

The Disorganized Response Scale: Construct Validity of a Potential Self-Report Measure of Disorganized Attachment

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Objective: Based on the paucity of self-report measures of disorganized attachment (DA), we developed and tested a scale examining adults' self-reported disorganized verbalizations, cognitions, and behaviors when discussing their childhoods. **Method:** The Disorganized Response Scale (DRS) was created and administered to 640 university students, and its associations with variables known to covary with DA, such as childhood maltreatment, insecure attachment, and psychological symptoms, were examined. **Results:** Factor analysis of DRS items revealed a single 15-item dimension that reflected participants' self-reported disorganized responses when discussing their childhoods. Structural equation modeling indicated a good fit to a model in which fearful caretaking and childhood abuse and neglect were associated with the DRS. In turn, the DRS, along with anxious and avoidant attachment, was independently related to symptoms and partially mediated the relationship between child maltreatment and symptomatology. Hierarchical multiple regression indicated that the DRS accounted for significant additional variance in posttraumatic stress, externalization, somatization, and, especially, dissociation, even after demographics and both anxious and avoidant attachment were taken into account. **Conclusions:** Analyses support the construct validity of the DRS as a measure of disorganized attachment-related responses in adults. Further research is indicated to replicate these findings and to evaluate their convergence with interview measures of DA.

Clinical Impact Statement

This study describes a new self-report measure of disorganized attachment-related responses in adults—the Disorganized Response Scale (DRS). As expected, child maltreatment and fearful parenting were related to greater disorganized responses and to psychological symptoms. Subject to further study, this alternative to the more time-consuming, face-to-face interview method of assessing disorganized attachment holds promise for clinicians working with individuals who have experienced abuse, neglect, or dysfunctional parenting.

Keywords: disorganized attachment, child maltreatment, structural equation modeling

Insecure attachment has been widely discussed in the developmental literature, generally referring to lasting disruptions in the bond between a primary caregiver and an infant or young child. Attachment theory (Bowlby, 1973, 1977) considers the attachment relationship between the caretaker and the child to be central in the

subsequent development of identity, emotion regulation, and interpersonal relationships (Levy, Johnson, Clouthier, Scala, & Teemes, 2015).

Early research (e.g., Ainsworth & Bell, 1970; Ainsworth, Blehar, Waters, & Wall, 1978) identified three types of attachment:

This article was published Online First July 16, 2018.

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John Briere receives royalties for the Trauma Symptom Inventory-2. Partial funding for the research was provided by the University of Victoria

(M. Runtz), Fonds de recherche du Québec–Santé (N. Godbout), and Centre de recherche interdisciplinaire sur les problèmes conjugaux et les agressions sexuelles (N. Godbout). We thank Hannah Caird, Carolyn Mirotchnick, Lianne Rosen, and Alexandra Scallion for their assistance with data collection.

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secure, and two forms of insecure attachment (*anxious-ambivalent* and *avoidant*), each of which are thought to reflect the child's relationship with his or her parent(s) in the first years of life. These studies indicated that securely attached children had caretakers who were stable, reliable, and sensitive to their needs, whereas the parents of anxious-ambivalent or avoidant children were less responsive, more rejecting, and/or more inconsistent in their care of the child (Ainsworth et al., 1978; van IJzendoorn, 1995). Main and Solomon (1990) later identified a fourth attachment category, *disorganized/disoriented*. These children did not fit neatly into either of the other two forms of insecure attachment, and were found to exhibit contradictory reactions toward their caretaker, including fluctuations between avoidant and resistant behavior (Waters & Valenzuela, 1999), and signs of apprehension, freezing, dissociation, and confusion (Main & Solomon, 1990). Researchers have linked disorganized attachment (DA) in children to a history of severe neglect or abuse (Howe, 2011; Main & Hesse, 1990), as well as to caretaker dysfunction such as withdrawal and inconsistency (Solomon & George, 2011) and hostile/frightening or helpless/fearful parenting (Lyons-Ruth Dutra, Schuder, & Bianchi, 2006).

As children with DA mature, they may continue to experience various types of disorganized thoughts and behavior in response to relational stimuli (Lyons-Ruth & Jacobvitz, 2008). These can include confusion, disconnected or disorganized thoughts and internal states, contradictory statements about their childhoods, dissociation, lapses in reality monitoring, interrupted thoughts, and erratic behavior (George, Kaplan, & Main, 1996; Lyons-Ruth & Jacobvitz, 2008). DA is also a risk factor for childhood symptoms and problems, especially externalizing behavior and dissociation (van IJzendoorn, Schuengel, & Bakermans-Kranenburg, 1999). Despite studies indicating some continuity of DA over time (van IJzendoorn et al., 1999), there is far less research on DA later in life. In fact, disorganized responses outside of childhood or adolescence are generally overlooked in psychology and psychiatry, or are reformulated in the context of personality disorders (Sperry, 2016). Although psychiatric models of psychological disturbance have utility, research is needed to specifically identify attachment disturbance in adults, where it can be better understood in its developmental context. It may be especially important to investigate DA, since it may be the most debilitating form of attachment disturbance (e.g., Lyons-Ruth & Jacobvitz, 2008).

Assessing DA in Adults

The most common method for evaluating adult attachment responses has been to examine self-reported responses to, and attitudes about, adult intimate relationships. For example, the Relationship Questionnaire (Bartholomew & Horowitz, 1991) and the Relationship Style Questionnaire (Griffin & Bartholomew, 1994) both evaluate self-reported cognitive and emotional responses to close relationships that are thought to represent four adult attachment categories: secure, dismissing, fearful, and preoccupied. Similar measures include the Adult Attachment Questionnaire (Simpson, Rholes, & Phillips, 1996), the Experiences in Close Relationships questionnaire (ECR; Brennan, Clark, & Shaver, 1998), and the Adult Attachment Scale (Collins & Read, 1990), all of which assess anxious and avoidant responses

within close adult relationships. Notably, however, the only adult self-report measure that purports to address the specific construct of DA in adults is the nine-item Adult Disorganized Attachment (Paetzold, Rholes, & Kohn, 2015) scale, which focuses on "fear, confusion about relationships, and distrust of close others" (p. 151). Typical items are "I never know who I am with romantic partners" and "Fear is a common feeling in close relationships."

In contrast to self-report inventories, the Adult Attachment Interview (AAI; George et al., 1996) is often considered the "gold standard" for measuring adult attachment due to its widespread use and the considerable body of research attesting to its validity (Gander, George, Pokorny, & Buchheim, 2017; Goldberg, 2013). The AAI is a detailed structured interview that assesses how the individual processes attachment-related information in relation to past, current, and future attachment experiences, generally during a discussion of his or her childhood. Resultant attachment classifications are secure, dismissing, preoccupied, and, importantly, unresolved/disorganized attachment. The latter category was designed to assess a DA style in adults that was conceptually similar to what is seen in children (Madigan et al., 2006; van IJzendoorn, 1995). This includes incoherent speech, contradictory statements, disbelief in the occurrence of the abuse, and sudden change in topic or narrative during the interview (George et al., 1996). Most studies using the AAI suggest that DA occurs with greater frequency among those with a history of childhood loss or trauma (Lyons-Ruth et al., 2006). Despite its primacy in attachment research, however, there are significant barriers to using the AAI. Among other challenges, it requires considerable training and certification in order to administer and score the interview (Hesse, 2008), and it is based upon a detailed, time-consuming, face-to-face interaction as opposed to self-report measures that can be administered simultaneously to groups of people.

The Current Study

Given the relative absence of self-report measures of DA in adulthood, we created the Disorganized Response Scale (DRS), a measure of adult participants' self-reported history of disorganized responses, confusion, and incoherence when talking about their childhoods. By mirroring the general focus of the AAI, which evaluates adults' verbal behavior in relation to childhood experiences, as opposed to self-report of attitudes and responses to current close relationships (e.g., Paetzold et al., 2015), we hoped to more directly access the disorganized verbalizations, thoughts, and behaviors associated with an AAI model of DA. In this regard, a meta-analysis by Roisman and colleagues (2007) found only small correlations between AAI attachment dimensions and adult attachment measures of attitudes and responses regarding close relationships, suggesting that the two approaches may not be evaluating equivalent constructs.

As a first step toward evaluating the validity of the DRS, we asked three questions: (a) can individuals report on their own disorganized responses, or does such disorganization extend to inconsistent/unreliable reports of their experience; (b) if they can be self-reported, do disorganized responses mediate between child maltreatment and adult symptomatology in ways suggested by the DA literature; and (c) because DA is not equivalent to anxious or

avoidant attachment, do self-reported disorganized responses have unique antecedents (e.g., parental fearfulness) and more symptomatic outcomes (e.g., dissociation) relative to anxious or avoidant attachment, as suggested by DA research?

Apropos to these questions, the utility of the DRS was examined in the context of child maltreatment, caretaker fearfulness, insecure attachment, and psychological symptoms. It was hypothesized that child maltreatment and fearful caretaking would be independently associated with elevated DRS scores, which, in turn, would be related to increased psychological symptoms in a model that controlled for the influence of attachment anxiety and avoidance.

Method

Participants

Participants were 640 students (72% women; 28% men) who were recruited from undergraduate psychology courses at a mid-size western Canadian university. Age ranged from 18 to 53 years ($M = 21.5$; $SD = 3.9$). Most participants were White/Caucasian (75%), with the remainder being 17% Asian, 5% mixed race, 3% each Indigenous, Hispanic, and “other,” and 2% Black/African-Canadian. Family of origin income prior to age 18 for 83% of the sample was \$50,000 CAN or higher. Most (61%) of the sample had at least one parent with a university degree. The majority were native English speakers (90%), and were single/never married (82%), while 17% were married or cohabiting, and 1% were separated, divorced, or widowed.

Measures

The Disorganized Response Scale (DRS). The DRS was developed to tap self-reports of disorganized verbalizations, thoughts, and behaviors that occurred when participants discussed or reflected upon their childhoods. Following the phrase, “When I talk about my childhood . . .,” participants were asked to endorse, on a scale from 1 (*not at all true*) to 5 (*very true*), 20 items reflecting incoherence, confusion, contradictory thoughts, poor reality monitoring, and freezing, as suggested by the literature on DA-related responses to the AAI. An initial principal components analysis (PCA) with oblimin rotation identified three factors with eigenvalues greater than 1 in the current sample: a general factor that accounted for 46.1% of the total item variance, and two factors, characterized by significant cross-factor loadings, involving memory intrusion, confusion, and cognitive interference that, together, accounted for an additional 13.7% of variance. Based on this analysis, we selected the 15 items that both loaded highly on the first factor and appeared to best represent the disorganized response construct. The resultant item set involved nonsensical verbalizations (e.g., I say things that do not even make sense to me), internal contradictions (e.g., I say one thing and then the opposite), incoherence (e.g., People say that it is hard to understand what I am talking about), confusion (e.g., I cannot keep things straight in my mind), problems with reality monitoring (e.g., I think things that aren’t true), and narrative interruptions or freezing (e.g., People say I stop talking, right in the middle of sentences).

Fearful Caretaker Scale (FCS). Because DA is associated with caretaker fear of the child and/or fearfulness in general (Ensink, Normandin, Plamondon, Berthelot, & Fonagy, 2016; Main & Hesse, 1990), 12 items were written to represent both types of fearful caretaking, and were evaluated in the current sample. Participants were asked to “circle the number that best describes how at least one of your parents (or other adults who were in charge of you) were with you when you were under age 12” on a 1 (*never*) to 5 (*very often*) scale. Six items tapped fears of the child (e.g., Seemed to be frightened of me) and six items involving fear in general (e.g., Would act frightened, for no reason). PCA indicated that these items all fell on a single dimension that accounted for 57.6% of total item variance, as opposed to separate child-related and general fear factors. After eliminating two redundant items, the remaining 10 items were combined into a final scale, named the FCS.

Childhood maltreatment. In addition to the FCS, psychological, physical, and sexual abuse, and neglect were assessed. The Psychological Maltreatment Review (PMR; Briere, Godbout, & Runtz, 2012) evaluates various forms of noncontact maltreatment (psychological abuse and neglect) by each parent or parental figure that were experienced by the participant in an average year, prior to Age 18. The PMR is composed of three 10-item subscales: Psychological Abuse, Neglect, and Support (only the first two scales were used in this study). For psychological neglect, respondents are asked to rate each item (e.g., Left you alone for long periods of time when they shouldn’t have, Acted like they didn’t seem to care about you) on a 0 (*never*) to 6 (*over 20 times a year*) scale, “separately for your mother (or other woman who lived with you when you were a child) and father (or other man who lived with you when you were a child).” Neglect scores were summed across mothers and fathers when there were scores for both parents ($n = 623$, 97.3%), whereas when there was only one caretaker in the participant’s life ($n = 17$, 2.7%), that one caretaker’s score was doubled to match the metric of the two-parent score.¹ This scale and scoring has been shown to have internal consistency and construct validity (Briere et al., 2012), and had a Cronbach’s alpha of .95 in the present study.

Psychological abuse was similarly evaluated using the 10-item Psychological Abuse scale of the PMR, using the same scoring system employed for the Psychological Neglect scale. Typical items in this scale are “Criticized you” and “Ridiculed or humiliated you.” This scale had a Cronbach’s alpha of .93 in the present study.

Childhood sexual abuse (CSA) and childhood physical abuse (CPA) were examined using a modification of the Sexual and Physical Abuse History Questionnaire (SPAHQ; Leserman, Drossman, & Li, 1995). CSA items addressed specific “unwanted” sexual behaviors prior to Age 14, ranging from genital exposure to intercourse. Responses to these items yielded a single 4-point sexual abuse index, with values being 0 (*no CSA*), 1 (*noncontact CSA [exposure or threats]*), 2 (*unwanted sexual contact short of intercourse*), and 3 (*oral, anal, or vaginal penetration*). This

¹ This doubling approach was used in all analyses reported here. However, analyses were also rerun subtracting the 17 participants with one caretaker from the sample. The results were unchanged, with the same significant paths and a similar model fit.

modified measure has been used elsewhere (e.g., Briere, Runtz, Eadie, Bigras, & Godbout, 2017), where it demonstrates predictive validity with reference to abuse-related symptomatology. For CPA, participants indicated on the SPAHQ whether a parent had “hit, kicked, or beaten” them or “seriously threatened your life” in an average year prior to Age 18, on a scale ranging from 0 (*never*) to 6 (*over 20 times a year*). Following Leserman et al., (1995), CPA was considered present if participants indicated at least one instance of the above behaviors.

Attachment. Attachment insecurity in adults was measured using the 36-item ECR self-report scale (Brennan et al., 1998), composed of two 18-item subscales labeled Attachment Anxiety (i.e., anxiety about rejection, with feelings of personal unworthiness regarding relationships) and Avoidance (i.e., avoidance of intimacy, with interpersonal distrust and relational avoidance). The reliability and validity of these two scales have been demonstrated in many studies (e.g., Crowell, Fraley, & Shaver, 1999; Godbout et al. (2017). In the present study, alpha coefficients were high ($\alpha = .94$ for anxiety; $\alpha = .93$ for avoidance).

Psychological symptoms. Psychological symptomatology was measured by the Trauma Symptom Inventory-2 (TSI-2, Briere, 2011). A standardized self-report measure, the TSI-2 consists of 12 clinical scales, reflecting the frequency of symptoms over the previous 6 months, rated on a scale of 0 (*never*) to 3 (*often*). Although many of the symptoms evaluated by the TSI-2 are more common among trauma-exposed individuals, it does not specifically link symptoms to any particularly adverse event. Confirmatory factor analyses (Briere, 2011; Godbout, Hodges, Briere, & Runtz, 2016) found four underlying sources of variance in the TSI-2, which can be scored as summary scales: Self-Disturbance (consisting of Insecure Attachment, Impaired Self-Reference, and Depression scales); Posttraumatic Stress (Dissociation, Defensive Avoidance, Intrusive Experience, and Anxious Arousal scales); Externalization (Anger, Tension Reduction Behavior, Sexual Disturbance, and Suicidality scales); and Somatization (General Somatization and Pain-Related Somatization subscales). With the exception of the Self-Disturbance scale, these factor scales and the TSI-2 Dissociation scale were used as symptom measures in the current study. The Self-Disturbance factor scale was not included because it is composed largely of items related to insecure attachment, and thus was redundant with predictor variables in the current study.

Procedure

Participants were recruited for a study of “psychological and physical health and life experiences” through an online subject recruitment system used by the university’s psychology department. The study was approved by the university’s human research ethics board. Participants received bonus points toward their final grade in introductory psychology courses in return for their participation. The study was conducted in a computer lab on campus in small groups of people (<20) who accessed the link to the survey on a lab computer. Informed consent was obtained from participants before they began the study. Information on the purpose of the study was provided in written form following completion of the questionnaire and, because of the nature of the study, participants were provided with a list of local psychological resources.

Statistical Analysis

Structural equation modeling (SEM). SEM was performed with Mplus 7 (Muthén & Muthén, 1998-2017), using maximum likelihood parameter estimates robust to nonnormality. SEM was used to examine the adequacy of a theoretical model in which child maltreatment and fearful caretaking were the exogenous variables, psychological symptoms was the endogenous variable, and anxious attachment, avoidant attachment, and the DRS were added as mediators. Because the mediators were thought to be related, albeit distinct, covariances were estimated between all of them. Covariance was also estimated between the two exogenous variables. Adequacy of model fit was assessed through several indices: a nonstatistically significant chi-square value, a comparative fit index (CFI) value of .90 or higher, and a root-mean-square error of approximation (RMSEA) value below .06 (Hu & Bentler, 1999), with a RMSEA 90% confidence interval ranging from 0 to .08. A ratio of chi-square to degrees of freedom (χ^2/df) was also used because chi-square tests are sensitive to sample size (Kline, 2011). Satisfactory fit is observed when values are less than 5 and considered ideal when the value is around 3 (Ullman, 2001).

Indirect effects were examined using Mplus model indirect (Muthén & Muthén, 1998-2017). We used 95% bootstrap confidence intervals to verify the significance of indirect effects (MacKinnon & Fairchild, 2009), employing the recommended 1,000 resamples. This bias-corrected method generates confidence limits for the true value of the coefficient for indirect effects. When zero is not in the confidence interval, the indirect effect is considered significant (Preacher & Hayes, 2008).

Bootstrapped stepwise regression. Hierarchical regression analysis was used to evaluate the incremental validity of the DRS, relative to ECR anxious and avoidant attachment scales, in the prediction of specific TSI-2 scales. Because the literature suggests that dissociation is especially likely among those with DA (Lyons-Ruth et al., 2006), we removed the TSI-2 Dissociation scale from the Posttraumatic Stress factor scale and analyzed it separately. As a result, the dependent variables were the Posttraumatic Stress (without Dissociation), Externalization, and Somatization factor scales, and the Dissociation scale.

Because some variables were unlikely to be normally distributed in these analyses, bootstrapping (Efron & Tibshirani, 1993) was applied to assess the significance of multivariate tests, using the recommended 1,000 random resamples with replacement. This methodology corrects for bias associated with nonnormal predictor and dependent variable distributions, and generates confidence limits and *p* values for the true value of coefficients (Chernick, 2007; Erceg-Hurn & Mirosevich, 2008). The resultant statistics are asymptotically more accurate than those obtained through classic parametric testing (DiCiccio & Efron, 1996). Both nonbootstrapped regression weights (β) and bootstrap-corrected *p* values are reported in this paper.

Results

Psychometrics of the DRS and the FCS

PCA of the 15-item DRS indicated unidimensionality by Kaiser’s (1960) criterion and Cattell’s (1966) scree test, with only one

eigenvalue (6.27) greater than 1.0, accounting for 52.29% of item variance. Other indices of homogeneity were also in the optimal range (Clark & Watson, 1995; Nunnally, 1978; Robins, Fraley, & Krueger, 2009): the mean item intercorrelation was .47; the lowest item intercorrelation was .24; the highest was .70; and a unit-weighted sum of items was internally consistent, with an α of .91. Table 1 displays the factor coefficients. Scores on the DRS ranged from 15 to 70 ($M = 23.3$; $SD = 9.24$).

PCA of the FCS items also revealed unidimensionality, with a single eigenvalue above 1.0 (6.10), accounting for 70.00% of item variance. The mean item intercorrelation was .56; the lowest item intercorrelation was .41; the highest was .76; and the resultant unit-weighted scale had an α of .92. See Table 2 displays the factor coefficients. Scores on the FCS ranged from 10 to 44 ($M = 11.5$; $SD = 4.01$).

Structural Equation Model

SEM analysis was conducted in two steps. First, the measurement model was tested with two latent variables, the first (child maltreatment) consisting of the CSA, CPA, psychological abuse, and neglect variables, and the second (psychological symptoms) comprising the four TSI-2 factors: Posttraumatic Stress (without Dissociation), Externalization, and Somatization, and Dissociation. Results revealed a good fit to the data: $\chi^2(19) = 43.91$, $p < .001$, ratio $\chi^2/df = 2.31$, CFI = .98, Tucker-Lewis index (TLI) = .98, RMSEA = .04 with 90% CI [.03, .06]. Then, the direct association of child maltreatment and fearful caretaking with psychological symptoms was estimated. Results indicated significant relationships between both child maltreatment and symptomatology ($\beta = .46$, $p < .001$) and fearful caretaking and symptomatology ($\beta = .18$, $p = .010$), which explained 33% of the variance in symptomatology.

The mediation model was subsequently tested, adding the attachment and DRS scales (Figure 1). The direct link between fearful caretaking and psychological symptoms became nonsignificant and was removed from the subsequent analyses, and the strength of the association between child maltreatment and

Table 1
Principle Components Analysis of Disorganized Response Scale Items

| When I talk about my childhood, | <i>c</i> |
|-------------------------------------------------------------------|----------|
| I say things that don't even make sense to me. | .80 |
| People say that it is hard to understand what I am talking about. | .79 |
| I talk and talk, but don't really know what I'm saying. | .77 |
| I contradict or disagree with myself. | .76 |
| I think I make sense, but other people don't think I do. | .76 |
| I say one thing and then the opposite. | .76 |
| My words get jumbled up. | .73 |
| I stop making sense. | .72 |
| My mind goes out of control. | .70 |
| I forget what's going on around me. | .70 |
| I can't keep things straight in my mind. | .69 |
| I get confused between then and now. | .64 |
| The past takes me over. | .62 |
| People say I stop talking, right in the middle of sentences. | .59 |
| I think things that aren't true. | .59 |

Note. $N = 640$.

Table 2
Principle Components Analysis of the Fearful Caretaker Scale

| Circle the number that best describes how at least one of your parents (or other adults who were in charge of you) were with you when you were under age 12. | <i>c</i> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| Seemed to be frightened of me | .86 |
| Would suddenly pull away from me, like he or she was frightened | .85 |
| Acted like I was a scary person | .80 |
| Would suddenly have a scared look on his or her face | .80 |
| Would suddenly act like he or she was afraid of being hurt | .79 |
| Acted like I was scaring him or her | .78 |
| Would act frightened, for no reason | .75 |
| Always seemed frightened or afraid | .74 |
| Was scared a lot of the time | .73 |
| Would look frightened if I tried to be close to him or her | .71 |

Note. $N = 640$.

psychological symptoms was slightly diminished ($\beta = .40$, $p < .001$). Results indicated a good fit to the data: $\chi^2(45) = 98.26$, $p < .001$, $\chi^2/df = 2.18$, CFI = .97, TLI = .96, RMSEA = .04 with 90% CI [.03, .06]. As illustrated in Figure 1, child maltreatment was associated with anxious and avoidant attachment and DRS, which, in turn, were each related to psychological symptoms. Fearful caretaking was related to anxious attachment ($\beta = .10$, $p = .028$), but more strongly with DRS ($\beta = .25$, $p < .001$). All covariances included in the model were significant (child maltreatment-fearful caretaking = .54, $p < .001$; anxious-avoidant attachment = .18, $p < .001$; anxious attachment-DRS = .27, $p < .001$; avoidant attachment-DRS = .21, $p < .001$). The full model explained 7% of the variance in anxious attachment, 6% in avoidant attachment, 17% in DRS scores, and 50% in symptoms.

Indirect effects analyses were all significant, indicating that anxious attachment, avoidant attachment, and DRS each mediated the link between child maltreatment and symptomatology ($b = .01$, 95% CI [.00, .02]; $b = .01$, 95% CI [.00, .01]; and $b = .01$, 95% CI [.00, .02], respectively), and anxious attachment and DRS mediated the link between fearful caretaking and symptoms, ($b = .03$, 95% CI [.00, .06]; $b = .04$, 95% CI [.01, .08]). Overall, these findings suggest partial mediation of the association between child maltreatment and psychological symptoms and full mediation of the relationship between fearful caretaking and symptoms.

Incremental Validity of DRS

Bootstrapped regression analyses indicated that demographics, anxious and avoidant attachment, and the DRS each accounted for unique variance in the prediction of one or more TSI-2 symptom scales, with the DRS and anxious attachment scales predicting all forms of symptomatology (Table 3). When all variables but DRS were entered into the equations at a first step, followed by DRS at a second step, DRS accounted for significant additional variance (i.e., had incremental validity) for all symptom scales: Posttraumatic Stress (without Dissociation; R^2 change = .05; $F(1, 629) = 44.17$, $p < .001$), Externalization (R^2 change = .04; $F(1, 629) = 33.59$, $p < .001$), Somatization (R^2 change = .05; $F(1, 629) = 36.22$, $p < .001$), and Dissociation, R^2 change = .10; $F(1, 629) = 87.17$, $p < .001$.

Discussion

The results of this study suggest that individuals are able to self-report their own disorganized cognitive and emotional behavior in

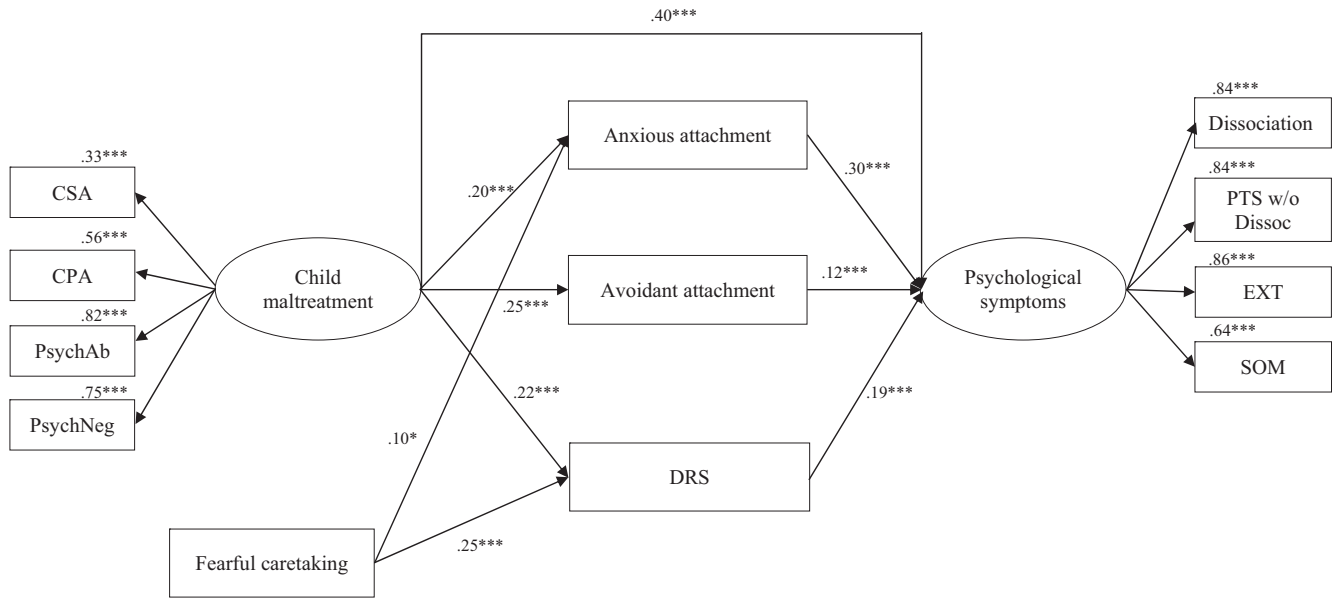


Figure 1. Structural equation model of child maltreatment, fearful caretaking, self-reported attachment, and psychological symptoms. Note: Only significant paths are included in the figure; for clarity, covariances do not appear in the figure. CSA = childhood sexual abuse; CPA = childhood physical abuse; PsychAb = psychological abuse; PsychNeg = psychological neglect; DRS = Disorganized Response Scale; PTS w/o Dissoc = Posttraumatic Stress factor scale, without Dissociation; EXT = Externalization factor scale; SOM = Somatization factor scale. * $p < .05$. *** $p < .001$.

ways consistent with the literature on DA. Although attachment-related disorganization, by definition, involves confusion and incoherence when triggered by recollection of adverse childhood events, it appears that individuals can reliably notice and report on this disorganization in more neutral (less triggering) contexts, such as when elicited by a self-report psychometric instrument. This is potentially a significant finding, since it is possible that those who were dysregulated in response to relational stimuli might be unaware of their disorganization, and might exhibit incoherent or unreliable responses, or perhaps poor memory, on a questionnaire. We cannot rule out, however, the possibility that there were undetected effects of disorganization on participants' self-reports.

Construct Validity of DRS

Assuming the validity of DRS responses, their association with participant reports of childhood maltreatment and caretaker fear-

fulness correspond with the literature on DA (Ensink et al., 2016). SEM supported a model in which (a) fearful caretaking and childhood abuse and neglect were associated with the DRS, and (b) DRS, along with anxious and avoidant attachment, was associated with psychological symptoms and partially mediated the relationship between child maltreatment and symptomatology. Multiple regression analysis indicated that the DRS accounted for additional variance in posttraumatic stress, externalization, somatization, and, especially, dissociation, after demographics and both anxious and avoidant attachment were taken into account.

The link from child maltreatment to DRS scores is consistent with studies documenting increased rates of child maltreatment among infants, children, and adults displaying DA (e.g., Carlson, Cicchetti, Barnett, & Braunwald, 1989; Crittenden & Ainsworth, 1989; Cyr, Euser, Bakermans-Kranenburg, & van IJzendoorn, 2010; Main & Hesse, 1990). The finding of greater

Table 3

Bootstrapped Multiple Regression of TSI-2 Factor Scales and Dissociation, Based on Demographics, Anxious and Avoidant Attachment, and DRS

| TSI-2 Scale | Gender β | Age β | DRS β | ECR Anxiety β | ECR Avoidance β | Multiple regression | |
|----------------|----------------|-------------|-------------|---------------------|-----------------------|---------------------|-------------|
| | | | | | | Adj. R^2 | $F(5, 629)$ |
| PTS w/o Dissoc | -.11** | .12** | .25*** | .33** | .14** | .30 | 52.63*** |
| EXT | .02 | .06 | .21*** | .36*** | .17*** | .29 | 52.76*** |
| SOM | -.11** | .10** | .24*** | .17*** | .06 | .14 | 21.46*** |
| Dissociation | -.05 | .04 | .34*** | .23*** | .18*** | .30 | 54.66*** |

Note. $N = 640$. TSI-2 = Trauma Symptom Inventory 2; PTS w/o dissoc = Posttraumatic Stress factor scale, without Dissociation; EXT = Externalization factor scale; SOM = Somatization factor scale; DRS = Disorganized Response Scale; ECR Anxiety = Anxiety score of the Experiences in Close Relationships Scale; ECR Avoidance = Avoidance score of the Experiences in Close Relationships Scale. ** $p \leq .01$. *** $p \leq .001$ (p values bootstrap-corrected).

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caretaker fearfulness among those with higher DRS scores is also supported by the DA literature (Lyons-Ruth et al., 2006). For example, Main and Hesse (1990) hypothesized that fearful caretaker responses can, in particular, engender “fear without solution” in the child, potentially leading to DA. The stronger relationship between caretaker fearfulness and disorganized responses ($p < .001$), compared with its association with anxious attachment ($p < .05$) or avoidant attachment (*ns*), suggests the discriminant validity of the DRS.

Association With Psychological Symptoms

Consistent with the attachment literature, DRS scores were associated with TSI-2 scales even after controlling for anxious and avoidant attachment, indicating that the DRS taps into phenomena that are relatively distinct from anxious or avoidant attachment. Interestingly, the TSI-2 results do not support the proposition that DA is inevitably more pathogenic than other forms of attachment disturbance, although they do suggest more substantial connections with somatization and dissociation. Somatization is not typically investigated in the context of DA, although there are several clinical accounts and studies linking the two (e.g., Nijenhuis, 2004; van Dijke & Ford, 2015). In contrast, DA often has been associated with dissociation (Liotti, 2004; Lyons-Ruth et al., 2006; Nijenhuis, 2004). Most perspectives on DA and dissociation stress the impacts of episodic parental fearfulness, neglect, and frightening behavior—and yet at least partial safety at times of better emotional connection. These experiences may lead to contradictory, unintegrated internal working models of self and others, resulting in the fragmentation, confusion, and lapses in attention characteristic of both DA and some dissociative presentations. In this regard, it may be difficult to determine if DA leads to dissociation, or if attachment disorganization ultimately presents as, among other things, dissociation.

Conclusions and Limitations

The correspondence between the literature on DA and the association between DRS scores and relevant variables reported here provide initial evidence for the potential validity of the DRS as a measure of DA in adults. The DRS correlates as expected with child maltreatment and caretaker fearfulness, and predicts psychological symptoms, especially dissociation, that are consistent with DA. Further research is indicated to determine the sensitivity and specificity of the DRS as a potential measure of DA, as well as to examine its performance in samples with greater diversity in age, ethnicity, and income. Although no single measure is likely to tap the full range of DA responses, the DRS may serve as a marker for the likely presence of DA responses. In order to further test this proposition, the predictive utility of the DRS for DA should be established in additional studies, especially the extent to which it is able to identify individuals categorized as disorganized on the AAI.

Finally, research should examine the DRS in clinical populations. Because those presenting for psychological treatment often have higher rates of insecure attachment, including DA (van Dijke & Ford, 2015), the current findings may represent the low end of potential DA effects. To the extent that clinical

groups include more individuals with high DA, it would be worthwhile to examine the utility of this measure in the clinical assessment of attachment-related dysfunction, including the possibility that adult DA may represent a heretofore underappreciated clinical phenomenon.

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Received December 19, 2017

Revision received May 30, 2018

Accepted June 1, 2018 ■