

Disgusted by Sexual Abuse: Exploring the Association Between Disgust Sensitivity and Posttraumatic Stress Symptoms Among Mothers of Sexually Abused Children

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Nonoffending mothers of sexually abused children often exhibit high levels of posttraumatic stress (PTS) symptoms. Emerging evidence suggests that trait-like individual differences in sensitivity to disgust play a role in the development of PTS symptoms. One such individual difference, disgust sensitivity, has not been examined as far as we are aware among victims of secondary traumatic stress. The current study examined associations between disgust sensitivity and PTS symptoms among mothers of sexually abused children ($N = 72$). Mothers completed the Impact of Event Scale-Revised and the Three Domain Disgust Scale (Tybur, Lieberman, & Griskevicius, 2009). More than one third of mothers scored above a suggested cutoff (mean score = 1.5) for high levels of PTS symptoms. Hierarchical linear regression analysis results indicated that sexual disgust sensitivity ($\beta = .39, p = .002$) was associated with PTS symptoms ($R^2 = .18$). An interaction analysis showed that sexual disgust sensitivity was associated with maternal PTS symptoms only when the perpetrator was not biologically related to the child ($\beta = -.32, p = .047; R^2 = .28$). Our findings suggested that sexual disgust sensitivity may be a risk factor for developing PTS symptoms among mothers of sexually abused children.

Nonoffending parents of sexually abused children often exhibit posttraumatic stress (PTS) symptoms, which may persist up to 4 years after disclosure of child sexual abuse (CSA; Davies, 1995; Dyb, Holen, Steinberg, Rodriguez, & Pynoos, 2003). Estimates suggest that 25% to 50% of parents develop clinical levels of PTS symptoms, including hyperarousal, avoidance, and intrusions (Davies, 1995; Dyb et al., 2003). Considerable evidence has shown that emotional difficulties may undermine a mother's ability to support her child in the aftermath of CSA (Cyr, McDuff, & Hebert, 2013; Elliott & Carnes, 2001). Furthermore, parental PTS symptoms have been shown to be a strong predictor of children's long-term PTS symptoms after exposure to trauma (Alisic, Jongmans, Van Wesel, & Kleber, 2011). Thus, it is important to identify and target the factors associated with mothers' secondary traumatic stress

(STS) reactions to their child's CSA to promote both mothers' and children's adjustment.

To date, we know little about the etiology of PTS symptoms among victims of secondary exposure to traumatic events (Hensel, Ruiz, Finney, & Dewa, 2015), particularly among parents of traumatized children. There is a clear need for extensive research to elucidate risk factors for the development of PTS symptoms among nonoffending mothers of CSA victims. One factor that has been relatively overlooked in research—but that might be associated with mothers' stress reactions to CSA—is mothers' trait-level disgust (i.e., disgust sensitivity). This gap in the literature is surprising given that disgust has been implicated as one of the primary emotional reactions evoked by exposure to traumatic events (Dalgleish & Power, 2004). The present study sought to examine whether disgust sensitivity was associated with PTS symptoms among nonoffending mothers of CSA victims.

Disgust is thought to have initially evolved to motivate the avoidance of infectious microorganisms (Tybur, Lieberman, Kurzban, & DeScioli, 2013). Disgust researchers have noted, however, that a wide variety of situations, acts, and stimuli which are not necessarily indicative of pathogens elicit disgust (e.g., Curtis & Biran, 2001; Rozin, Haidt, & McCauley, 2008; Tybur, Lieberman, & Griskevicius, 2009). Many stimuli that

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elicit disgust outside of the pathogen domains seem to relate to sexual behavior or moral transgressions (Tybur et al., 2009). For example, sexual assault and CSA are found to elicit disgust in victims and nonabused individuals (Feldner, Frala, Badour, Leen-Feldner, & Olatunji, 2010). Victims often report elevated feelings of disgust toward the abuse, themselves, and their perpetrator (e.g., Feldner et al., 2010; Rahm, Renck, & Ringsberg, 2006; Sariola & Uutela, 1996). Sexual victimization, particularly incestuous abuse, also elicits disgust reactions in nonabused individuals that are similar to those experienced by victims (Antfolk, Karlsson, Backstrom, & Santtila, 2012). These findings support the assumption that disgust toward certain sexual behaviors—particularly those that rob an individual of sexual choice or present a biologically incompatible mate, such as kin—can motivate the avoidance of such couplings (Antfolk et al., 2012; Fessler & Navarrete, 2004; Tybur et al., 2013).

Trait-like individual differences exist to the degree to which people feel disgusted by disgust elicitors across multiple domains of disgust (e.g., moral, pathogen, and sexual). This individual difference is defined as disgust sensitivity (Haidt, McCauley, & Rozin, 1994; Tybur et al., 2009). Disgust sensitivity has been implicated as a vulnerability factor for PTS symptom severity among victims of trauma (Engelhard, Olatunji, & de Jong, 2011). Although little is known about the mechanisms through which disgust sensitivity may lead to PTS symptoms, preliminary research has shown that high disgust sensitivity is associated with higher experienced disgust during a traumatic event, defined as peritraumatic disgust (Engelhard et al., 2011). Research has supported a model involving disgust-based conditioning in which intense experiences of peritraumatic disgust increases posttraumatic disgust reactivity (i.e., reacting with high levels of disgust) to traumatic event cues (Badour, Feldner, Babson, Blumenthal, & Dutton, 2013; Badour, Feldner, Blumenthal, & Knapp, 2013). This in turn was found to increase PTS symptoms (Badour, Feldner, Babson, et al., 2013; Badour, Feldner, Blumenthal, et al., 2013; Olatunji, Babson, Smith, Feldner, & Connolly, 2009; Shin et al., 1999). The model suggests that trauma-related stimuli may be perceived as contaminating and threatening, which is understood to contribute to PTS symptom severity by triggering both cognitive and behavioral avoidance of and hypervigilance toward trauma-related stimuli (Bomyea & Amir, 2012; Engelhard et al., 2011).

Existing research supports this model and has linked disgust sensitivity to PTS symptoms. To illustrate, sexual assault victims with PTSD had higher disgust sensitivity than victims without PTSD (Rüsch et al., 2011). Also, individuals with more disgust sensitivity experienced more intrusive thoughts after watching a distressing film of severely burned individuals (Bomyea & Amir, 2012). That said, two other studies did not find the anticipated association between disgust sensitivity and PTS symptoms among soldiers and victims of sexual and physical assault (Badour, Bown, Adams, Bunaciu, & Feldner,

2012; Engelhard et al., 2011). A shared limitation of each of these studies was that, although different instruments were used to assess disgust sensitivity, they assessed primarily pathogen disgust (Bomyea & Amir, 2012; Engelhard et al., 2011; Rüsch et al., 2011) or nonspecific disgust (Badour et al., 2012), and failed to index sexual and moral disgust.

In the context of sexual violations, it may be particularly important to examine associations between PTS symptoms and a broader scope of disgust sensitivity. Sexual abuse may elicit pathogen disgust due to the close physical contact with a perpetrator and potential contact with bodily fluids (e.g., semen, sweat). It may, however, also elicit sexual and moral disgust, for at least two reasons. First, sexual abuse may elicit sexual disgust specifically because it usually involves compromised sexual choice (Fessler & Navarrete, 2004; Tybur et al., 2013). This may be particularly salient in incestuous abuse cases because incest elicits stronger disgust reactions than non-incestuous abuse (Antfolk et al., 2012; Fessler & Navarrete, 2004). Second, sexual abuse may elicit moral disgust because it often involves deception and betrayal. Individuals often express and report experiencing disgust toward antisocial behavior that harms others, including deception, betrayal, and criminal behavior (Haidt et al., 1994; Tybur et al., 2009). The literature suggests then, that all three domains of disgust may be relevant and should be studied in the context of sexual abuse.

This study was a first step in elucidating the association between disgust sensitivity and PTS symptoms nonoffending mothers of CSA victims. Our first aim was to examine whether pathogen, sexual, and moral disgust sensitivity were associated with maternal PTS symptoms. Based on existing research, we predicted that all three domains of disgust sensitivity would be positively associated with PTS symptoms. Our second aim was to examine whether disgust sensitivity would be associated with PTS symptoms over and above the maternal history of CSA and biological relatedness of the perpetrator, each of which has been found to be associated with stress levels among mothers of CSA victims in previous studies (Deblinger, Hathaway, Lippmann, & Steer, 1993; Hebert, Daigneault, Collin-Vezina, & Cyr, 2007; Hiebert-Murphy, 1998). The final aim of this study was to examine the possible moderating effect of biological relatedness with the perpetrator on the association between disgust sensitivity and PTS symptoms. Specifically, we expected that maternal sensitivity to sexual disgust might increase PTS symptoms, especially when the perpetrator was biologically related to the child; because incest is particularly likely to elicit disgust among both victims and nonabused individuals (Antfolk et al., 2012; Fessler & Navarrete, 2004; Sariola & Uutela, 1996; Tybur et al., 2009). We did not expect biological relatedness to interact with moral or pathogen disgust sensitivity. The costs of sweat and bodily fluids (pathogen) and betrayal (moral) were not expected to vary as a consequence of biological relatedness to the same degree as the costs of incest.

Method

Participants and Procedure

The participants were 72 nonoffending mothers of CSA victims (aged 4–16 years; $M = 9.76$, $SD = 3.90$; 66.7% female). As part of a larger treatment study ($N = 84$), mothers were recruited from four outpatient treatment centers in the Netherlands specializing in childhood trauma (for full information about the sample and recruitment procedures, see Van Delft, Finkenauer, De Schipper, Lamers-Winkelmann, & Visser, 2015). Their children were referred by the Dutch Youth Care Agency (in Dutch, the Bureau Jeugdzorg), general practitioners, or mental health care professionals. Practitioners identified cases that included children who experienced (or were suspected of having experienced) sexual abuse. Statements about CSA were deemed highly credible by the practitioners who did the intake and diagnostic assessments. Mothers were excluded if they had an intellectual disability (IQ score below 70) or were unable to complete the measures due to the inability to read or speak Dutch. For this study, we further excluded foster mothers. One mother was excluded for being unable to identify the perpetrator of the sexual abuse.

Most mothers (91.7%) had a Dutch cultural background. Nearly a fifth of the mothers (16.7%) had a low family income ($\leq \text{€}15,000$); half (45.8%) had a moderate family income ($\text{€}15,001\text{--}\text{€}35,000$); and a fourth (26.4%) had a high family income ($\geq \text{€}35,001$). Eight mothers (11.1%) failed to answer the income question. Almost half of the mothers (43.1%) had medium education levels (i.e., [preparatory] vocational education); more than one third (38.9%) had a high education level (i.e., [preparatory] higher education); and 10 mothers (13.9%) had a low education level (i.e., elementary school, special education, lower vocational education). Three mothers (4.2%) failed to answer this question.

Mothers were introduced to the current study by a practitioner during intake, where they received an information letter and a consent form. They gave permission to be contacted by a researcher to provide further information. Mothers provided informed consent to participate in the study and allow the researchers access to their child's treatment files. Before the start of treatment, mothers completed questionnaires guided by two trained research assistants at the treatment center or during a home visit. Mothers reported on their child's perpetrator and abuse frequency, as well as their own disgust sensitivity and PTS symptoms. Mothers received €25 for their participation. The Medical Ethical Committee of the VU University Medical Center approved all of the procedures for this study.

Measures

Mothers reported on perpetrator identity using an open-ended question. A dichotomous variable was created, with biological perpetrators coded as 1, and nonbiological perpetrators coded as 0. Abuse frequency was assessed using one item in which mothers rated the frequency of their child's abuse experiences

(once, daily, weekly, more than once a month, more than once a year, unknown). A dichotomous variable was created, with single abuse coded as 1, and chronic abuse coded as 0.

Children's treatment files were examined to assess CSA severity, which was scored by two independent coders using the modified maltreatment classification system (MMCS; English & the LONGSCAN Investigators, 1997). Severity ranged from 1 = *exposure to explicit sexual stimuli or activities* to 5 = *forced intercourse or other forms of sexual penetration*. Interrater agreement was high (Cohen's $\kappa = .72$). Coder differences were resolved through discussion. We observed low cell frequencies in the least severe categories (1 = *exposure to explicit sexual stimuli or activities*; 2 = *asked for sexual contact or exposure to the genitals of the perpetrator*). Consequently, we created a dichotomous penetration variable with 1 = yes and 0 = no.

The Adverse Childhood Experiences Questionnaire (ACEs; Felitti et al., 1998) was used to assess mothers' childhood maltreatment. Mothers were asked to report on experiences of sexual abuse with an adult at least 5 years older during their first 18 years of life. This included touching or fondling and attempted or actual sexual intercourse. A dichotomous variable was created, with mothers who answered *yes* to any of these questions coded as 1, and nonabused mothers coded as 0.

The Three Domain Disgust Scale (TDDS; Tybur et al., 2009) was used to assess mothers' current disgust sensitivity. The questionnaire consisted of 21 items measuring moral, pathogen, and sexual disgust. Participants rated the degree to which they found concepts described in the items as disgusting on a scale from 0 to 6 (0 = *not at all disgusting*, 6 = *extremely disgusting*). Total scores on all three disgust sensitivity factors (pathogen, moral, and sexual) were calculated as the mean of item responses, ranging from 0 to 6. Higher scores indicated higher levels of disgust sensitivity. The Dutch version of the scale has a similar factor structure, factor loadings, and internal consistency (Cronbach's $\alpha > .80$) as the English version (Tybur & De Vries, 2013). Internal consistencies of the three factors were adequate in this sample, with Cronbach's α ranging from .77 (pathogen disgust) to .85 (moral disgust). Domains were moderately correlated (all $r_s > .27$, see Table 1).

The Impact of Event Scale-Revised (IES-R; Weiss & Marmar, 1997; Dutch version: Kleber & De Jong, 1998) was used to measure maternal PTS symptoms. The questionnaire consisted of 22 items measuring symptoms of PTSD during the last week, including symptoms of intrusions, avoidance, and hyperarousal. Mothers rated the items on a 5-point Likert-scale ranging from 0 to 4 (0 = *not at all*, 4 = *extremely*). A total mean score was calculated with a higher score indicating higher levels of PTS symptoms, ranging from 0 to 4. A cutoff of 1.5 was chosen to categorize mothers as highly symptomatic, following Creamer, Bell, and Failla (2003). Internal consistency (Cronbach's $\alpha = .88$) and validity of the Dutch version were adequate (Olde, Kleber, Van der Hart, & Pop, 2006). In our study, Cronbach's α was .92 for the total score, .74 for avoidance, .82 for arousal, and .90 for intrusions. Subscales were all positively correlated (all $r_s > .50$).

Table 1
Zero-Order Correlations, Means, and Standard Deviations of Study Variables

Variable	<i>M</i>	<i>SD</i>	1.	2.	3.	4.	5.	6.
1. CSA severity	0.58	0.50	–					
2. Biological relatedness	0.39	0.49	–.04	–				
3. Maternal CSA	0.39	0.49	.31*	.18	–			
4. PTS symptoms	1.26	0.74	–.02	.16	.10	–		
5. Sexual disgust	3.81	1.32	.11	.07	.14	.39***	–	
6. Pathogen disgust	3.62	1.15	.13	–.03	.14	.13	.27*	–
7. Moral disgust	4.62	1.13	.16	–.12	–.10	.05	.30*	.40***

Note. *N* = 72; CSA = child sexual abuse, PTS = posttraumatic stress.

p* < .05. *p* < .01.

Data Analysis

First, descriptive analyses were conducted to explore CSA characteristics, maternal CSA history, and maternal PTS symptom severity. Second, zero-order correlations were produced to examine bivariate associations among all study variables. Third, a hierarchical regression analysis was performed to examine whether disgust sensitivity was associated with maternal PTS symptoms over and above the maternal CSA history and biological relatedness with the perpetrator. In Step 1 of the hierarchical regression analysis, we entered maternal CSA history and biological relatedness with the perpetrator as predictors of maternal PTS symptom severity. We did not include CSA severity because scores were missing for 26.4% (*n* = 19) of children. In Step 2, we added the three disgust sensitivity factors (pathogen, moral, and sexual). In Step 3, interaction terms were included to test for a moderating effect of biological relatedness with the perpetrator on the relationship between all three domains of disgust sensitivity and PTS symptoms. Continuous predictors were mean centered prior to model entry and before interaction terms were created (Cohen, Cohen, West, & Aiken, 2003). The interaction effect was plotted and a simple slope analysis was conducted (Aiken & West, 1991). Missing data were handled by calculating the mean score of observed items because fewer than 20% of questionnaire items were missing in all cases.

Results

Bivariate correlations among study variables, means, and standard deviations are presented in Table 1. More than one third (38.9%) of mothers reported having experienced CSA themselves. Twenty-eight mothers (38.9%) scored above 1.5 indicating high levels of PTS symptoms. Almost half of the children (43.1%) experienced severe sexual abuse with penetration. One fourth (25%) of the children experienced sexual touching and 5.6% were exposed to explicit sexual stimuli or activities, were asked for sexual contact, or were exposed to the genitals of the perpetrator. CSA severity was unknown at the time of intake for 20.8% of the children, and intake information about CSA

severity was not available for 5.6% of the children. Mothers reported at intake that 37.5% of children experienced chronic sexual abuse and 19.4% experienced a single occurrence of sexual abuse. One third of the mothers (34.7%) did not know the frequency of abuse, and for 8.3% of the children mothers failed to give specific information about the abuse. Most (61.1%) of the perpetrators were biologically unrelated to the child.

Consistent with our hypothesis, sexual disgust sensitivity was significantly positively associated with PTS symptom severity ($r = .39, p = .001$). We did not find any significant associations, however, between PTS symptoms and moral or pathogen disgust sensitivity. Contrary to our expectations, the mother's history of CSA and biological relatedness with the perpetrator were not related to their PTS symptoms. Although girls ($M = 10.52, SD = 3.95$) were significantly older than boys ($M = 8.24, SD = 3.37$), $t(70) = 2.41, p = .019$, child gender and age were unrelated to the outcome measures.

Results of the hierarchical regression analysis are presented in Table 2. In Step 1, maternal history of CSA and biological relatedness did not significantly explain variance in PTS symptom severity ($R^2 = .03, p = .325$). Adding the three disgust sensitivity factors (pathogen, sexual, and moral) to the model in Step 2 to examine our second aim significantly increased explained variance ($\Delta R^2 = .15, \Delta F(3,66) = 3.92, p = .012$). Similar to the bivariate analyses, sexual disgust was positively related to PTS symptoms ($\beta = .39$), but pathogen and moral disgust were not ($\beta = .05; \beta = -.07$, respectively). Adding the interaction terms significantly increased explained variance ($\Delta R^2 = .10, \Delta F(3,63) = 2.93, p = .040$). Sexual disgust sensitivity ($\beta = .62$) and the interaction term Relatedness \times Sexual Disgust ($\beta = -.32$) were significant IVs in the model, but the other two interaction terms were not. The simple slope analysis (Figure 1) showed that when the perpetrator was biologically related to the child, mothers' PTS symptoms were similarly high regardless of maternal levels of sexual disgust sensitivity ($b = .08, SE = .10, p = .448$). Mothers with higher levels of sexual disgust sensitivity, however, showed higher levels of PTS symptoms when the perpetrator was biologically unrelated to the child ($\beta = .35, SE = .08, p < .001$).

Table 2
Hierarchical Linear Regression of Posttraumatic Stress Symptoms

Variables	<i>B</i>	<i>SE</i>	β	<i>sr</i> ²	<i>R</i> ²
Step 1					.03
Mother's CSA history	.11	.18	.07	.01	
Biological relatedness	.23	.18	.15	.02	
Step 2					.18*
Mother's CSA history	.01	.18	.01	.00	
Biological relatedness	.19	.17	.13	.02	
Sexual disgust	.22	.07	.3**	.13	
Pathogen disgust	.03	.08	.05	.00	
Moral disgust	-.04	.08	-.07	.00	
Step 3					.28**
Mother's CSA history	.09	.17	.06	.00	
Biological relatedness	.19	.17	.13	.01	
Sexual disgust	.35	.08	.6***	.20	
Pathogen disgust	.18	.10	.28	.03	
Moral disgust	-.17	.11	-.26	.03	
Relatedness × Sexual Disgust	-.27	.14	-.32*	.05	
Relatedness × Pathogen Disgust	-.26	.16	-.26	.03	
Relatedness × Moral Disgust	.23	.17	.21	.02	

Note. *N* = 72. CSA = child sexual abuse. Relatedness is coded 1, unrelatedness coded 0.

p* < .05. *p* < .01.

Discussion

This study aimed to shed light on the association between disgust sensitivity and PTS symptoms among nonoffending mothers of CSA victims. To our knowledge, this is the first study to differentiate between sexual, moral, and pathogen disgust sensitivity when examining the association between disgust sensitivity and PTS symptoms. Furthermore, this is the first study of which we are aware to examine the relationship between disgust sensitivity and PTS symptoms among mothers of abused children. Consistent with our expectations, the results showed that mothers with higher disgust sensitivity toward sex had higher levels of PTS symptoms, specifically when the perpetrator was biologically unrelated to the child. We did not find associations between moral and pathogen disgust sensitivity and PTS symptoms. Our results contribute to the limited literature examining risk factors of maternal PTS symptoms in the aftermath of CSA.

Consistent with previous research, one third of the mothers were categorized as having clinical levels of PTS symptoms (e.g., Davies, 1995; Dyb et al., 2003). Furthermore, replicating earlier findings, a significant number of mothers of CSA victims had experienced CSA themselves (e.g., Finkelhor, Moore, Hamby, & Straus, 1997; Robboy & Anderson, 2011). Our findings, however, are inconsistent with other studies showing that mothers of CSA victims experienced more distress when they had a history of CSA (e.g., Deblinger et al., 1993; Hebert et al., 2007; Hiebert-Murphy, 1998) and the perpetrator was a family member (Hebert et al., 2007). Our results suggested that although these factors were associated with higher levels of general psychological and emotional distress, they may not be risk factors for developing PTS symptoms.

Our key finding was that, in line with our hypothesis, sexual disgust sensitivity was associated with PTS symptoms among mothers of CSA victims. This result is consistent with research showing that disgust sensitivity affects traumatic responses (Bomyea & Amir, 2012; Rüsche et al., 2011). Furthermore, our study suggested that the unique role of disgust in developing and maintaining PTSD may extend to victims of STS. Models regarding the etiology of PTSD involving disgust-based conditioning (Badour, Feldner, Blumenthal, et al., 2013; Engelhard et al., 2011) may be useful when examining the impact of STS. To this end, research into mechanisms linking disgust sensitivity and PTSD among victims of STS is particularly important. For example, experimental studies should examine whether disgust sensitivity among victims of STS increases peritraumatic disgust and disgust reactivity to traumatic event cues, as found among victims of sexual violations (Badour, Feldner, Babson, et al., 2013; Badour, Feldner, Blumenthal, et al., 2013).

Although our study suggested that sexual high disgust sensitivity may be a risk factor for developing PTS symptoms, we found that this relationship was moderated by biological relatedness to the perpetrator. We found that sexual disgust sensitivity was only associated with PTS symptoms in nonincestuous; this was contrary to our hypothesis. These results may be explained by the previous finding that normal variability in sexual disgust sensitivity instruments does not covary with reactions to incest, since virtually all individuals find incest disgusting and therefore there is severe restriction in range for the variable. (Tybur et al., 2009; see Lieberman, Tooby, & Cosmides, 2007, for a discussion of disgust toward incest). This coincides with our finding that mothers with low disgust sensitivity had higher stress levels in response to incest than when the abuse was not incestuous. Hence, the variability in sexual disgust sensitivity, as measured by the TDDS, was only related to intensity of distress toward the violation—and resulting PTS symptoms—when the violations were not incestuous.

Inconsistent with our expectations, pathogen and moral disgust sensitivity were not associated with PTS symptoms. Given previous findings, a lack of association between pathogen disgust sensitivity and PTS symptoms is particularly surprising (Bomyea & Amir, 2012; Rüsche et al., 2011). We were unable, however, to control for CSA severity and maternal knowledge

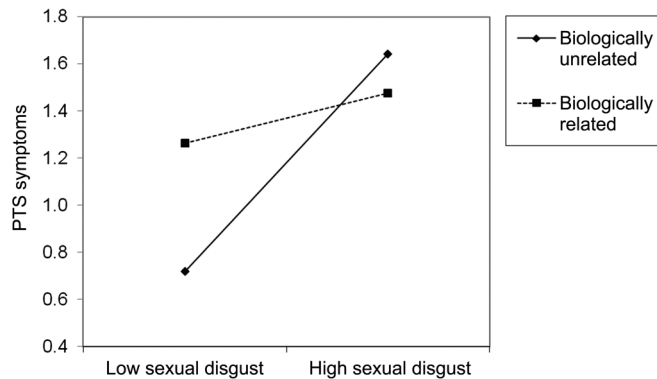


Figure 1. ($N = 72$). Interaction between sexual disgust sensitivity and the biological relatedness of the perpetrator and child. For disgust sensitivity, low = one standard deviation below the mean and high = one standard deviation above the mean.

about the physical nature of CSA. CSA may particularly trigger pathogen disgust when it involves close physical contact with a perpetrator and potential contact with bodily fluids (e.g., semen, sweat). Furthermore, almost half of the mothers in our sample had no knowledge about the nature of their child's CSA. Further investigation of the interaction between maternal knowledge of CSA, CSA severity, and pathogen disgust sensitivity on STS is warranted.

Our results regarding moral disgust sensitivity may be understood by a debate in the literature regarding the validity of the moral factor of the TDDS (Olatunji et al., 2012; Olatunji, Ebesutani, & Kim, 2015). Researchers have suggested that this subscale might tap variability in anger rather than disgust (Olatunji et al., 2012; Rozin & Haidt, 2013). For example, in Olatunji et al. (2012), anger was more strongly endorsed than disgust in response to the moral factor. Other studies, however, showed that moral transgressions beyond physical disgust stimuli, such as violations of social conventions, evoke disgust responses (for a review, see Chapman & Anderson, 2013). Thus, more research is needed to investigate the nature of moral disgust sensitivity and its role in the manifestation of PTSD symptoms.

Some theoretical and methodological limitations warrant attention and should be taken into account when interpreting our results. First, we assessed current PTS symptoms using the one week time frame of the IES-R (Weiss & Marmar, 1997). Our results, therefore, may not generalize to other measures of PTSD. Future studies may want to include a diagnostic assessment of PTSD. Second, our data cannot rule out the possibility that maternal PTS symptoms were associated with secondary exposure to their child's CSA or with other maternal traumatic experiences. Although we did not find an association between maternal CSA history and PTS symptoms, exposure to other traumatic experiences in childhood and adulthood may be associated with PTS symptoms. Future studies should include a broader variety of traumatic experiences and an event-specific measure of maternal PTS symptoms to rule out alternative explanations for our findings. Third, the correlational nature of our

study prevents us from drawing conclusions about causality. For example, it may be that PTS symptoms enhanced disgust sensitivity among mothers. So far, longitudinal studies of disgust sensitivity are lacking, which raises questions about trait stability. Test-retest reliability over 12 weeks of the TDDS, however, was found adequate for pathogen ($r = .74$) and sexual disgust sensitivity ($r = .79$), but noticeably lower for moral disgust sensitivity ($r = .48$; Olatunji et al., 2012). Furthermore, mean scores in our sample were comparable to mean scores found in previous studies with different samples. For example, Tybur et al. (2009) found similar means in a sample of students for pathogen ($M = 3.87$, $SD = 1.19$), sexual ($M = 3.31$, $SD = 1.52$), and moral disgust sensitivity ($M = 3.70$, $SD = 1.14$). Thus, it seems unlikely that increased sexual disgust sensitivity is a result of PTS symptoms. Future research addressing this issue would be helpful.

Despite these limitations, our study is a first step in understanding the role of disgust sensitivity in manifesting PTS symptoms among mothers of CSA victims. Although it is widely recognized that these mothers may experience long-lasting significant distress and PTS symptoms (Dyb et al., 2003; Holt, Cohen, Mannarino, & Jensen 2014), we know little about risk factors for STS symptoms among mothers of CSA victims. Our study showed that sexual disgust sensitivity may be a vulnerability factor for PTS symptom severity. If so, feelings of disgust may be a promising target in the treatment of these mothers. Previous research has suggested that although exposure-based treatment may significantly reduce disgust in clinical samples, disgust is more resistant to exposure than fear (e.g., Olatunji, Smits, Connolly, Willems, & Lohr, 2007; Smits, Telch, & Randall, 2002). Therefore, treatment research about other strategies, such as counterconditioning or cognitive restructuring, is needed to determine which is more effective in reducing disgust (for a review, see Mason & Richardson, 2012). Further research is needed to examine what treatment role targeting disgust responses can play in treatment for (secondary) PTSD following CSA.

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