SRD-10 – Short Scale for the Assessment of Stress-Related Dissociation Symptomatology

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Abstract

A short scale for brief assessment of the level of stress-related dissociation symptomatology has been designed. (SRD-10). The content of the scale's measurement are memory, attention and emotional disturbances. This work presents empirical arguments to support the following theses: 1. the SRD-10 scale measures dissociative disturbances, 2. this scale measures stress-related dissociative disturbances, 3. the scale effectively measures stress-related dissociative disturbances and 4. the content of the SRD-10 scale measurement is a cluster of symptoms representing an important part of the clinical picture of an entity called posttraumatic stress disorder.

INTRODUCTION

A large number of instruments for assessment and diagnosis of dissociative states, tendencies and disorders have been produced recently. Among these instruments there are »The Dissociative Experiences Scale« - DES (Bernstein & Putnam, 1986), »The Perceptual Alteration Scale« - PAS (Sanders, 1986), »The Questionnaire of Experiences of Dissociation« - QED (Riley, 1988), »The Dissociation Questionnaire« - DIS-Q (Vanderlinden, Van Dyck, Vandereycken, Vetommen & Verkes, 1993), »Somatoform Dissociation Questionnaire« - SDQ-20 (Vanderlinden, Van der Hart & Varga, 1996), in case of self-report instruments, and »The Dissociative Disorders Interview Schedule« - DDIS (Ross, 1989) and »The Structured Clinical Interview for DSM-IV Dissociative Disorders« - SCID-D (Steinberg, 1993), in the event of structured interviews designed for the accurate diagnosis of dissociative disorders.

The empirical studies indicating the interrelation of various forms of dissociative disorders and traumatic experiences (van der Kolk, 1996; van der Kolk, van der Hart & Marmar, 1996; Putnam, 1986; Spiegel and Cardena, 1991; Goodwin & Sach, 1996; Bremner, Krystal, Putnam, Mamar, Southwick, Lubin, Charney & Mazure, 1998; Bremner, Soutwick, Rosenheck, Brett, Fontana & Charney, 1992), attempts have been made to measure stress-related dissociative disturbances. The best known of such attempts resulted in the design of »The Peritraumatic Dissociative Experiences Questionnaire« (Marmar, Weiss & Metzler, 1997). This questionnaire, focused on peritaumatic dissociation, (dissociation occurring at the time of, or immediately after a traumatic experience) was an expression of the need to measure the phenomena shown by numerous research studies to have been related to an increased risk for the development of posttraumatic stress disorder (PTSD) (Marmar, Weiss, Schlenger, Airbank, Jordan, Kulka & Hough, 1994; Koopman, Classen & Spiegel, 1994; Marmar, Weiss, Metzler, Ronfeldt & Foreman, 1996; Ursano, Fullerton, Epstein, Crowley, Vance, Kao & Baum, 1999; Shalev, Peri, Canetti & Schreiber, 1996). However, speaking of the use of this instrument retrospectively, that is upon the expiration of a certain period, a fact should be taken into account that memories related to dissociation at the time of trauma are susceptible to distortions, and that reports on peritraumatic dissociation given several months following the trauma drastically differ from those given immediately after the trauma. Also, it seems that peritraumatic dissociation is not an independent predictor of the PTSD symptoms to follow, as it has been believed so far. Namely, if a statistical control of the initial severity of the PTSD symptoms is taken into account, a (usually obtained) link between perittraumatic dissociation and subsequent severity of PTSD symptoms (Marshall & Schell, 2002) disappears.

The instrument to be proposed in this paper arose from the need to optimise several requests concurrently: 1. to assess dissociation symptoms as a part of the total, current clinical picture of posttraumatic stress (not to assess peritraumatic dissociation, but, at the moment of assessment existing, dissociative symptoms), 2. to make an assessment of

dissociation symptoms which is short and psychometrically efficient, 3. to make an assessment to be efficient in persons of a wide variety of socio-economic and cultural environments and 4. to assess those aspects of dissociation symptomatology shown to be the most frequent ones in the clinical work of our Centre with the trauma and torture victims.

METHOD

The SRD-10[5] scale was designed in 1997 by Goran Kneževic and Vladimir Jovic, aimed at a brief and efficient assessment of stress-related dissociation. The scale contains only 10 items in the form of statements on subjective experiences, two items of which relate to emotional dissociation, two to somatic aspects of dissociation, three to attention and concentration disorders, two to memory disorders and one to the derealis ation tendency (Appendix 1).

The content of instrument measurement proposed in this paper is stress-related dissociation symptoms, but those that present a part of the total posttraumatic reaction clinical picture. Thus, the content of the proposed scale measurement is not peritraumatic dissociation but a symptom residue of dissociative and other mechanisms occurring throughout the period following a traumatic experience. The emphasis placed on the attention and concentration disorders in this scale ensued from the abundance of clinical material resulting from the work of the Centre with the trauma and torture victims. Namely, the experience with the clients in the CRTV IAN Belgrade showed that the symptoms specifying these items occur with relatively high frequency following severe traumatic experiences, such as, for example, a torture experience. These items are added to the group of 15 items from the Impact of Event Scale (IES; Horowitz, Wilner & Alvarez, 1979), being, thus, together with the IES scale items, administered to a large number of clients and subjects coming in contact with the Centre for Rehabilitation of Torture Victims – IAN Belgrade (CRTV IAN).

SURVEY 1

Sample and Instruments

The scale psychometric properties were determined on the sample of 4,884 subjects. There are internally displaced persons from Kosovo at issue, who fled to the territory of narrow Serbia following the bombardment of Kosovo, the Yugoslav Army and police withdrawal from it and entrance of NATO forces into Kosovo (June 1999). A year and half after that event (the end of 2000), on the occasion of humanitarian aid distribution to these people

5 Acronym of the «Stress Related Dissociation». Number 10 refers to the number of items in the scale.

organised by the IAN, a series of instruments for assessment of the property, social and psychological status were administered (among them also being the IES along with the SRD-10 scale). The total number of the returned protocols in which the instruments were correctly filled up is 4,884.

Results

The analysis of psychometric properties of this measuring instrument on 4,884 subjects showed that it was a scale of very high reliability (Cronbach α is 0.92), high variable sampling adequacy (Kaiser-Mayer-Olkine's measure of variable sampling adequacy is 0.94), and extremely high homogeneity (Momirovic's measure of homogeneity[6] amounts to 0.93). This scale had much better psychometric properties than both of the IES subscales, as well as the IES in its entirety. Thus for example, the reliability expressed by the Cronbach's α coefficient of the intrusion scale with the IES on this sample amounted to 0.89, of the avoidance scale 0.80, and of the score with the IES total is 0.90. The arithmetic mean of the dissociation scale score (the scale containing 10 items) – M=13.11 (SD=9.34) is significantly lower than the scores of the intrusion scale (7 items) - M=21.36 (SD=10.10), and avoidance scale (8 items) - M=21.86 (SD=9.81). The SRD-10 scale distribution on this sample is positively skewed, skewness = 0.368 (contrary to the intrusion and avoidance scales in which there is negative skewness recorded, the intrusion skewness = -0.537 and the avoidance skewness = -0.475; stand. error skewness = 0.035). Therefore, the dissociation symptoms, occur considerably less frequently on this sample compared with the intrusion and avoidance symptoms.

SURVEY 2

Sample and Instruments

Convergent and divergent validity of the SRD-10 scale was determined on the sample of 784 subjects comprising the refugees from the collective centres in the territory of Serbia, torture victims – the CRTV IAN Belgrade clients and patients of the Belgrade Mental Health Institute - Clinic for Stress. Apart from the SRD-10 scale, the IES and NEO PI-R – personality inventory (Costa & McCrae, 1992) scales were administered to this group, which enabled the survey of convergent and divergent validity of the SRD-10 scale.

6 This measure is counted as a proportion of the first principal component of image variables in the total variance of image variables. Image variables are calculated, pursuant to L. Guttman's theory in the following way: T = Z(I - R-1U2), where Z represents a matrix of standardised variables, I a identity matrix, R-1 inverse of the variable correlation matrix and U2 a diagonal matrix contining inverse of the R-1 matrix main diagonal.

Results

On the sample of 784 subjects (refugees of the collective centres, torture victims – clients of the CRTV IAN Belgrade and patients of the Mental Health Institute) by the analysis of the key components of the 30 NEO PI-R personality inventory subscales and 3 subscales of stress reactions (intrusion, avoidance and dissociation) there were 5 factors isolated both according to Guttman-Kaiser and according to the Cattella's screen criterion. These 5 factors account for 65.4% of the total variance. Then the isolated key components were rotated into the promax position. The scales of Openness and Extraversion were loaded on the first factor (33.95% of the variance). The second factor was the factor of Conscientiousness (13.66% of the variance). The third one might be interpreted as Neuroticism (7.59% of the variance). The fourth one was the factor of Agreeableness (6.5% of the variance), true enough, rather ill-defined one, as many as three of its subscales having primary loadings on the first factor. The avoidance and intrusion scales had the highest loadings on the first factor, to be followed by dissociations (3.74% of the variance). It is obvious, as it can be seen from the Table 1, that each of the three scales of stress reactions separated into a specific factor as well as that none of these three scales has substantive (above .30) secondary loadings on other factors. Although this factor of stress symptomatology articulates one distinct, clearly distinguishable entity in relation to the entire personality phenomenology, it still correlates significantly with other factors, as it is clearly shown in the Table 2. The obtained correlations among the factors speak of the fundamental interrelatedness of stress symptomatology and basic personality structure.

Table 1. Pattern matrix of 30 NEO PI-R Personality Inventory Facets and 3 Markers of Stress Symptomatology

	O/E	**C**	**N**	**A**	**PTSP**
Excitement seeking	.863				
Fantasy	.852				
Assertiveness	.832				
Ideas	.786				
Actions	.785				
Feelings	.766				
Aesthetics	.738				
Gregariousness	.721				
Positive emotions	.717				
Warmth	.618	.317			
Values	.546			.391	
Activity	.534	.356			
Trust	.486			.312	
Tender-mindedness	.392			.374	
Dutifulness		.938			
Deliberation		.872			

	O/E	C	N	A	PTSP
Achievement striving		.772			
Self-discipline		.764			
Order		.668			
Competence		.659			
Altruism		.555			
Angry hostility			.842	-.364	
Depression			.775		
Anxiety			.762		
Self-consciousness			.762		
Vulnerability		-.349	.589	.330	
Impulsiveness	.512		.547		
Straightforwardness				.779	
Compliance				.775	
Modesty			.324	.657	
Avoidance (IES)					.884
Intrusion (IES)					.871
Dissociation (SRD-10)					.639

O/E = Openness and Extraversion, C = Conscientiousness, N = Neuroticism, A = Agreeableness

Table 2. The Matrix of separate factor correlation

	O/E	C	N	A	PTSP
O/E	1.000				
C	**.540**	1.000			
N	.071	-.271	1.000		
A	.223	.128	.158	1.000	
PTSD	**-.426**	-.266	.199	-.123	1.000

O/E = Openness and Extraversion, C = Conscientiousness, N = Neuroticism, A = Agreeableness

SURVEY 3

Sample and Instruments

The SRD-10 scale concurrent validation was made on a sample of CRTV IAN Belgrade clients (the clients who had war-related trauma as well as torture victims – this time 564 subjects), who concurrently with the SRD-10 and IES scales were administered the DES scale (Bernstein & Putnam, 1986).

Results

For the purpose of these expectations testing a hierarchical regression analysis was done with the intrusion/avoidance and SRD-10 scales as predictors and the DES scale dissociation score as a dependent variable on the sample of 564 subjects who besides the IES and SRD-10 scales also filled up the DES scale. The obtained total effect amounted to $R = 0.555$ ($R2 = 0.308$; corrected $R2 = 0.305$), $F (3;560) = 83.235$, $p < 0.000$. As it can be seen from the Table 3, all three symptom scales have statistically significant correlations with the DES scale score, where the SRD-10 has the highest one. β-coefficients show that only SRD-10 scale contribution to the regressive function is substantial and statistically significant. Thus, the results of this analysis support the statement that dissociation symptoms are the content of the SRD-10 scale measurement. Further on, it should be noticed that the inclusion of the SRD-10 scale as the only DES scale predictor explains practically the identical quantity of variance as well as the entire predictor set. When the SRD-10 scale is introduced as the only predictor, the following values of regression parameters are obtained: change $R2 = 0.306$, change $F (1;562) = 248.11$, $p < 0.000$. The introduction of the intrusion and avoidance scales in the second block does not lead to the further incremental contribution to the explanation of the DES scale variance – change $R2 = 0.002$, change $F (2;560) = 0.859$, $p < 0.424$. The results of this analysis undoubtedly exhibit that the dissociation variance inherent in the intrusion and avoidance scales (which can be seen from the existence of the statistically significant, product-moment correlations between these two scales and the DES) is fully accountable by the content of the SRD-10 scale measurement. Therefore, the selection of the SRD-10 scale items is representative enough to cover all dissociative disturbances contained in the scales of reactions to a traumatic experience such as IES intrusion and IES avoidance scales.

Table 3. β-Coefficients, their Significance and Product Moment of Correlation between Scales of Stress Reaction Symptom Clusters (independent variables) and DES (dependent variable)

	b	**t**	**Sig. (b)**	**r**	**Sig. (r)**
(Constant)		1.209	.227		
Intrusion (IES)	.034	.544	.193	.418	.000
Avoidance (IES)	-.070	-1.303	.587	.328	.000
Dissociation (SRD-10)	**.573**	10.384	**.000**	.553	.000

β = Standardised coefficient, r = Product - moment correlation

SURVEY 4

Sample and Instruments

To consider the position of dissociation disturbances in the PTSD clinical picture, a sample of 158 CRTV IAN Belgrade clients – torture victims was used who apart from the SRD-10 and IES instruments were also administered the CAPS (Clinician-Administered PTSD Scale – Blake, Weathers, Nagy, Kaloupek, Klauminzer, Charney & Keane, 1990) in order to make the PTSD diagnosis.

Results

As the results of the canonical discriminative analysis show, the linear composite - consisting of the IES intrusion, IES avoidance and the SRD-10 scales - which maximises the distance between the group in which PTSD was diagnosed by means of the CAPS and that one in which no PTSD was found (the positions of the discriminative function group centroids were as follows: the group with PTSD 0.233, the group without PTSD -0.424) is constituted primarily of the SRD-10 scale, then the IES intrusion one, while the IES avoidance scale does not take part in the constitution of this linear composite (Table 4)! The strength of discrimination of these two groups of subjects (formed on the structured interview diagnosis) based on self-report measures designed for diagnosis of the identical disorder is unusually low (coefficient of the canonical correlation is 0.301; Wilks lambda = 0.909, Chi-square = 14.698, df = 3; $p < 0.007$).

Table 4. Standardised Coefficients and Structure Matrix of the Canonical Discriminant function differentiating among Subjects with and without PTSD Diagnosis

	Standardised Coefficients	Structure Matrix
Intrusion (IES)	.480	.874
Avoidance (IES)	.079	.646
Dissociation (SRD-10)	.586	.902

DISCUSSION

Scale Psychometric Properties and Distribution of Scores

Basic psychometric properties of the SRD-10 scale are, as shown by the results of our analysis, very good. The SRD-10 score distributions of (in the sample on which basic psychometric properties were determined (Kosovo refugees) were negatively skewed. Having in mind that the score distributions of intrusion and avoidance subscales are

positively skewed (they have considerably larger arithmetical means than the SRD-10 scale), it is clear that the dissociation symptoms on this sample are markedly less represented than the intrusion and avoidance symptoms. A possible explanation of such a result is that dissociation symptoms present an indicator of a more pathological reaction to stress, and that, therefore, more harmonised scores of the intrusion and avoidance, on the one hand and those of dissociation, on the other hand, should be expected both in the event of more drastic forms of posttraumatic reactions and in cases of extremely drastic traumatic experiences.

Convergent and Divergent Validity

The content of the SRD-10 scale measurement is a cluster of symptoms forming an important aspect of a diagnostic entity called posttraumatic stress disorder. Should we suppose the existence of a certain latent mental entity (such as posttraumatic stress disorder), then the indicators of that mental structure will have a tendency to converge mutually. Concurrently, if it is a clearly defined mental entity at issue with well-defined, distinct indicators of that entity there should not be expected concurrent convergence of those indicators towards some other latent mental characteristics (loadings on latent dimension that instantiate other mental entities, i.e. substantive secondary badings). In other words, it should be expected that the SRD-10 scale, if the object of its measurement is an important aspect of the psycho-diagnostic entity such as posttraumatic stress disorder, will form together with other indicators of this entity (scales of IES intrusion and IES avoidance) a respective factor in one comprehensive system of personality indicators like the instrument NEO PI-R with 30 facets, and that it will not have concurrent substantive secondary loadings (loadings on other latent dimensions).

SRD-10 and Dissociation

An expectation ensues from the claim that dissociation symptomatology is the direct object of the SRD-10 scale measurement that the correlations between this scale and classical, well-validated dissociation markers (such as, say, the DES - Dissociation experience scale - Bernstein & Putnam, 1986), must be substantive and higher than the correlations between other clusters of PTSD and dissociation markers. The claim that a selection of items for the SRD-10 scale is representative for a possible universe of dissociative disturbances is followed by an expectation that it should not be a case that other PTSD clusters, i.e. intrusion and avoidance, make an incremental contribution to the explanation of dissociation variance outside the contribution made by the SRD-10 scale. Logic of this expectation is as follows: should it be shown that there is a part of intrusion and avoidance variance explainable by the DES scale, not by the SRD-10 one, it may mean that the SRD-10 scale items are not representative enough in case of a potential universe of dissociation indicators and, therefore, that the scales such as intrusion and avoidance contain some aspects of dissociation contained by the DES, but not by the SRD-10, either. It also might be some specific stress-related dissociative contents (since intrusion and avoidance scales,

per definitionem, measure stress-related disturbances), which are simply not registered by the SRD-10 scale. The results of analyses confirm both expectations, that is: a) the SRD-10 scale measures dissociative disturbances, and b) the SRD-10 scale items are representative for a potential universe of dissociative disturbances to such an extent that they encompass all those aspects of dissociation that are contained in stress reactions such as intrusion and avoidance.

SRD-10 and PTSD

Finally, it remains to provide empirical arguments to support the thesis that the content of the SRD-10 scale measurement is a cluster of symptoms which represent an important part of clinical picture of the phenomenon called posttraumatic stress disorder. Therefore, in case that we claim that dissociation symptomatology is an important part of the PTSD clinical picture, there should be expected correlations between PTSD and dissociative stress reactions of approximately same order of magnitude as those existing between PTSD and clusters of symptoms constituting this disorder. To verify this expectation, the sample of 158 torture victims had been, first of all, administered the CAPS for the purpose of establishing a valid PTSD diagnosis. Thus, a valid and reliable evaluation of the PTSD was obtained by a method completely independent from the IES and SRD-10 scores. Therefore, if dissociation symptomatology presents an important PTSD clinical picture, then correlations between SRD-10 and PTSD diagnosis of the same degree as those between IES intrusions/IES avoidance and PTSD diagnoses should be expected. If the intrusion/avoidance clusters, besides the cluster of hyper-arousal take part in the establishment of a PTSD diagnosis, naturally it should be expected that the IES intrusion/IES avoidance scales will have somewhat higher correlations with the PTSD diagnosis than the SRD-10 scale whose measurement object is the cluster of symptoms not participating in the establishment of the PTSD diagnosis. The results obtained in this connection are rather astonishing. First, the correlation between the self-report measures designed to measure stress symptoms and more reliable methods designed for the measurement of the same phenomena (such as the CAPS) is surprisingly low. Second, what is even more peculiar, the self-report measures of that cluster of symptoms not participating in the establishment of the PTSD diagnosis at all has the greatest proportion in this correlation! Whatever the meaning this uncommon finding may have, one thing is certain: that what participates to the greatest extent in the establishment of the final PTSD diagnosis by such a method as the CAPS (structured interview) is more related to self-reporting on dissociation symptomatology than to self-reporting either on intrusion or avoidance symptoms (at least when the torture victims and measures of IES posttraumatic symptomatology are at issue). In other words, in case that we daim that the IES scales measure symptoms of something that may be recognised as the PTSD, upon such a finding we are forced to even a greater extent to claim the same for the SRD-10. Following such a finding it is really hard to understand why dissociative symptoms are not included in the PTSD clinical picture!

CONCLUSION

Results of our investigation show that the SRD-10 scale designed for measuring of stress-related dissociation symptomatology has exceptionally good psycho-metric characteristics and that it shows a satisfying convergent and divergent validity. There is empirical evidence given that the content of this scale measurement are the psychopathologic contents that represent an intrinsic aspect of the PTSD clinical picture. The results of the analyses have repercussions on the re-examination of the so-far status of the diagnostic entity such as PTSD, in connection with the consideration of possible introduction of dissociation symptoms as a respective cluster of symptoms in PTSD clinical picture.

Appendix 1. Short SRD-10 Scale for Assessment of Stress-related Dissociative Disorders. SRD-10 Scale Items and Their Loadings on the First Principal Component

	Items	Loadings on the first principal component
1.	I feel completely empty and numbed	.738
2.	I cannot understand well what I am reading as I used to	.786
3.	My body does not function in the same way after those experiences	.800
4.	I know that I will never be happy again	.704
5.	I find it very hard to connect my thoughts	.828
6.	Something is wrong with my senses	.811
7.	Sometimes I forget the name of a person I otherwise know very well	.756
8.	People say to me that I am absent-minded	.760
9.	Sometimes it happens to me to go out without putting on some piece of my clothes	.695
10.	Something I am so absorbed in thought that I am not conscious of what is happening around me	.771

The SRD-10 scale items were simply added to the IES scale, which means that the instruction (the subject should indicate whether he/she has had any of the stated experiences, which are to be related to a specific concrete traumatic experience, in the course of the last 7 days), as well as a form of answers (the subject should assess how often these symptoms occur on the four-degree scale choosing from absolutely never, through very rarely and sometimes to often) are identical. Likewise, to enable the comparison of this score with the scores on the intrusion and avoidance scales the same (meaningless) manner of answers assessment was applied as it was in the case of the IES scale, namely, the answer »absolutely never« was assigned score 0, the answer »very rarely« 1, the answer »sometimes« 3 and the answer »often« 5.

REFERENCES

Bernstein, E. and Putnam, F.W. (1986) Development, reliability and validity of a dissociation scale. *Journal of Nervous and Mental Disease* **174**, 727-735.

Blake, D.D., Weathers, F.W., Nagy, L.M., Kaloupek, D.G., Klauminzer, G., Charney D.S. and Keane, M.T. (1990) A clinical rating scale for assessing current and lifetime PTSD: the CAPS-1. *Behavior Therapy* **13**, 187-188.

Bremner, J.D., Krystal, J.H., Putnam, F., Marmar, C., Southwick, S.M., Lubin, H., Charney D.S. and Mazure, C.M. (1998) Measurement of dissociative states with the Clinician Administered Dissociative States Scale (CADSS). *Journal of Traumatic Stress* **11**, 125-136.

Bremner, J., Southwick, S., Brett, E., Fontana, A., Rosenheck, R. and Charney, D. (1992) Dissociation and posttraumatic stress disorder in Vietnam combat veterans. *American Journal of Psychiatry* **149** (3):328-332.

Costa, P.T. and McCrae, R.R. (1992) NEO PI-R Professional Manual, Revised NEO Personality Inventory (NEO-PI-R) and NEO Five-Factor Inventory (NEO-FFI). Odessa: Psychological Assessment Resources, Inc.

Goodwin, J.M. and Sach, R.G. (1996) Child Abuse in the Etiology of Disso ciative Disorders. In: Michelson, L.K. and Ray, W.J., (Eds.) *Handbook of Dissociation: Theoretical, Empirical and Clinical Perspectives* , pp. 91-105. New York and London: Plenum Press.

Horowitz, M.J., Wilner, N. and Alvarez, W. (1979) Impact of Event Scale: a measure of subjective stress. *Psychosomatic Medicine* **41** (3):209-218.

Koopman, C., Classen, C. and Spiegel, D. (1994) Predictors of posttraumatic stress symptoms among survivors of the Oakland/Berkeley, Calif., firestorm. *American Journal of Psychiatry* **151** (6):888-894.

Marmar, C.R., Weis, D.S., Schlenger, W.E., Fairbank, J.A., Jordan, K., Kulka, R. and Hough, R. (1994) Peritraumatic Dissociation and Posttraumatic Stress in Male Vietnam Theater Veterans. *American Journal of Psychiatry* **151** 902-907.

Marmar, C.R., Weiss, D.S. and Metzler, T.J. (1997) The Peritraumatic Dissociative Experiences Questionnaire. In: Wilson, J.P. and Keane, T.M., (Eds.) *Assessing psychological trauma and PTSD* , pp. 412-428. New York: Guilford Press.

Marmar, C.R., Weiss, D.S., Metzler, T.J., Ronfeldt, H.M. and Foreman, C. (1996) Stress responses of emergency services personnel to the Loma Prieta earthquake interstate 880 freeway collapse and control traumatci incidents. *Journal of Traumatic Stress* **9**, 63-85.

Marshall, G.N. and Schell, T.L. (2002) Reaprasing the Link Between Peritraumatic Dissociation and PTSD Symptom Severity: Evidence From a Longitudinal Study of Community Violence Survivors. *Journal of Abnormal Psychology* **111**, 626-636.

Putnam, F.W., Guroff, J.J., Silberman, E.K., Barban, L. and Post, R.M. (1986) The clinical phenomenology of multiple personality disorder: a review of 100 recent cases. *Journal of Clinical Psychiatry* **47**, 285-293.

Riley, K. (1988) Measurement of Dissociation. *Journal of Nerovus and Mental Disease* **176**, 449-450.

Ross, C.A., Heber, S., Norton, G.R., Anderson, D., Anderson, G. and Barchet, P. (1989) The Dissociative Disorder Interview Schedule: A structured interview. *Dissociation* **2**, 169-189.

Sanders, S. (1986) The Perceptual Alteration Scale: A scale measuring dissociation. *American Journal of Clinical Hypnosis* **29**, 95-102.

Shalev, A., Peri, T., Canetti, L. and Schreiber, S. (1996) Predictors of PTSD in injured trauma survivors: a prospective study. *American Journal of Psychiatry* **153** (2):219-225.

Spiegel, D. and Cardena, E. (1991) Disintegrated experience: the dissociative disorders revisited. *Journal of Abnormal Psychology* **100**, 366-378.

Spiegel, D., Koopman, C., Cardena, E. and Classen, C. (1996) Dissociative Symptoms in the Diagnosis of Acute Stress Disorder. In: Michelson, L. and Ray, W., (Eds.) *Handbook of Dissociation: Theoretical, Empirical and Clinical Perspectives* , pp. 367-380. New York and London: Plenum Press.

Steinberg, M. (1993) Structured clinical interview for DSM-IV dissociative dissorders (SCID-D). Washington D.C.: American Psychiatric Press.

Ursano, R.J., Fullerton, C.S., Epstein, R.S., Crowley, B., Vance, K., Kao, T. and Baum, A. (1999) Peritraumatic dissociation and posttraumatic stress disorder following motor vehicle accidents. *American Journal of Psychiatry* **156**, 1808-1810.

van der Kolk, B.A. (1996) Trauma and Memory. In: van der Kolk, B.A., McFarlane, A. and Weisaeth, L., (Eds.) *Traumatic Stress - The Effects of Overwhelming Experience on Mind, Body and Society*, pp. 279-302. New York/London : The Guilford Press.

van der Kolk, B.A., van der Hart, O. and Marmar, C.R. (1996) Dissociation and Information Processing in Posttraumatic Stress Disorder. In: van der Kolk, B.A., McFarlane, A. and Weisaeth, L., (Eds.) *Traumatic Stress - The Effects of Overwhelming Experience on Mind, Body and Society*, pp. 303-327. New York/London: The Guilford Press.

Vanderlinden, J., Van der Hart, O. and Varga, K. (1996) European Studies of Dissociation. In: Michelson, L. and Ray, W., (Eds.) *Handbook of Dissociation: Theoretical, Empirical and Clinical Perspectives*, pp. 25-49. New York and London. Plenum Press.

Vanderlinden, J., Van Dyck, R., Vandereycken, W. , Vertommen, H. and Verkes, R.J. (1993) The Dissociation Questionnaire (DIS-Q). Development and characteristics of a new self-report questionnaire. *Clinical Psychology and Psychotherapy* **1**, 21-27.