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

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## DISSOCIATIVE SYMPTOMS IN YOUTH

## Abstract

Acute stress disorder (ASD) is a good predictor of posttraumatic stress disorder in adult populations, though 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 ( $N=367$ ) multi-site sample of 6-17 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.

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## Introduction

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). While 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, 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. While 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

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3 dissociative symptoms in an adult sample of MVA survivors. In deriving a subsyndromal  
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5 ASD diagnosis (where any one diagnostic criterion was not met in this case) the authors  
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7 observed that most participants meeting these alternative criteria did not meet the dissociative  
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9 symptoms criterion. Furthermore, over 80% of individuals who reported derealization also  
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11 reported reduced awareness and depersonalization. These authors conclude that the  
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13 operational definition of dissociative symptoms requires further clarification.  
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18 Within youth few studies have as yet examined the prevalence of ASD and its ability  
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20 to predict later PTSD. While a few samples have examined the prevalence of ASD or ASD  
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22 symptomatology in children following trauma (Bryant, Mayou, Wiggs, Ehlers, & Stores,  
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24 2004; Winston et al., 2002), only two studies have examined the prevalence of the ASD and  
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26 how this diagnosis relates to later PTSD. Both Kassam-Adams and colleagues (Kassam-  
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28 Adams & Winston, 2004) and Meiser-Stedman and colleagues (Meiser-Stedman, Yule,  
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30 Smith, Glucksman, & Dalgleish, 2005) found a low prevalence of ASD (8% and 19%) in  
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32 samples of children and adolescents involved in motor vehicle accident (MVA) and assault  
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34 survivors. Furthermore, each study found that ASD had only moderate success in predicting  
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36 later PTSD, while a subsyndromal diagnosis (i.e. ASD without the dissociative criterion) was  
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38 found to be equally good (or even superior) predictor of PTSD than ASD itself.  
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44 Dissociation in trauma-exposed youth has been the subject of empirical investigation,  
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46 though predominantly in the context of child sexual abuse (Putnam, 1997). Continuous  
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48 measures of dissociative experiences have been used to discriminate abused from non-abused  
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50 children (Putnam, Helmers, & Trickett, 1993) and adolescents (Armstrong, Putnam, Carlson,  
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52 Libero, & Smith, 1997). However, little investigation of dissociative symptoms in children  
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54 exposed to single-event trauma has been conducted. Further research identifying discernible  
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56 dissociative symptoms and understanding their significance within the ASD diagnosis in  
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58 youth is still very much needed.  
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In this study we sought to investigate how dissociative symptoms might relate to the ASD diagnosis within a multi-center 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 what to what extent do the dissociative symptoms in ASD overlap.

## Method

Participants were youth attending hospital following an MVA. A total of 367 children and adolescents, aged 6-17 years ( $M = 11.88$ ;  $SD = 2.60$ ), agreed to participate, of whom 117 (31.9%) were female. 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, while the London and Oxford samples comprised children who attended a hospital emergency department but were not necessarily admitted.

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

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London and Oxford groups added in interview items based on the DSM-IV criteria for a diagnosis of ASD.

## Results

## Prevalence

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 females (15.8%) than in males (7.3%),  $\chi^2(1, N = 367) = 4.60, p < .05$ . Age was unrelated to ASD diagnosis ( $r = .00, n = 367, ns$ ).

## Profile of ASD

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.

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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%), though for amnesia the overlap appeared to be consistently lower (21.8-31.0%). A similar pattern of findings was observed for inter-item 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 between dissociative symptoms was not so obvious. Furthermore, amnesia appeared to be quite weakly related to with 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 posttraumatic stress have been conducted in samples exposed to either severe or prolonged trauma such as fires (Spiegel et al., 1996) or war (Zatzick, Marmar, Weiss, & Metzler, 1994). The present study comprised children and adolescents exposed to very sudden yet (in most cases) quickly



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2  
3 concluded trauma, so the relatively low rate of children meeting the dissociative criterion  
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6 may not be surprising.

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8 In their study of children with burn injuries, Saxe and colleagues (2005) used path  
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10 analysis to uncover two pathways to chronic PTSD, the first through children's separation  
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12 anxiety, the other through children's dissociative symptoms. Saxe et al.'s study offers a more  
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14 sophisticated way of usefully incorporating the emerging dissociative literature into our  
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16 understanding of children's responses to trauma. Future research may be usefully directed  
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18 towards elucidating the various pathways to chronic PTSD in children and adolescents  
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20 exposed to single-event trauma, with the recognition that dissociation may be only one  
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22 pathway out of many.  
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27 The little overlap between dissociative symptoms compared with Harvey and Bryant  
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29 (1999) may be attributable to varying sample sizes, or the different assessment tools used at  
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31 each site. Nevertheless it does suggest that, within children and adolescents, the dissociative  
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33 symptoms listed in the criteria for a DSM-IV diagnosis of ASD are distinct concepts. The  
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35 place of amnesia within this symptom cluster, given its very low overlap with other  
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37 symptoms, is more open to debate. This was the most frequently endorsed dissociative  
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39 symptom by some way, and the second most frequently endorsed ASD symptom overall.  
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41 Amnesia as assessed by the measures used at the sites in this study may not correspond to a  
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43 genuinely dissociative amnesia (in the sense of a "blocking out" of distressing memories) but  
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45 rather normal forgetting or the cognitive limitations associated with encoding a traumatic  
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47 stressor.  
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53 There are several limitations that need to be considered when evaluating the findings  
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55 of this study. In terms of the methodology used, different (albeit reliable) measures were used  
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57 at each site, as noted above. Furthermore, there were differences between sites in the nature  
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59 of the trauma experienced, with all the children at the Philadelphia site being admitted (and  
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4 by implication more seriously injured). Other cultural or social differences between the  
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6 various sites may also have played a role, such as ethnicity or healthcare systems. In terms of  
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8 the generalisability of these findings, it is important to note that MVAs are a quite distinctive  
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10 type of trauma, that are over quite quickly indeed, frequently do not involve intentional harm,  
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12 and in the present study, involved attendance at hospital. Other single-event traumatic  
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14 stressors (e.g. an assault or natural disaster) may present with a different pattern of acute  
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16 stress symptomatology. In addition, the mean age of the study sample was quite old.  
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19 Research (and quite possibly clinical innovation) is needed to overcome the methodological  
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21 challenges associated with assessing dissociation and acute traumatic stress symptoms in  
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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
Derealisation	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

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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

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ASD = acute stress disorder. All  $\chi^2$  statistics were significant at  $p < .001$ .

For Peer Review

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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. Derealisation	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	-

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