completed interviews or self-report questionnaires regarding their acute stress symptoms. The study found evidence supporting the suggestion that the dissociative criterion of ASD is excessively strict in youth, and that there is less overlap between dissociative symptoms than in adults. The implications of these findings for how ASD is applied to youth are discussed.

The diagnosis of acute stress disorder (ASD) was entered into the *Diagnostic and Statistical Manual of Mental Disorders*. (DSM-IV; American Psychiatric Association, 1994) as a tool for the early identification of people at risk of developing chronic posttraumatic stress disorder

(PTSD; Bryant, 2003). Although ASD has been shown to have some utility as a predictor of later PTSD, concerns have been raised over the sensitivity of this diagnosis, and the possibility that simpler indices of acute stress (e.g. counts of core symptoms) may be more efficient (Brewin,

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Andrews, & Rose, 2003; Brewin, Andrews, Rose, & Kirk, 1999; Harvey & Bryant, 1998).

In particular, concern has been raised over the place of the dissociative criterion as a critical component of the ASD diagnosis. Of five listed dissociative symptoms (numbing, reduced awareness, derealization, depersonalization, and dissociative amnesia), three are required for the dissociative criterion to be met. These symptoms may be peritraumatic (i.e., they arise during the traumatic experience itself) or occur persistently in the weeks afterwards. Although based on evidence associating peritraumatic dissociation with more chronic PTSD (Bremner & Brett, 1997; Koopman, Classen, & Spiegel, 1994; Marmar et al., 1994), it is far from clear that this is the only pathway to chronic PTSD. Indeed, it might be that there is a fundamental problem with the combination of extreme fear or horror (etc.) and peritraumatic dissociative symptoms (which almost by definition require an absence of affect) as being necessary components of ASD. Indeed, recent evidence suggests that it may be persistent rather than peritraumatic dissociation that is a particular risk factor for PTSD (Briere, Scott, & Weathers, 2005; Murray, Ehlers, & Mayou, 2002).

Noting that among the basic criteria for validating a new diagnosis, a complete descriptive study of the defined diagnosis is required (Robins & Guze, 1970), Harvey and Bryant (1999) investigated the symptom profile of ASD and the degree of overlap between dissociative symptoms in an adult sample of motor vehicle accident (MVA) survivors. In deriving a subsyndromal ASD diagnosis (where any one diagnostic criterion was not met in this case) the authors observed that most participants meeting these alternative criteria did not meet the dissociative symptoms criterion. Furthermore, over 80% of individuals who reported derealization also reported reduced awareness and depersonalization. These authors conclude that the operational definition of dissociative symptoms requires further clarification.

Few studies have as yet examined the prevalence of ASD and its ability to predict later PTSD within youth. Although a few samples have examined the prevalence of ASD or ASD symptomatology in children following trauma

(Bryant, Mayou, Wiggs, Ehlers, & Stores, 2004; Winston et al., 2002), only two studies have examined the prevalence of ASD and how this diagnosis relates to later PTSD. Both Kassam-Adams and colleagues (Kassam-Adams & Winston, 2004) and Meiser-Stedman and colleagues (Meiser-Stedman, Yule, Smith, Glucksman, & Dalgleish, 2005) found a low prevalence of ASD (8% and 19%) in samples of children and adolescents involved in motor vehicle accident and assault survivors. Furthermore, each study found that ASD had only moderate success in predicting later PTSD, whereas a subsyndromal diagnosis (i.e., ASD without the dissociative criterion) was found to be equally good (or even superior) predictor of PTSD than ASD itself.

Dissociation in trauma-exposed youth has been the subject of empirical investigation, although predominantly in the context of child sexual abuse (Putnam, 1997). Continuous measures of dissociative experiences have been used to discriminate abused from nonabused children (Putnam, Helmers, & Trickett, 1993) and adolescents (Armstrong, Putnam, Carlson, Libero, & Smith, 1997). However, little investigation of dissociative symptoms in children exposed to single-event trauma has been conducted. Further research identifying discernible dissociative symptoms and understanding their significance within the ASD diagnosis in youth is still very much needed.

In this study, we sought to investigate how dissociative symptoms might relate to the ASD diagnosis within a multicenter sample of children and adolescents involved in motor vehicle accidents. We followed closely the methodology employed by Harvey and Bryant (1999), and sought to address the two questions they raised in their study, i.e., what is the profile of symptoms for the ASD diagnosis, and to what extent do the dissociative symptoms in ASD overlap.

METHOD

Participants were youth who were hospitalized following an MVA. Three hundred sixty-seven children and adolescents, aged 6–17 years ($M = 11.88$, $SD = 2.60$), agreed to participate, of whom 117 (31.9%) were girls. Data was pooled from participants recruited at three centers:

London ($n = 41$, aged 10–16; Meiser-Stedman et al., 2005), Oxford ($n = 86$, aged 6–17 years; Bryant et al., 2004), and Philadelphia ($n = 240$, aged 8–17; Kassam-Adams et al., 2004). In all cases, written, informed consent was obtained from caregivers. Details of participant recruitment and flow are presented elsewhere (Bryant et al., 2004; Kassam-Adams et al., 2004; Meiser-Stedman et al., 2005). The most noteworthy difference between the various samples is that the Philadelphia sample comprised children admitted to hospital; the London and Oxford samples comprised children who attended a hospital emergency department, but were not necessarily admitted.

Acute stress disorder was assessed at 2–4 weeks post trauma using either a structured clinical interview (in London, the Anxiety Disorders Interview Schedule for DSM-IV, Child and Parent Interview Schedule; Silverman & Albano, 1996); The Child Acute Stress Questionnaire (in Philadelphia; Winston et al., 2002); or a combination of questionnaire (in Oxford, the Revised Child Impact of Events Scale; Dyregrov & Yule, 1995) and interview assessment (the Child Post-Traumatic Stress Research Index; Pynoos et al., 1987). Both the London and Oxford groups added interview items based on the *DSM-IV* criteria for a diagnosis of ASD.

RESULTS

Thirty-three (9.0%) participants met full criteria for a diagnosis of ASD. However, 68 (18.5%) participants met criteria for a diagnosis of subsyndromal ASD, i.e., all ASD criteria were met but one. Of these 68 participants, 50 did not meet Criterion B (dissociation), 1 did not meet Criterion C (reexperiencing), 4 did not meet Criterion D (avoidance), 1 did not meet Criterion E (hyperarousal), and 12 did not meet Criterion F (impairment of functioning).

A chi-square analysis revealed that ASD was more prevalent in girls (15.8%) than in boys (7.3%), $\chi^2 (1, N = 367) = 4.60, p < .05$. Age was unrelated to ASD diagnosis ($r = .00$).

Table 1 displays the proportions of participants meeting each ASD symptom and criterion, differentiated by

whether or not they met criteria for ASD. Each individual symptom and criterion was reported by a significantly greater proportion of participants in the ASD group than the non-ASD group. Even when a Bonferroni correction for multiple comparisons was performed (corrected alpha value of .002), each of these comparisons remained significant.

The dissociative criterion (Criterion B) was the most poorly endorsed criterion with less than a fifth of participants reporting that they had three or more dissociative symptoms. Over a half of the participants reported meeting criteria for the reexperiencing, avoidance, and hyperarousal clusters, and over a third reported experiencing impairment of functioning as a result of their acute posttraumatic stress symptoms.

As an index of the overlap between dissociative symptoms, we calculated the percentage of participants reporting each dissociative symptom who also reported another dissociative symptom (see Table 2). Moderately high rates of overlap were observed for numbing, reduced awareness, derealization, and depersonalization (36.3–67.3%), although for amnesia the overlap appeared to be consistently lower (21.8–31.0%). A similar pattern of findings was observed for interitem correlations, with correlations between numbing, reduced awareness, derealization, and depersonalization in the moderate range (.26–.38), but in the low range for correlations with amnesia (.11–.20).

DISCUSSION

This study investigated issues surrounding dissociation and ASD in children exposed to single-event trauma. As with Harvey and Bryant's (1999) study in adults, a low prevalence of ASD was found (9.0%), with a much greater prevalence for subsyndromal ASD (18.5%). The symptom cluster that participants most often failed to meet (preventing a full ASD diagnosis) was overwhelmingly (73.5%) the dissociative criterion. Significant differences between ASD and non-ASD groups were observed in relation to the prevalence of all ASD symptoms and criteria. Unlike Harvey and Bryant (1999), however, the degree of overlap

Table 1. Proportion of Participants Reporting Each ASD Symptom and Criterion by ASD Status

ASD Symptom/ Criterion	% With symptom/ criterion met	% ASD with symptom/ criterion	% No ASD with symptom/ criterion	$\chi^2(1, N = 361)^*$
Criterion B (dissociation)	19.2	100.0	11.7	159.44
Numbing	14.6	65.6	9.5	73.64
Reduced awareness	22.5	78.8	16.7	66.21
Derealization	21.4	78.8	15.5	71.19
Depersonalization	25.3	83.3	19.9	58.50
Amnesia	48.5	78.1	45.6	12.36
Criterion C (reexperiencing)	54.5	100.0	49.5	30.75
Recurrent images/thoughts	39.6	84.8	35.0	31.18
Nightmares	19.2	63.6	14.7	46.37
Sense of reliving the event	14.8	54.5	10.8	45.51
Distress on exposure	30.8	84.8	25.4	49.70
Criterion D (avoidance)	59.3	100.0	54.8	25.27
Avoidance of thoughts/talk	49.3	93.9	44.7	29.03
Avoidance of places/people	42.5	93.3	37.7	34.67
Criterion E (hyperarousal)	64.8	100.0	60.9	20.01
Difficulty sleeping	24.1	71.9	19.4	43.89
Irritability	28.2	69.7	24.0	30.93
Poor concentration	23.7	69.7	19.1	42.40
Hypervigilance	29.8	75.8	25.2	36.68
Exaggerated startle response	26.5	69.7	22.2	34.74
Motor restlessness	28.8	69.7	24.7	29.61
Criterion F (impairment of functioning)	34.5	100.0	27.6	69.27

Note. ASD = Acute stress disorder.

*All significant at $p < .001$.

between dissociative symptoms was not so obvious. Furthermore, amnesia appeared to be quite weakly related to other dissociative symptoms.

These data suggest that the requirement of three dissociative symptoms being present for a diagnosis of ASD is excessively strict, at least in children and adolescents exposed to single-event trauma such as MVAs. As Harvey and Bryant (1999) noted, other studies of adults demonstrating a link between dissociative symptoms and post-traumatic stress have been conducted in samples exposed to either severe or prolonged trauma such as fires (Spiegel, Koopman, Cardeña, & Classen, 1996). or war (Zatzick, Marmar, Weiss, & Metzler, 1994). The present study comprised children and adolescents exposed to very sudden yet (in most cases) quickly concluded trauma, so the relatively low rate of children meeting the dissociative criterion may not be surprising.

In their study of children with burn injuries, Saxe and colleagues (2005) used path analysis to uncover two pathways to chronic PTSD, the first through children's separation anxiety, the other through children's dissociative symptoms. Saxe et al.'s study offers a more sophisticated way of usefully incorporating the emerging dissociative literature into our understanding of children's responses to trauma. Future research may be usefully directed towards elucidating the various pathways to chronic PTSD in children and adolescents exposed to single-event trauma, with the recognition that dissociation may be only one pathway out of many.

The little overlap between dissociative symptoms compared with Harvey and Bryant (1999) may be attributable to varying sample sizes, or the different assessment tools used at each site. Nevertheless, it does suggest that within children and adolescents the dissociative symptoms listed

Table 2. Percentage of Participants Reporting a Dissociative Symptom (Down) Who Also Reported Another Dissociative Symptom (Across)

	1	2	3	4	5
1. Numbing	–	56.6	57.4	67.3	73.1
2. Reduced Awareness	37.0	–	49.4	47.4	62.5
3. Derealization	40.8	52.6	–	52.0	63.2
4. Depersonalization	36.3	40.7	42.9	–	57.6
5. Amnesia	21.8	28.6	27.4	31.0	–

in the criteria for a *DSM-IV* diagnosis of ASD are distinct concepts. The place of amnesia within this symptom cluster, given its very low overlap with other symptoms, is more open to debate. This was the most frequently endorsed dissociative symptom, and the second most frequently endorsed ASD symptom overall. Amnesia as assessed by the measures used at the sites in this study may not correspond to a genuinely dissociative amnesia (in the sense of a blocking out of distressing memories), but rather normal forgetting or due to the cognitive limitations associated with encoding a traumatic stressor.

There are several limitations that need to be considered when evaluating the findings of this study. In terms of the methodology used, different (albeit reliable) measures were used at each site, as noted above. Furthermore, there were differences between sites in the nature of the trauma experienced, with all the children at the Philadelphia site being admitted (and by implication more seriously injured). Other cultural or social differences between the various sites may also have played a role, such as ethnicity or health care systems. In terms of the generalizability of these findings, it is important to note that MVAs are a quite distinctive type of trauma, that are over quickly, frequently do not involve intentional harm, and in the present study, involved attendance at hospital. Other single-event traumatic stressors (e.g., an assault or natural disaster) may present with a different pattern of acute stress symptomatology. In addition, the mean age of the study sample was quite old. Research (and quite possibly clinical innovation) is needed to overcome the methodological challenges associated with assessing dissociation and acute traumatic stress symptoms in younger children.

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