

Traumatic experiences and dissociative symptoms among Swedish adolescents. A pilot study using Dis-Q-Sweden

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The aim of this study was to explore the occurrence of dissociative symptoms in relation to reported traumatic experiences among adolescents. A normative sample of 216 adolescents and a clinical sample of 30 cases with a history of traumatization were given the Swedish translation of Dissociation Questionnaire, DIS-Q. The results showed that 8.8% of the adolescents reported scores above the cut-off score of 2.5 on the Dis-Q-Sweden, with a female–male ratio of 2.6:1. In the normative sample, 53 (24.5%) of the adolescents reported one or more trauma experiences. The adolescents who self-reported trauma experiences in the normative sample scored higher on the total Dis-Q-Sweden scores and on three of the four subscales compared to the adolescents with no such experiences. The clinical group exhibited significantly higher Dis-Q-Sweden scores than the normative sample on every scale, with 60% above the cut-off score. The study confirms the results from earlier studies that adolescents with a history of trauma exhibit more dissociative symptoms in this study according to Dis-Q-Sweden. The impact of trauma qualities and background factors on the development of dissociative symptoms need to be studied further.

• *Adolescents, DIS-Q, Dissociation, Measurement, Trauma.*

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Children including adolescents are far more prone to victimization than adults. For example, in an US survey, one-quarter of 2000 children aged 10–16 years reported that they had experienced victimization including experiencing or witnessing sexual or physical assaults (1). Children are also reported as being frequent victims or witnesses of community violence (2). Children who have experienced or witnessed traumatic events are reported to suffer from psychological distress and poorer psychological adjustment in society (3, 4). Psychological reactions and psychiatric symptoms are common after traumatic experiences such as witnessing community violence (5), large-scale accidents (6), war (7), serious injury or death (8), domestic violence (9), or after being subjected to sexual (10) or physical abuse (11).

Symptoms and behavioural problems reported after traumatic experiences include anxiety, depression and post-traumatic stress disorder (12). Dissociation has also been associated with severe stress and trauma. DSM-IV (13) defines the essential features of dissociative disorders as a failure to integrate cognitive functions associated with consciousness, identity, memory or

perception of the environment. Terr (14) has conceptualized dissociation as a coping strategy used to reduce overwhelming anxiety in situations of extreme stress. Steiner et al. (15) have looked at dissociation as a defence in their research, while others have described dissociation as an auto-hypnotic disorder, a skill, an altered state of consciousness or a neurobiological phenomenon (16). Four domains are widely considered to reflect basic aspects of dissociation (17). These are: dissociative amnesia with lapses in memory that reflects breaches in information processing, absorption and imaginative involvement with fantasy activities that can render a confusion between fantasy and reality, passive influence with experiences of not having control over one's body and sensations, and finally depersonalization and derealization which reflects the feeling of being disconnected from one's body and the world.

Children are supposed to have a greater tendency to dissociate, which diminishes as more effective coping strategies develop with age (18–21). Several studies have shown comparably higher rates of dissociative symptoms

among sexually abused children than in non-abused children (22–24).

Only a few studies of dissociation during adolescence have been published. Two of the instruments used are the self-questionnaire Adolescent Dissociative Experiences Scale (A-DES) and the observer-screening instrument Child Dissociation Checklist (CDC). Smith & Carlson (25) and Armstrong et al. (17) using the A-DES showed that increased scores were associated with reported trauma in a patient population and that A-DES could distinguish dissociative disordered adolescents from a normal sample and from patients with a variety of diagnoses. Putnam et al. (26) found that dissociation, as measured by the CDC, extends on a continuum from very low levels of age-appropriate dissociative behaviours in control children to high levels in children and adolescents diagnosed with dissociative disorders. In another study, the relation between hypnotisability and dissociativity in sexually abused girls was studied (23). Carrion & Steiner (27) used the Structural Clinical Interview for DSM-IV Dissociative Disorders (SCID-D) (28) in a study of trauma and dissociation in delinquent adolescents. They concluded that there was support for an early link between history of trauma and dissociation.

When using the self-reporting questionnaire Dissociation Questionnaire (DIS-Q) (18, 29) in a combined study of the general population (above 10 years of age) of the Netherlands and Belgium (18) 2.94% reported clinically significant dissociative experiences. In another study from the general population (above 10 years of age) of the Netherlands (30), the rate was 2.1% and in a Hungarian sample (31) 10.6% reported serious dissociative experiences.

The aim of this study was to study the occurrence of dissociative symptoms measured by the Swedish translation of DIS-Q, here called Dis-Q-Sweden (32, 33), and the relation to reported traumatic experiences in a normative and a traumatized sample (clinical cases) of adolescents. We hypothesized that dissociative symptoms should be more frequent among traumatized adolescents (clinical cases) than among adolescents with and without self-reported trauma in the normative sample. Those with self-reported traumas in the normative group were hypothesized to have more dissociative symptoms than those without self-reported traumas in the normative group. Furthermore, we expected a high correlation to general symptomatology measured by the Youth Self-Report (YSR) (34).

Method

Research procedure

Since socio-cultural factors may play an important role in the experience of dissociative phenomena, we decided to use the DIS-Q (35), as it was the only questionnaire

developed in Western Europe. DIS-Q is composed of 63 items with five different answering alternatives. The subject has to circle one of five answers, indicating to what extent that item or statement is applicable to that particular subject (1 = not at all; 2 = a little bit; 3 = moderately; 4 = quite a bit; 5 = extremely). A total score and four subscale scores are obtained by dividing the total raw score for each scale by the number of included items. Consequently, the total score and each subscale score can vary between 1 and 5. The four subscales are: 1) identity confusion/fragmentation, 25 items; 2) loss of control over behaviour, thoughts and emotions, 18 items; 3) amnesia, 14 items; and 4) absorption, six items. The subscales cover the four basic aspects of dissociation as suggested by Armstrong et al. (17). By comparing the total scores between a normal sample and a patient group, a cut-off score of 2.5 was set based on excellent sensitivity and specificity (18). The DIS-Q also collects data on age, sex, educational level, civil status and a listing of previous experiences of trauma (severe bodily injury, physical abuse, state of war, sexual abuse, emotional maltreatment, diseases and other).

The psychometrics of the DIS-Q has been proven satisfactory as concerns factorial structure, internal consistency, test–retest reliability, construct and convergent validity (18, 29).

After permission was granted, the DIS-Q was translated into Swedish by three independent researchers/therapists. A consensus procedure was performed and an experienced translator retranslated the agreed version to English with good agreement with the original version. After some linguistic adjustments, the final version Dis-Q-Sweden was established. Psychometric data such as internal consistency (Cronbach's $\alpha = 0.96$, Guttman split half coefficient = 0.92, both whole scale) and test–retest reliability (Spearman $\rho = 0.77$, whole scale) show satisfactory outcome (36). In this study, we have used the original cut-off score of 2.5 from DIS-Q.

In order to study the correlation between dissociation measured by Dis-Q-Sweden and general behaviour problems, the Swedish translation of the well-known self-questionnaire YSR (34, 37) was used. The questionnaire has a social competence scale of seven items and a problem scale consisting of 103 items. In this study, only the problem scale was used. Each item can be answered with three alternatives: not true, somewhat or sometimes true, and very true or often true. Through statistical analyses (principal component analysis), nine syndrome scales are derived: withdrawn, somatic complaints, anxious/depressed, social problems, thought problems, attention problems, self-destructive/identity problems (only boys), delinquent behaviours and aggressive behaviour (34).

Subjects

The approach to selecting subjects was randomly to choose four classes of pupils from 9th grade (aged 15–16 years) in the compulsory school system, representing two different socio-economical areas in Linköping: one area with mainly rented houses and apartments, and one area with mainly private houses. Out of 118 possible respondents, 110 completed the Dis-Q-Sweden questionnaire.

Another group comprised five classes representing five different education programmes from the upper secondary school (aged 17–19 years). There were 112 adolescents in these five classes, of which 106 completed the Dis-Q-Sweden questionnaire and the YSR.

In all, 216/230 potential subjects completed the Dis-Q-Sweden questionnaire, resulting in a participation rate of 94%. Non-attenders (eight boys and six girls), usually because of sickness, explained the drop-outs. The mean age (\pm standard deviation) was 16.3 ± 0.95 years (range 15–19 years) and the sex ratio was 104 boys and 104 girls. Eight adolescents did not indicate their gender. The information from the subjects was anonymous and it was therefore impossible to corroborate the self-reported experiences of trauma with any other source of information.

A clinical group of 30 adolescents was chosen from child and adolescent psychiatry outpatient clinics, BUP-Elefanter (a specialized clinic for treatment of abused children) and the Child and Family Team of the Refugee Medical Center at the University Hospital in Linköping. This clinical group consisted of 25 girls and 5 boys (mean age 16.4 ± 1.57 years; range 14–19 years), all highly suspected of being traumatized by physical abuse, sexual abuse or by war experiences. It was independently possible in this way to corroborate the self-reported traumata in the clinical group, such as sexual abuse, physical abuse and war experiences, with the known clinical history as documented by the therapists. The agreement between the two sources of information was 96.7%, one subject not reporting trauma in the questionnaire.

Statistics

The results are presented in frequencies and mean values. For statistical analyses of differences between groups on individual items, chi-square has been used; for comparisons of total score and subscale scores Kruskal–Wallis test and the Mann–Whitney *U*-test was used. Correlation between Dis-Q-Sweden and YSR was estimated with Pearson *r*.

Ethical considerations

The study was approved by the Human Research Ethics Committee, Faculty of Health Sciences, Linköping University, 970225 (Dnr. 97046).

Results

Self-reported trauma

The normative sample could be divided into two subgroups, one with no self-reported experience of trauma and the other with self-reported traumatic experiences of various types. Of the 216 participating adolescents, 53 (24.5%) reported one or more traumatic experiences (Table 1). Sixty-four different traumatic experiences were reported and seven adolescents reported more than one trauma. Of the seven listed different types of trauma, physical abuse and emotional maltreatment were the most prevalent counting 5.6% respectively. Experiences of war (refugees mainly from former Yugoslavia) and severe bodily injury were the next to follow with 5.1% each. Sexual abuse (both by family members and non-family members) counted for 1.4%. Twenty adolescents (9.3%) reported different kinds of child abuse (emotional maltreatment, physical abuse and sexual abuse). The category “other” constituted adolescents that had witnessed community violence, for example homicide and arson. Twenty-six boys (25.0%) and 26 girls (25.0%) reported that they had had a traumatic experience. The most common experience among boys was physical abuse (7/104 cases) and severe bodily injury (7/104 cases). Among girls, emotional maltreatment (9/104 cases) and war experiences (9/104 cases) were most frequent.

Table 1. Normative sample; different types of self-reported trauma experiences.

Type of trauma	Frequency/percentage of trauma, <i>n</i> /%			Dis-Q-Sweden total scores		
	All, <i>n</i> = 216	Girls, <i>n</i> = 104*	Boys, <i>n</i> = 104*	All	Girls	Boys
Severe bodily injury	11/5.1	4/3.8	7/6.7	1.56	1.54	1.57
Physical abuse	12/5.6	5/4.8	7/6.7	2.03	2.33	1.82
State of war	11/5.1	9/8.7	1/1.0	2.09	1.98	3.10
Sexual abuse	3/1.4	3/2.9	0	2.25	2.25	0
Emotional maltreatment	12/5.6	9/8.7	3/2.9	2.38	2.52	1.99
Diseases	5/2.3	3/2.9	2/1.9	1.52	1.51	1.52
Other	10/4.6	1/1.0	9/8.7	1.85	2.30	1.80
Total	64	34	29			

*8 questionnaires missed a gender indication.

In the clinical group, sexual abuse (19/29 cases), physical abuse (12/29 cases) and emotional maltreatment (11/29 cases) were the most common reported experiences. Multiple self-reported traumas were more common in the clinical group (19/29 cases) than in the normal group (7/53). This difference was statistically significant (chi-square = 23.686, df = 1, $P < 0.0001$).

Dissociative symptoms

In the normative group as a whole, the girls scored higher than boys did on 57 of the 63 items. Chi-square analyses revealed significant differences on 18 out of these 63 items, all with girls scoring higher than boys. This was mirrored in the data showing that girls had a significantly higher total score using Mann–Whitney *U*-test ($z = 2.338$, $P = 0.0194$) as well as a higher score on the two subscales identity confusion/fragmentation ($z = 2.059$, $P = 0.0395$) and loss of control ($z = 2.890$, $P = 0.0039$) (Table 2).

The clinical group had a statistically significant higher score on 47 of the 63 items when compared to the normative group. The clinical group had significantly higher total score ($z = 5.908$, $P < 0.0001$) as well as higher subscores compared to the normative group (Dis-Q1, $z = 5.531$, $P < 0.0001$; Dis-Q2, $z = 5.601$, $P < 0.0001$; Dis-Q3, $z = 5.995$, $P < 0.0001$; Dis-Q4, $z = 3.993$, $P < 0.0001$) (Table 3). The average item result and standard deviation for the normal group was 1.74 ± 0.51 , compared with 2.63 ± 0.79 in the clinical group. The differences were mainly due to the differences between the girls in the two groups (Table 3).

The Kruskal–Wallis test revealed a significant difference between the three groups; the normative sample with and without self-reported trauma and the clinical group both in total score ($P < 0.0001$) and all the four subscores ($P < 0.0001$) (Table 4). The comparison between the two subgroups within the normative sample (with and without self-reported trauma) showed that the groups differed significantly with respect to total score ($z = 2.880$, $P = 0.0040$), Dis-Q1 ($z = 3.074$, $P = 0.0021$), Dis-Q4 ($z = 3.235$, $P = 0.0012$) and Dis-Q2 scores ($z = 2.322$, $P = 0.0202$), with the trauma-positive group scoring higher (Table 4). There was no significant

difference between the two subgroups on the subscale Dis-Q3 ($z = 1.009$, $P = 0.3130$).

Using the cut-off score above 2.5 as suggested by Vanderlinden et al. (18, 29), 19 adolescents (13 girls and five boys, gender ratio 2.6:1) or 8.8% of the normative sample scored above this cut-off point. There was a significant difference (chi-square = 5.865, df = 1, $P < 0.0154$) between the two groups with (9/53, 17.0%) or without self-reported trauma (10/163, 6.1%). In the clinical group, 18 adolescents (60.0%) scored above this cut-off point.

Trauma, general behaviour and dissociation

There was no difference between boys and girls when it came to general behaviour problems measured by YSR. The students that reported trauma (25/106) showed a higher level of general behaviour problems measured by YSR than the students that did not report any experience of trauma (81/106), $P < 0.01$. This was true for boys ($P < 0.01$) but not for girls.

The correlation between the total Dis-Q-Sweden and the total YSR score was $r = 0.79$, ($P < 0.0001$). The correlation between the Dis-Q-Sweden subscale scores and the total YSR score varied from $r = 0.81$ ($P < 0.0001$) for Dis-Q1 (identity confusion) to $r = 0.51$ ($P < 0.0001$) for Dis-Q3 (amnesia).

Discussion

Traumatic experiences seem to be rather common among a normal sample of Swedish adolescents. Almost one-quarter of the adolescents in this study reported that they had had experiences of traumatic events. Child abuse perceived as emotional maltreatment, physical abuse and/or sexual abuse had been experienced by almost 10% of the studied population. Dissociative features measured by the Dis-Q-Sweden questionnaire were significantly more prevalent among traumatized adolescents compared with the normative group and the subgroup adolescents who reported having experienced trauma within the normative group. Girls in the normative sample reported over all more symptoms of dissociation than boys and the differences between the girls also explained most of the differences between the

Table 2. Dis-Q-Sweden, differences between gender in the normative sample.

Scales	Girls, $n = 104$	Boys, $n = 104$	Statistical significance, Mann–Whitney	
	Mean \pm s	Mean \pm s	z	P
Dis-Q1	1.67 \pm 0.59	1.48 \pm 0.42	2.059	0.0395
Dis-Q2	2.11 \pm 0.70	1.82 \pm 0.57	2.890	0.0039
Dis-Q3	1.67 \pm 0.53	1.55 \pm 0.41	1.344	0.1789
Dis-Q4	2.08 \pm 0.75	2.00 \pm 0.76	0.092	0.3553
Total score	1.83 \pm 0.55	1.64 \pm 0.45	2.338	0.0194

s, standard deviation.

Table 3. Dis-Q-Sweden scores, comparison between groups.

Scales	Normative sample			Clinical group		
	All, <i>n</i> = 216	Girls, <i>n</i> = 104	Boys, <i>n</i> = 104	All, <i>n</i> = 30	Girls, <i>n</i> = 25	Boys, <i>n</i> = 5
	Mean \pm <i>s</i>	Mean \pm <i>s</i>	Mean \pm <i>s</i>	Mean \pm <i>s</i>	Mean \pm <i>s</i>	Mean \pm <i>s</i>
Dis-Q1	1.58 \pm 0.51	1.67 \pm 0.59	1.48 \pm 0.42	2.60*** \pm 1.04	2.79*** \pm 1.02	1.62 \pm 0.31
Dis-Q2	1.97 \pm 0.65	2.11 \pm 0.70	1.82 \pm 0.57	2.89*** \pm 0.79	3.07*** \pm 0.73	2.01 \pm 0.41
Dis-Q3	1.62 \pm 0.49	1.67 \pm 0.53	1.55 \pm 0.41	2.33*** \pm 0.71	2.39*** \pm 0.75	2.03* \pm 0.39
Dis-Q4	2.04 \pm 0.75	2.08 \pm 0.75	2.00 \pm 0.76	2.63*** \pm 0.71	2.69** \pm 0.73	2.31 \pm 0.58
Total	1.74 \pm 0.51	1.83 \pm 0.55	1.64 \pm 0.45	2.63*** \pm 0.79	2.77*** \pm 0.77	1.90 \pm 0.30

s, standard deviation.

Mann–Whitney *U*-test between all, girls and boys in the two groups.

P* < 0.05; *P* < 0.001; ****P* < 0.0001.

normative and the clinical sample. The clinical traumatized group also differed from this non-clinical group when it came to having experienced multiple traumatic events more frequently.

The study design limits the possibility of drawing general conclusions from the data. First, it needs to be underlined that dissociation and dissociative symptoms in this study is based on the self-questionnaire and not on clinical interviews. This could question the validity, but in the studies by Vanderlinden et al. (18), there was a high agreement between clinical diagnoses of dissociation and scores above the cut-off point of 2.5. Some other precautions must be taken into consideration. Selecting representative school classes from different living areas and educational programmes has both methodological advantages and disadvantages. The population of 9th graders in Linköping, for example, represents an urban population, whereas the adolescents from the upper secondary school represent both urban and rural districts. On the other hand, the administration of questionnaires in the classroom helps to facilitate the distribution, provides better opportunities for subjects to ask questions and reduces the drop-out rate, in this case to 6%. This is of course a major benefit since other studies suffer from drop-out rates in the range of 53–62% (18, 30). Another limitation of the study is worth noting. It concerns the problem of retrospective

trauma assessment. Is there a risk for under- or over-reporting of traumatic experiences? Memory bias could be present, as Dreijer & Langeland (38) suggest with both over-reporting because of high suggestibility and under-reporting as a consequence of amnesia. Only in the clinical cases was there a possibility to corroborate the information with information from records or therapists. In those cases, the information was validated in 96.7%. This is at the same level as Chu & Frey (39) present, among patients that reported having partial or total amnesia for childhood traumas. However, in the non-clinical group we had no independent corroboration because of the need of confidentiality. Therefore, the validity of the abuse reports in the non-clinical group cannot be ensured. Dissociative symptoms were rather common among normal Swedish adolescents. The 8.8% prevalence of scores above 2.5 in this Swedish adolescent population is considerably higher than those reported by Vanderlinden from the Netherlands 2.1% (18, 30, 40) and Flemish Belgium 4.3% (40). An even higher rate was, however, obtained in the study from Hungary (10.6%). The rather high scores in our sample of adolescents could partly be explained by the relatively younger age of our subjects. Other studies have shown that younger people have more dissociative symptoms than older, i.e. that dissociative symptomatology decline with age.

Table 4. Dis-Q-Sweden scores, comparison between groups.

Scales	A1 = Normative group without trauma, <i>n</i> = 161, Mean \pm <i>s</i>	A2 = Normative sample with trauma, <i>n</i> = 53, Mean \pm <i>s</i>	B = Clinical group, <i>n</i> = 30, Mean \pm <i>s</i>	Kruskal–Wallis test	
				<i>H</i>	<i>P</i> <
Dis-Q1	1.50 \pm 0.44	1.80** \pm 0.65	2.60 \pm 1.04	39,021	0.0001
Dis-Q2	1.91 \pm 0.64	2.15* \pm 0.66	2.89 \pm 0.79	35,794	0.0001
Dis-Q3	1.59 \pm 0.47	1.68 \pm 0.52	2.33 \pm 0.71	32,409	0.0001
Dis-Q4	1.94 \pm 0.69	2.36** \pm 0.83	2.63 \pm 0.71	25,224	0.0001
Total	1.68 \pm 0.48	1.93** \pm 0.56	2.63 \pm 0.79	42,106	0.0001

s, standard deviation.

Mann–Whitney *U*-test A1/A2 * < 0.05; ***P* < 0.01.

In this study overall, girls reported more symptoms of dissociation than boys. Girls scored higher both on individual items, total score and on the subscales identity confusion and loss of control as well as scores above the cut-off point of 2.5. These results differ from those in the first study of Vanderlinden et al. (18), where no gender differences were found on the total DIS-Q score and where seven of the 11 subjects that scored above 2.5 were men. The results are, on the other hand, in agreement with their second study where the female–male ratio was 7:1 and where women showed significantly higher scores on the subscale loss of control (30).

The connection between trauma and dissociative symptoms, measured by Dis-Q-Sweden, confirms the results from other studies using different methods to study the relation between trauma and dissociative symptoms among adolescents (17, 23, 26, 27). This connection is of clinical importance to recognize both for identification of potential trauma aetiology of complex symptomatology such as dissociation and the treatment of traumatized adolescents.

Multiple traumatic events were more prevalent in the clinical group compared to the group with reported trauma in the non-clinical group, this together with the high scores for clinical cases compared with the two non-clinical groups indicates a possible relation between the severity of trauma and the frequency of dissociative symptoms. This is in accordance with several other studies (23, 38, 41, 42). Unfortunately, there was no information about the quality and gradation of the experienced traumas.

Amnesia (Dis-Q3) did not distinguish the traumatized normative group from the non-traumatized but similar findings were reported in the studies of Vanderlinden et al. (35). They found that amnesia could not be used to distinguish between minor trauma and controls, and this is supported by the study of Chu & Frey (39). One explanation could be that it probably takes severe trauma, e.g. multiple or repeated sexual abuse, to cause partial or complete amnesia. A not negligible number of adolescents in the clinical group (40%) did not reach the (preliminary) cut-off point of 2.5 on Dis-Q-Sweden. Putnam et al. (43) suggested that, in traumatized clinical populations, there are subsets of high dissociators and low dissociators. This could be explained by both innate characteristics (salutogenic factors) and environmental circumstances such as parental support etc. This was beyond the aim of this study but is an important topic for further studies.

Finally, dissociation measured with Dis-Q-Sweden was highly correlated with general measures of behaviour problems, as measured with the YSR. This finding suggests that there is a strong component that merely reflects more general higher levels of symptoms and behaviour problems among people with reported

trauma, findings that several earlier studies also have found (18, 44). Nijenhuis et al. (45), on the other hand, found that somatoform dissociation differentiated among specific diagnostic categories after controlling for general psychopathology. As in the study of Vanderlinden et al. (18), the correlation was strongest between general behaviour and the factors identity confusion and loss of control. Vanderlinden (30) also finds that younger people (10–22 years) show higher scores on loss of control than older (40–50 and >60 years). This could, as indicated in our study, also reflect the fact that the high scores on both identity confusion and loss of control might be explained by more general problems related to identity confusion in puberty, instead of to dissociative experiences per se.

Conclusion

This study is one of very few and the first in Sweden looking at the occurrence of dissociative symptoms and the relation of reported trauma and dissociative symptoms among young people (14–19 years of age). This study confirms the results from earlier studies that adolescents with self-reported trauma experiences exhibit more dissociative symptoms measured by Dis-Q-Sweden. Further studies are needed with Dis-Q-Sweden to establish the validation of trauma (a more detailed trauma questionnaire in order to register the age of the subject when the trauma occurred and the experienced severity of the trauma) and the relation between background factors (such as personality traits, family support and socio-economic data) and the development of dissociative symptoms/dissociation. Since dissociation disorders are rarely diagnosed during childhood and because of the complexity of differential diagnosis during adolescence, it would be very useful to have an efficient screening instrument for dissociation in disturbed adolescents in clinical settings. The experiences from the use of Dis-Q-Sweden have led us to include the questionnaire in our intake assessment at the specialized treatment unit (BUP-Elefanten) for physically and sexually abused adolescents.

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References

1. Finkelhor D, Dziuba-Leatherman J. Children as victims of violence. A national survey. *Paediatrics* 1994;94:413–20.
2. Richter JE, Martinez P. The NIMH community violence project: I. Children as victims of and witness to violence. *Psychiatry* 1993;56:7–21.
3. Boney-McCoy S, Finkelhor D. Psychosocial sequelae of violent victimization in a national youth sample. *J Consult Clin Psychol* 1995;63:726–36.
4. Singer MI, Anglin TM, Song LY, Lunghofer L. Adolescents: Exposure to violence and associated symptoms of psychological trauma. *J Am Med Assoc* 1995;273:477–82.

5. Horowitz K, Weine S, Jekel J. PTSD symptoms in urban adolescent girls: Compounded community trauma. *J Am Acad Child Adolesc Psychiatry* 1995;34:1353–61.
6. Yule W, Udwin O, Murdock K. The "Jupiter" sinking effects on children's fears, depression and anxiety. *J Child Psychol Psychiatry* 1990;31:1052–61.
7. Kinzie JD, Sack WH, Angell RH, Manson S, Rath B. The psychiatric effects of massive trauma on Cambodian children: I. The children. *J Am Acad Child Adolesc Psychiatry* 1986;25:370–6.
8. Pynoos RS, Nader K. Children's exposure to violence and traumatic death. *Psychiatric Annals* 1990;20:334–44.
9. Jaffe PG, Wolfe DA, Wilson SK. Children of battered women. Thousand Oaks, CA: Sage Publications; 1990.
10. Kendall-Tackett KA, Williams LM, Finkelhor. Impact of sexual abuse on children: A review and synthesis of recent empirical studies. *Psychol Bull* 1993;113:164–80.
11. Kolko DJ. Child physical abuse. In: Briere J, Berliner L, Jenny C, Bulkley J, Reid T, editors. *APSAC handbook of child maltreatment*. Thousand Oaks, CA: Sage Publications; 1996.
12. Saigh PA, Green BL, Korol M. The history and prevalence of posttraumatic stress disorder with special reference to children and adolescents. *J School Psychol* 1996;34:107–31.
13. American Psychiatric Association. *Diagnostic and statistical manual of mental disorders*, 4th edition. Washington, DC: APA; 1994.
14. Terr LC. Childhood traumas: An outline and overview. *Am J Psychiatry* 1991;148:10–20.
15. Steiner H, Garcia IG, Matthews Z. Posttraumatic stress disorder in incarcerated juvenile delinquents. *J Am Acad Child Adolesc Psychiatry* 1997;36:357–65.
16. Putnam F. *Diagnosis and treatment of multiple personality disorder*. New York: Guilford Press; 1989.
17. Armstrong JG, Putnam FW, Carlson EB, Libero DZ, Smith SR. Development and validation of a measure of adolescent dissociation: The Adolescent Dissociative Experiences Scale. *J Nerv Ment Dis* 1997;185:491–7.
18. Vanderlinden J, Van Dyck R, Vandereycken W, Vertommen H. Dissociative experiences in the general population in the Netherlands and Belgium: A study with the Dissociation Questionnaire (DIS-Q). *Dissociation* 1991;4:180–4.
19. Ross CA, Ryan L, Anderson G, Ross D, Hardy L. Dissociative experiences in adolescents and college students. *Dissociation* 1989;2:239–42.
20. Ross CA, Joshi S, Currie R. Dissociative experiences in the general population. *Am J Psychiatry* 1990;147:1547–52.
21. Ross CA, Joshi S, Currie R. Dissociative experiences in the general population: A factor analysis. *Hosp Community Psychiatry* 1991;42:297–301.
22. Atlas JA, Weissman K, Liebowitz S. Adolescent inpatients' history of abuse and dissociative identity disorder. *Psychol Rep* 1997;80:1086.
23. Putnam FW, Helmers K, Horowitz LA, Trickett PK. Hypnotizability and dissociativity in sexually abused girls. *Child Abuse Neglect* 1995;19:645–56.
24. Sanders B, Golas BH. Dissociation and childhood trauma in psychologically disturbed adolescents. *Am J Psychiatry* 1991;148:50–4.
25. Smith SR, Carlson EB. Reliability and validity of the Adolescent Dissociative Experience Scale. *Dissociation* 1996;9:125–9.
26. Putnam FW, Helmers K, Trickett PK. Development, reliability, and validity of a child dissociation scale. *Child Abuse Neglect* 1993;17:731–41.
27. Carrion VG, Steiner H. Trauma and dissociation in delinquent adolescents. *J Am Acad Child Adolesc Psychiatry* 2000;39:353–9.
28. Steinberg M. Interviewer's guide to the Structured Clinical Interview for DSM-IV Dissociative Disorders (SCIS-D). Washington, DC: American Psychiatric Press; 1994.
29. Vanderlinden J, Van Dyck R, Vandereycken W, Vertommen H, Verkes RJ. The Dissociation Questionnaire (DIS-Q): Development and characteristics of a new self-report questionnaire. *Clin Psychol Psychother* 1993;1:21–7.
30. Vanderlinden J, Van Dyck R, Vandereycken W, Vertommen H. Trauma and psychological (dys)functioning in the general population of the Netherlands. *Hosp Community Psychiatry* 1993;44:786–8.
31. Vanderlinden J, Varga K, Peuskens J, Pieters G. Dissociative symptoms in a population sample of Hungary. *Dissociation* 1995;8:205–8.
32. Nilsson D, Svedin CG, Lindell C. Dis-Q-Sweden (In Swedish). Linköping: BUP-Elefant; 1997.
33. Nilsson D. Dis-Q-Sweden – ett självvarsformulär för mätning av dissociation. Forskningsrapport (Dis-Q-Sweden – a self questionnaire for evaluation of dissociation. Research rapport) (in Swedish). Linköping: Institution of Education and Psychology; 1998.
34. Achenbach TM. *Manual for the Youth Self-Report and Profile*. Burlington, VT: Department of Psychiatry University of Vermont; 1991.
35. Vanderlinden J. Dissociative experiences, trauma and hypnosis. Research findings & clinical application in eating disorder. Delft: Eburon; 1993.
36. Nilsson D, Svedin CG. Dis-Q-Sweden. A questionnaire for dissociative experiences (in preparation).
37. Ekroth K. Youth self-report: Reliability, general and cross-cultural validity (in Swedish). Göteborg: Göteborg University, Institution of Psychology; 1996.
38. Draijer N, Langeland W. Childhood trauma and perceived parental dysfunction in the etiology of dissociative symptoms in psychiatric inpatients. *Am J Psychiatry* 1999;156:379–85.
39. Chu JA, Frey LM. Memories of childhood abuse: Dissociation, amnesia, and corroboration. *Am J Psychiatry* 1999;156:749–55.
40. Vanderlinden J, Van der Hart O, Varga K. European studies of dissociation. In: Michelson LK, Ray WJ, editors. *Handbook of dissociation. Theoretical, empirical, and clinical perspectives*. New York: Plenum Press; 1996.
41. Chu JA, Dill DL. Dissociative symptoms in relation to childhood physical and sexual abuse. *Am J Psychiatry* 1990;147:887–92.
42. Nijenhuis ERS, Spinhoven P, van Dyck R, van der Hart O, Vanderlinden J. Degree of somatoform and psychological dissociation in dissociative disorder is correlated with reported trauma. *J Trauma Stress* 1998;11:711–30.
43. Putnam FW, Carlson EB, Ross CA, Clark P, Torem M, Bowman ES, et al. Patterns of dissociation in clinical and nonclinical samples. *J Nerv Ment Dis* 1996;184:673–9.
44. Tillman JG, Nash MR, Rhue JW. Does trauma cause dissociative pathology? In: Lynn SJ, Rhue JW, editors. *Dissociation: Clinical and theoretical perspectives*. New York: Guilford; 1994.
45. Nijenhuis ERS, van Dyck R, Spinhoven P, van der Hart O, Chatrou M, Vanderlinden J, et al. Somatoform dissociation discriminates among diagnostic categories over and above general psychopathology. *Aus NZ J Psychiatry* 1999;33:511–20.

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