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Disgust Sensitivity, Sexual Trauma History, and Female Sexual Functioning

Tara McGahan
University of Arkansas, Fayetteville

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By

Tara C. McGahan
Saint Louis University
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University of Arkansas
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ABSTRACT

Sexual dysfunctions are a common problem for women that negatively impact quality of life (Laumann, Paik, & Rosen 1999). A history of sexual trauma is associated with an increase in sexual difficulties (Neumann et al., 1996). One common reaction to unwanted sexual contact is disgust (Whealin & Barnett, 2010). However, the role of disgust in the relationship between sexual trauma and female sexual dysfunction has not been examined. This study explored how disgust and a history of sexual trauma related to different domains of sexual functioning (desire, arousal, lubrication, orgasm, satisfaction, and pain). Furthermore, this study assessed whether disgust mediated or moderated the relationship between sexual trauma and sexual satisfaction. A total of 156 heterosexual women age 18 years and older in current romantic relationships completed an online questionnaire. Results indicated that women without a history of sexual trauma reported higher sexual satisfaction but lower sexual desire than women with a history of sexual trauma. Levels of overall sexual functioning and an increase in sexual pain were related to disgust. Results indicated that disgust did not mediate or moderate the relationship between sexual trauma and sexual satisfaction, nor between trauma history and sexual desire. Exploratory analyses revealed that childhood sexual abuse, a close relationship with the perpetrator, experiencing penetration during the abuse, and disclosing the abuse were unrelated to sexual satisfaction, sexual functioning, and levels of disgust in victimized women. In this sample of women, a history of sexual trauma was associated with negative subjective evaluations about sex, but not with the physiological components of sexual functioning. Clinical implications and future directions are discussed.

This dissertation is approved for recommendation
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Dissertation Director:

_____

(Dr. Ana J. Bridges)

Dissertation Committee:

_____

(Dr. Timothy A. Cavell)

_____

(Dr. David A. Schroeder)

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Sexual dysfunctions are a common problem for women that ultimately affect women's quality of life. A national probability survey of 1,749 women aged 18 to 59 years found that 43% experience current sexual dysfunctions (Laumann, Paik, & Rosen 1999). Of these women, 22% have low sexual desire, 14% have arousal problems, and 7% experience sexual pain. However, prevalence rates for female sexual dysfunction can vary widely depending upon the instruments used to assess it (Hayes, Dennerstein, Bennett, & Fairley, 2006).

Several risk factors increase the likelihood that women will experience sexual dysfunction. For instance, poor physical health, poor mental health, low socioeconomic status, and previous negative sexual experiences all increased the likelihood of sexual dysfunction (Laumann et al., 1999). Furthermore, sexual dysfunction is negatively associated with women's quality of life and feelings of well being. In addition, funding for and attention to women's sexual dysfunctions in health services is sparse and relatively few treatments have been developed for these disorders compared to male sexual dysfunctions (Wylie et al., 2007).

This study serves as a first step in exploring how prior experiences of sexual trauma and personal levels of disgust sensitivity may impact different domains of sexual functioning. The purpose of this study was to assess how one negative life event, a history of sexual trauma, related to current sexual dysfunction in women. This study also explored the role of a potentially important but understudied psychological factor, disgust sensitivity, on sexual dysfunction.

Current DSM Recognized Sexual Dysfunctions

Sexual Desire Disorders

The DSM recognizes two disorders related to sexual desire: hypoactive sexual desire disorder and sexual aversion disorder. Hypoactive sexual desire disorder consists of a "persistently or recurrently deficient (or absent) sexual fantasies and desire for sexual activity" (APA, 1994, p. 539). According to the DSM-IV, low sexual interest is often associated with difficulties of arousal and orgasm. Hypoactive sexual desire disorder often develops in adulthood and is associated with an onset occurring after psychological distress, stressful events, or interpersonal difficulties. The onset for lifelong hypoactive sexual desire disorder is puberty.

The other desire disorder for women, sexual aversion disorder, consists of "persistent or recurrent extreme aversion to and avoidance of all (or almost all) genital sexual contact with a sexual partner" (APA, 1994, p. 541). An individual may exhibit a lifelong or an acquired subtype of this disorder. Some individuals with sexual aversion disorder may experience panic attacks when involved in a sexual situation. Interpersonal relationships may be negatively affected by the avoidance of sexual intimacies with a partner.

Difficulty with sexual desire is the most commonly reported sexual trouble that women experience (Hayes et al., 2006). Out of women who endorse sexual difficulties, 64% experience difficulties with desire. Approximately 30% of women in the general population indicate having problems with sexual desire (Laumann et al., 1999). For women, low levels of sexual interest range from 17-55% (Lewis et al., 2004). The prevalence rates of low sexual desire increase with age, with about 10% of women under the age of 49 and 47% of women between ages 66 and 74 experiencing this disorder.

Sexual Arousal Disorders

Female sexual arousal disorder consists of a "persistent or recurrent inability to attain, or to maintain until completion of the sexual activity, an adequate lubrication-swelling response of

sexual excitement" (APA, 1994, p. 543). Women may exhibit a lifelong or an acquired subtype of this disorder. Little or no subjective sense of sexual arousal may accompany female sexual arousal disorder. Disturbance of marital and sexual relationships, sexual avoidance, and pain during sexual activities may accompany the disorder. Research has shown that approximately 14% of women experience current problems with sexual arousal (Laumann et al., 1999). Out of women who endorse sexual difficulties, 31% experience difficulties with arousal (Hayes et al., 2006). Problems with sexual arousal often include lack of subjective arousal and lack of physiological signs of arousal (Plaud & Holm, 1998). Approximately 8-15% of women experience difficulties with vaginal lubrication (Lewis et al., 2004).

Orgasmic Disorders

Female orgasmic disorder consists of "persistent or recurrent delay in, or absence of, orgasm following a normal sexual excitement phase" (APA, 1994, p. 547). Orgasmic disorder may be more prevalent among younger women since the ability to orgasm increases with age. However, most cases of female orgasmic disorder are lifelong. It is uncommon for women who have learned to reach orgasm to lose this ability. Factors such as relationship difficulties, a mood disorder, a medical condition, or a traumatic experience may affect a woman's ability to reach orgasm. Female orgasmic disorder may affect a woman's perception of herself including her body image, self-esteem, or relationship satisfaction. Orgasmic problems are the second most frequently reported sexual problem in the United States (Laumann et al., 1994). Approximately 24% of women in the United States report absence of an orgasm for several months in a one-year period (Laumann et al., 1994). All of the women in this study by Laumann and colleagues had at least 1 sexual partner in the prior 12-month period.

Sexual Pain Disorders

The DSM recognizes two disorders related to sexual pain: dyspareunia and vaginismus. Dyspareunia consists of "recurrent or persistent genital pain associated with sexual intercourse" (APA, 1994, p. 554). Dyspareunia is typically experienced during coitus; however, it may occur before or after intercourse. The course of dyspareunia is typically chronic. In women, the pain may be described as deep pain that is experienced during thrusting, or superficial pain that takes place when initiating sexual contact. Women with dyspareunia typically do not seek treatment in psychological facilities, but rather in general medical settings. Physical examinations for women who experience dyspareunia tend to show no genital abnormalities.

The other sexual pain disorder for women, vaginismus, consists of "recurrent or persistent involuntary contraction of the perineal muscles surrounding the outer third of the vagina when vaginal penetration with penis, finger, tampon, or speculum is attempted" (APA, 1994, p. 556). The DSM-IV notes sexual responses such as desire and pleasure may not be altered unless penetration is either anticipated or attempted. There tends to be an abrupt onset to vaginismus at the time of attempted intercourse. Acquired vaginismus may also develop in response to a medical condition or a traumatic event. A diagnosis of vaginismus is often made during a gynecological examination when contractions are evident. The contractions often prevent sexual intercourse and can lead to cases of infertility and unconsummated marriages. Prevalence rates for vaginismus are greater among younger women compared to older women and the disorder may be associated with women who have experienced traumatic sexual events or who have negative views towards sexual activity.

For women, sexual pain has a current prevalence rate of approximately 7% (Laumann et al., 1999). Of women who endorse any sexual difficulties, 26% experience sexual pain (Hayes et al., 2006). In the general population, prevalence rates for dysparenuia range from 3 to 18% and

prevalence rates for vaginismus range from 1 to 6% (Weijmar Schultz et al., 2005). It is difficult to differentiate between vaginismus and dyspareunia due to an overlap in diagnostic criteria.

A high rate of comorbidity is present between female sexual dysfunctions, particularly for hypoactive sexual desire disorder and female sexual arousal disorder (Basson et al., 2003; Fugl-Meyer & Fugl-Meyer, 2002; Laumann et al., 1999). Segraves and Segraves (1991) found that approximately 40% of individuals who received a hypoactive sexual desire disorder diagnosis had a comorbid diagnosis of arousal or orgasm disorder. Comorbidity of female sexual dysfunctions is related to help seeking behavior. As the number of sexual dysfunctions a woman experiences increases, help seeking behavior increases. Compared to about 20% of women with only one sexual dysfunction, rates of help seeking in women with two or more dysfunctions increases to approximately 50% (Ferenidou et al., 2008).

Defining sexual dysfunctions is complicated by different diagnostic classification systems that recognize both different specific disorders and different criteria for the diagnosis of any given disorder. According to the DSM-IV, marked distress or impairment in functioning in an important domain of one's life (e.g., interpersonal relationships) serves as a critical component of the diagnostic criteria for specific sexual dysfunctions. In contrast, the World Health Organization's (WHO) International Classifications of Diseases-10 (ICD-10) specifies that the sexual dysfunction impacts "the various ways in which an individual is unable to participate in a sexual relationship as he or she would wish" (WHO, 1992, p. 161). The ICD-10 also differs from the DSM-IV because it includes additional sexual dysfunctions that the DSM-IV does not, such as excessive sexual drive and failure of genital response (WHO, 1992). The lack of widely accepted definitions for female sexual dysfunctions has constituted a major

obstacle to advancement in the areas of research and practice (Lieblum, 1998; Basson et al., 2001).

The inclusion of distress in the assessment process can greatly alter prevalence estimates of female sexual dysfunction (Ferenidou et al., 2008; Hayes et al., 2006). Up to two-thirds of women who experience desire, arousal, and orgasm difficulties report distress (Hayes et al., 2006); yet this leaves a large percentage of women with difficulties who do not endorse distress (Öberg, Fugl-Meyer, & Fugl-Meyer, 2004). Perhaps factors such as a women's age, relationship status, availability of a sexual partner, number of sexual dysfunctions, and degree of interference contribute to women indicating they are distressed by sexual difficulties. Studies examining sexual distress have found that only between one-third and one-half of women experiencing sexual dysfunctions were distressed by their symptoms (Bancroft, Loftus, & Long, 2003; Hayes et al., 2006; Öberg, Fugl-Meyer, & Fugl-Meyer, 2004).

Models of Sexual Functioning

The current classification system of female sexual dysfunction is based upon Kaplan's triphasic model of sexual response (APA, 2000; Leiblum, 1998; van Lankveld, 2008). According to this model, sexual dysfunctions are framed within the context of pain associated with coitus or a disturbance in the phases of excitement, plateau, orgasm, and resolution (APA, 2000). Questionnaires used in research on women's sexual dysfunction often focus on a pattern of sexual responding in women that is linear, with one phase leading to the next in a unidirectional fashion (Figure 1). That is, desire is thought to lead to arousal, and arousal then leads to orgasm.

Critics of Kaplan's linear model of sexuality contend that it is inadequate for women for several reasons (Basson, 2000; Berman & Bassuk, 2002; Cain et al., 2003; Nijland et al., 2006). For example, it may be that some women experience physiological arousal and this arousal, in

turn, increases desire for sex (Basson, 2000). Previous research has indicated that women have many sexual and nonsexual motivations for engaging in sexual activity, including to express love, relieve tension, experience pleasure, decrease boredom, reduce distraction, continue a habit, and satisfy an obligation (Basson, 2000; Cain et al., 2003). Basson (2000) indicates that sexual motivations may change as the length of a relationship progresses and proposes a more circular model of female sexual dysfunction (Figure 2).

In Basson's model, the sexual response cycle starts with women in a neutral phase developing an awareness of a nonsexual need to be sexual. This awareness leads to a deliberate choice to experience stimulation, leading to some sexual arousal and a desire to continue experiencing sexual relations. The continuation of sexual relations leads to an increase in arousal and orgasm which can lead to physical well being and/or "spin-offs", such as feelings of closeness, bonding, commitment, love, and affection. In turn, these "spin-offs" can contribute to a future deliberate choice to experience stimulation.

A comprehensive review of the literature suggests that social influences, physical health, mental health, and relational experiences interact in complex ways to impact the etiology and maintenance of sexual dysfunction (Figure 3). Social influences are components of the social environment, such as educational attainment and socioeconomic status, that contribute to the formation of sexual dysfunction on a macro level. Social influences impact physical, mental, and relational health. Research has shown that women with lower levels of education report more anxiety about sex and overall less pleasurable sexual experiences compared to women with higher levels of education (Laumann et al., 1994). Similarly, a decline in a woman's economic status is related to an increase in prevalence of sexual dysfunction (Laumann et al., 1999). This is probably due to the increased life stress and emotional distress associated with financial

difficulties, rather than a direct effect of income per se. Also, women who are particularly high in religiosity are more likely to experience sexual difficulties than women who are less religious (Hartmann, Heiser, Ruffer-Heses, & Kloth, 2002).

On the personal and contextual levels, there are interactions between physical health, mental health, and relational experiences. In particular, bi-directional relationships exist between physical and mental health, mental health and relational experiences, and relational experiences and physical health. Physical and mental health are correlated and some researchers have investigated in depth what components of physical and mental health appear to be the most interconnected (Simon, Revicki, Grothaus, & Vonkorff, 1998). Individuals in more adverse psychological states tend to have worse health outcomes than people who are more psychologically healthy; similarly, those in more adverse physical states tend to have worse mental health outcomes than those who are more physically healthy (Cadman, Boyle, Szatmari, & Offord, 1987; Linn, Sandifier, & Stein, 1985). Literature has consistently indicated that social support is highly correlated with the mental and physical health of an individual and serves as a buffer to help attenuate the negative health effects of stress (Broadhead et al., 1983). Relationship satisfaction, a component of one's social network, has been shown to have a particularly strong association with one's mental and physical health (Whisman & Uebelacker, 2003). In a similar way, poor mental and physical health are associated with increased strain on a romantic relationship and increased rates of relationship dissolution (Whisman & Uebelacker, 2003).

Relational experiences are those experiences people have had with others, including satisfaction in a romantic relationship, prior experience of sexual assault, and ability to communicate effectively. Marital difficulties affect nearly all areas of sexual functioning,

particularly arousal, enjoyment, and orgasmic problems in women (Dunn, Croft, & Hackett, 1999). Research has found that a wide variety of non-genital behaviors such as caressing, communicating, and demonstrating affection are better predictors of sexual satisfaction in women than are genital responsiveness (Leiblum, 1998). Relationship factors, such as relationship satisfaction, stability, adjustment, intimacy, communication, and happiness, have also been related to sexual functioning in women (Meston & Bradford, 2007; van Lankveld, 2008). As discussed in more detail below, prior experience of sexual trauma is associated with an increase in sexual difficulties (Laumann et al., 1999; McHichi Alami & Kadri, 2004).

Within this model of sexual functioning, physical health, mental health, and relational experiences all contribute to the etiology and maintenance of female sexual dysfunction. Laumann and colleagues (1999) found that poor physical health, poor mental health, and previous negative sexual experiences all increase the likelihood of sexual dysfunction in women. General health status and chronic disease, emotional distress, and psychological disorders such as depression and anxiety that affect emotional well being are associated with increased rates of sexual dysfunction in women (Bancroft et al., 2003; Dunn et al., 1999; Laumann et al., 1999; Lewis et al., 2004; Meston, Brooke, & Hamilton, 2008; van Lankveld, 2008; Weijmar Schultz et al., 2005).

A component of the model, focusing on specific aspects of mental health and relational experiences, was under investigation in this study. This study sought to examine how disgust sensitivity and one type of negative life event, sexual trauma, related to sexual functioning. Investigating this component of the model serves as a first step to better understanding how prior experiences of sexual trauma and personal levels of disgust sensitivity relate to different domains of sexual functioning.

Sexual Trauma History

A history of sexual trauma is associated with an increase in sexual difficulties among women (Ace, 2007, Becker et al., 1986; Davis & Petretic-Jackson, 2000; McHichi Alami & Kadri, 2004; Morokoff, 1993; Neumann, Houskamp, Pollock, & Briere, 1996; van de Wiel et al., 1990). For example, individuals who have experienced a traumatic event, such as sexual assault or abuse, may develop intrusive, sexual thoughts that can produce anxiety, particularly in anticipation of or during sexual activity (Ace, 2007).

Unfortunately, experiences of sexual abuse and assault are common in children and adults. Research has shown that approximately 13-25% of women experience sexual assault at some point during their lifetime (Elliott, Mok, & Briere, 2004). Prevalence rates for childhood sexual abuse in national probability samples of women range from 3% to 27% (Berman et al., 2001; Briere & Elliott, 2003; Meston, Rellini, & Heiman, 2006; Molnar, Buka, & Kessler, 2001). According to the National Comorbidity Study, 14% of women experience childhood sexual abuse (Molnar et al., 2001). According to a stratified random sample of the general population, approximately 22% of women report experiencing sexual assault as an adult (Elliott et al., 2004). In addition, women who experience childhood sexual abuse are significantly more likely to experience sexual assault as adults than women who have not been sexually abused as children (Elliott et al., 2004). For instance, 59% of women who experienced adult sexual assault in a stratified random sample of the population reported histories of childhood sexual abuse (Elliott et al., 2004). Women with a history of sexual trauma endorse significantly more sexual concerns and dysfunctional sexual behavior than women without such history, even after controlling for demographic characteristics and violence exposure (Briere & Elliott, 2003). McCabe and Cobain

(1998) found that women with a sexual dysfunction were significantly more likely to report experiencing a history of sexual trauma than sexually functional women.

Female survivors of sexual assault report more negative sexual self-schemas, view themselves as less romantic and passionate, and experience more negative affect during sexual arousal than women without a history of sexual assault (Meston et al., 2006). Sarwer and Durlak (1996) assessed 359 married adult women who sought sex therapy with their spouses. Two variables that were assessed during intake, a history of childhood sexual abuse and a college education, significantly discriminated between women who did and did not have a sexual dysfunction. Data were analyzed by means of discriminant function techniques and results indicate that 75 to 94% of women with a sexual dysfunction could be accurately identified on the basis of prior self-reported abuse. Certain characteristics of sexual abuse, such as the use of physical force and penetration, are particularly predictive of later sexual dysfunction.

Not only does a history of sexual trauma contribute to higher rates of female sexual dysfunction, but also it appears to impact treatment response. For example, Berman and colleagues (2001) examined the effectiveness of a pharmaceutical intervention, sildenafil (Viagra), to treat arousal disorders for women with and without a history of childhood sexual abuse. The pharmaceutical intervention was effective in increasing overall sexual arousal, genital lubrication, genital satisfaction, satisfaction with intercourse, and orgasm, but only for women *without* a history of childhood sexual abuse. Such research highlights the need to take sexual trauma history into account when developing treatments for sexual dysfunction.

Research has shown that sexually abused children exhibit more negative symptoms such as fears, posttraumatic stress, behavior problems, sexualized behaviors, and poor self-esteem when compared to nonabused children (Kendall-Tackett, Williams, & Finkelhor, 1993; McCabe

& Cobain, 1998). Children who experience sexual abuse are at increased risk for experiencing both externalizing and internalizing psychopathology.

Several characteristics of sexual trauma impact the degree of subsequent symptomatology. Kendall-Tackett and colleagues (1993) reviewed 45 studies that examined how different variables of sexual abuse impact symptoms of psychopathology. They found that age, penetration, frequency, duration, relationship with perpetrator, force, and child's coping style all significantly impacted symptoms. In five out of seven studies that had significantly different outcomes based upon the characteristic of age, older children were more symptomatic than younger children. However, most studies did not control for the fact that older children could have experienced longer duration or had more time for more severe abuse to take place. Penetration in another variable related to the influence of abuse. All forms of penetration (oral, anal, or vaginal) appeared to increase symptomatology in a large majority of the reviewed studies. The relationship with the perpetrator is another influencing variable that impacts the outcomes of sexual abuse. In general, more detrimental and severe effects resulted when the perpetrator was close to the victim. The classification of how close a perpetrator was to the victim varied from study to study, but when the perpetrator was a family member or friend, the symptomatology tended to increase than when the perpetrator was a stranger. As anticipated, a majority of the studies that assessed for frequency and duration found that higher frequency and longer duration of abuse were related to an increase in symptoms. In general, Kendall-Tackett and colleagues found that the use of force experienced during sexual abuse was related to an increase in symptoms. Lastly, coping styles, such as having a negative outlook, related to an increase in symptoms. One important component that Kendall Tackett and colleagues point out is

that many of these intervening variables are highly correlated and no studies control for these interrelationships.

Several recent research articles have echoed and replicated the findings from Kendall-Tackett and colleagues (1993). Ullman (2007) examined relationship to a perpetrator and disclosure in a large sample of 733 undergraduate students who reportedly experienced childhood sexual abuse. Ullman found that more negative outcomes occurred when the perpetrator was a family member compared to a stranger. Ullman also revealed that disclosure of sexual abuse tended to help and that delaying disclosure lead to an increase in symptoms of posttraumatic stress disorder, especially for those who had been victimized by a family member. Ullman and colleagues also examined how certain components of sexual assault were related to recovery and the development of posttraumatic stress disorder (Ullman, Townsend, Filipas, & Starzynski, 2007). This study utilized structural equation modeling to assess how factors of the sexual assault, such as individual trauma history, assault characteristics, self-blame, avoidance coping, general social support, and assault-specific social reactions, related to posttraumatic stress disorder. A diverse community sample of 636 women in the Chicago area who experienced sexual assault participated in the study. Results indicated that avoidance coping (such as self-distraction, denial, and behavioral disengagement) and negative social reactions in response to disclosure of abuse were the strongest correlates of posttraumatic stress disorder symptoms.

Prior research has examined the relationship between disclosure of past sexual trauma and subsequent psychopathology. Research has shown that disclosing information about traumatic experiences is helpful for one's overall well-being (Smyth, 1998). Reactions to the disclosure of sexual abuse can impact psychopathology and more derogatory or unsupportive

reactions are related to an increase in symptoms of posttraumatic stress (Ullman et al., 2007). Research has also shown that there are certain emotions associated with disclosure of sexual trauma. Boanno and colleagues (2002) conducted a study involving a sample of 163 women, approximately half of whom had experienced childhood sexual abuse. The women who experienced sexual trauma experienced the traumatic event when they were 6 years of age or older. In addition, all women experienced penetration during abuse and the perpetrator of abuse was a family member. Boanno and colleagues examined participants' willingness to disclose childhood sexual abuse in a semi structured interview where participants were asked about the most distressing series of events they had experienced. They revealed that greater facial expressions of shame were present for women who did not voluntarily disclose childhood sexual abuse, while greater facial expressions of disgust were present for women who did voluntarily disclose childhood sexual abuse. In addition, disgust responses were indicative of sexual abuse that tended to involve violence.

As prior research has found, several characteristics of sexual trauma impact the degree of subsequent symptomatology. Due to these important findings, this study assessed certain components of sexual trauma that may impact psychopathology and well-being. In particular, this study examined the relationship of the abuse victim to the perpetrator, disclosure of the sexual trauma, and if penetration occurred during sexual trauma.

Disgust

Disgust is an emotion that occurs during the rejection of some form of contamination (Olantunji & Sawchuk, 2005). Disgust can be divided into three domains: core disgust, animal reminder disgust, and interpersonal or sociomoral disgust. Core disgust involves the biological contagion aspects of disgust. Spoiled foods and bodily waste products are examples of items that

can elicit core disgust. Animal reminder disgust involves an awareness that humans are of animal origin and an awareness of death salience. Corpses and caskets are examples of items that can bring forth animal reminder disgust. Lastly, interpersonal or sociomoral disgust involves social judgments, such as deeming something disgusting due to certain behaviors that are not socially sanctioned. Child molesters and rapists are examples of people who would elicit interpersonal or sociomoral disgust. All three domains of disgust can be related to sexual stimuli. For instance, sex could involve an increased risk of biological contamination, reminders of animal origin in mating, and sexual practices that are judged to be unacceptable.

Disgust sensitivity measures how unpleasant someone finds the idea of experiencing disgust (van Overveld et al., 2010). Questionnaires that measure disgust sensitivity often assess one's reactions to feelings of being disgusted. For instance, items such as "I think feeling disgust is bad for me" and "When I feel disgusted, I worry that I might pass out" are commonly used to assess disgust sensitivity (van Overveld et al., 2010). Disgust sensitivity may put women at risk for sexual dysfunctions (de Jong & Peters, 2009). Research has found that women report higher levels of disgust sensitivity than men (Olatunji, Sawchuk, Arrindell, & Lohr, 2005) and there may be both evolutionary and social reasons for this difference. Fessler and Navarrete (2003) discovered that the extent to which deviant sexual behavior (such as bestiality, age-disparate unions, and sex with close kin) elicits disgust is positively correlated with a woman's conception risk. Women who were at their fertile peak exhibited an increase in disgust towards aberrant sexual behaviors compared to women who were not at risk for conception. Women tend to report significantly greater levels of disgust and fear towards animals that are invertebrates (such as worms and cockroaches) and fear-relevant (such as snakes and bats) than men (Davey, 1994). Davey found that disgust sensitivity mediated the gender-animal fear relationship.

Disgust has been largely unexamined as a potential factor contributing to the etiology of sexual dysfunctions (de Jong & Peters, 2009). However, interesting research is focusing attention to the importance of disgust sensitivity in sexual arousal. For example, research focusing on sexually healthy men has found that subjective feelings of disgust in response to erotic materials is associated positively with anxiety and negatively with sexual arousal (Koukounas & McCabe, 1997). Preliminary evidence examining the role of disgust in sexual dysfunctions indicates that the anticipation of disgust in response to sexual activity may activate avoidance and withdrawal, thereby inhibiting sexual arousal and further affecting sexual functioning. For example, de Jong and colleagues (2009) indicate that women with vaginismus exhibit enhanced feelings of disgust towards sexual stimuli, such as erotic pictures and videos, compared to women who do not experience vaginismus (de Jong et al., 2009)

Disgust is an emotion commonly associated with sexual violations. One of the common reactions to unwanted sexual contact is disgust (Tomkins, 1963). Disclosing information about sexual trauma tends to elicit a disgust response (Bonanno et al., 2002; Rozin, Lowery, Imada, & Haidt, 1999; Vasquez, Keltner, Ebenbach, & Banaszynski, 2001). Indeed, many victims report disgust as a common reaction to sexual trauma (Bonanno et al., 2002; Whealin & Barnett, 2010). The association between a history of sexual trauma and disgust is particularly strong when survivors reference past instances of childhood sexual abuse (Haidt, Rozin, McCauley, & Imada, 1997). Bonanno and colleagues (2002) found that disgust responses among childhood sexual abuse survivors are especially strong when the abuse involved actual or threatened violence.

Research has shown that a majority of women who are sexually assaulted consequently experience mental pollution, or feelings of dirtiness that are commonly induced by psychological processes (Fairbrother, Newth, & Rachman, 2005). Women who had been sexually assaulted

report an increase in mental pollution and the urge to wash (Fairbrother & Rachman, 2004). For instance, 70% of women who were sexually assaulted reported experiencing urges to wash following the incident and 25% continued to wash excessively months later. Furthermore, women who were asked to recall a past incident of sexual trauma reported an increase in feelings of dirtiness and an urge to wash, indicative of contamination distress. This pattern has been replicated in the experimental laboratory as well. When female participants were asked to imagine experiencing a nonconsensual kiss at a party, they tended to report experiencing mental pollution and an urge to wash (Fairbrother et al., 2005). Feelings of disgust during a sexual assault may contribute to later conditioned fear of contamination (Rachman, 2006).

Psychological factors such as exhibiting fear, anxiety, and disgust towards sexual stimuli affect sexual dysfunctions. Anxiety is typically characterized as one's preparatory response to a potentially threatening situation, whereas fear is typically characterized as one's defensive response to a present threat (Barlow, 2002). It has been established that fear and anxiety are both common patterns of responding in anxiety disorders; more recently, disgust has been included as another emotion associated with anxiety disorders (Cisler, Olantunji, & Lohr, 2008). Some authors have conceptualized that underlying fear or anxiety about sex can contribute to a lack of sexual desire (Janssen & Everaerd, 1993). This theory has been extended to experiencing fear related to pain with coitus as well (Payne, Binik, Amsel, & Khaliffe, 2005). A fear response has been particularly prominent for women who experience vaginismus, as the tightening of the vaginal wall may occur in response to fear or avoidance of a penis or other objects coming into contact with the vagina (Basson, Althof, et al., 2004). Payne and colleagues found that women with vulvar vestibulitis syndrome who suffer from chronic vaginal pain report increased hypervigilance for coital pain compared to controls. Research has shown that hypervigilance for

experiencing sexual pain is associated with anxiety sensitivity and a fear of experiencing pain (Payne et al., 2005). Payne and colleagues found that there was a mediating role for anxiety and fear of pain: group differences in hypervigilance were no longer significant among women with and without vulvar vestibulitis syndrome when controlling for anxiety and fear of pain. Payne and colleagues urge that treatment for vulvar vestibulitis syndrome should including targeting anxiety and fear.

The role of disgust in the relation between sexual trauma and female sexual dysfunction has not been empirically examined. Disgust sensitivity mediates gender differences in specific phobias (Caseras et al., 2007; Connolly, Olatunji, & Lohr, 2008) and OCD (Caseras et al., 2007) and may similarly impact sexual dysfunctions. Interestingly, treatments for phobias, OCD, and trauma following sexual assault all take similar forms: exposure to anxiety-provoking thoughts, memories, or stimuli, and a gradual extinction of these feared responses. In some way, therapies for female sexual dysfunctions take a similar approach, usually focusing on the exploration of enjoyable physical sensations—a task that can be seen as exposure to anxiety-provoking stimuli—while taking away pressures or concerns about sexual performance. For example, sensate focus, a common treatment for sexual desire disorders, consists of mutual physical caressing that begins with nonsexual touching and gradually moves to more sexual touching (Masters & Johnson, 1970). Directed masturbation exercises are also commonly used to treat women who present with concerns about sexual desire. In directed masturbation, women complete a series of home exercises, beginning with touching their bodies and gradually incorporating more genital touching (Heiman & Meston, 1997).

However, treatments for sexual dysfunctions rarely are framed as exposure therapies (instead, they are considered to be forms of counter conditioning) nor do they directly address

the mental contamination concerns that are the hallmark of disgust sensitivity, despite the fact that disgust interferes with sexual arousal (Koukounas & McCabe, 1997). Instead, when negative emotions are addressed as part of treatment, they center on fear and pain responses (de Jong & Peters, 2009). The focus on disgust-relevant cognitions and emotions may be important to understanding sexual dysfunctions and may lead to different approaches to their treatment, particularly among women who have a history of sexual trauma.

Research has shown that psychological factors such as fear and anxiety contribute to the etiology and maintenance of sexual dysfunctions (Bancroft et al., 2003; Laumann et al., 1999; Lewis et al., 2004). Research has also shown that psychological factors can in some instances serve as mediating variables affecting sexual pain and play a large role in treatment (Payne et al., 2005). To date, there is no empirical study assessing if disgust sensitivity serves as a mediator or moderator in the relation between sexual assault or abuse experiences and sexual dysfunction. This study sought to fill that gap in the sexual dysfunctions research.

Hypotheses

The current study had 3 specific hypotheses and 1 research question.

Hypotheses 1: I hypothesized that women with a history of childhood sexual abuse or sexual assault would have significantly lower sexual functioning than women without such a history across all 6 domains of sexual functioning (desire, arousal, lubrication, orgasm, satisfaction, and pain). Hypothesis 1 served as a replication and extension of previous literature. The prior literature states that sexual trauma puts women at greater risk for sexual dysfunctions and is associated with an increase in sexual difficulties (Ace, 2007; Morokoff, 1993; van de Wiel et al., 1990). However, the exact domains of sexual functioning that are impacted by prior sexual trauma are not specified. Similarly, the degree of impairment in sexual functioning is not

consistently quantified. If domains of sexual functioning are examined at all, one area of sexual functioning is often the focus of a study. Hypothesis 1 would therefore advance the field by examining whether or not sexual trauma related to specific types of sexual dysfunction.

Hypothesis 2: It was expected that disgust would be significantly negatively related to all six domains of sexual functioning. Hypothesis 2 sought to expand on the scarcity of research available that examines how feelings of disgust relate to sexual functioning. Research to date indicates that disgust is an emotion commonly associated with sexual trauma. Furthermore, some domains of sexual functioning have been examined in relationship to feelings of disgust. For instance, subjective feelings of disgust in response to erotic materials are associated with a decrease in sexual arousal (Koukounas & McCabe, 1997). Also, women with vaginismus exhibit enhanced feelings of disgust towards sexual stimuli compared to women who do not experience vaginismus (de Jong et al., 2009). However, the research examining the role of disgust in arousal and pain disorders is preliminary. Furthermore, the role of disgust sensitivity in other domains of sexual functioning, such as desire, orgasm, lubrication, and satisfaction, had yet to be examined. The testing of hypothesis 2 would thus contribute to the paucity of research available that speaks to how disgust sensitivity impacts different domains of sexual functioning.

Research Question: One research question was also under investigation in this study: Would disgust sensitivity moderate or mediate any of the significant relationships found in hypothesis 1? Research has shown that psychological factors such as fear and anxiety can serve as mediating variables affecting sensitivity to sexual pain and can also greatly impact treatments of sexual dysfunctions (Payne et al., 2005). The focus on disgust-relevant cognitions and emotions may similarly be important to understanding sexual dysfunctions and may contribute to different treatment approaches.

Method

Participants

A total of 230 women completed an online survey. Of these, 27 reported being bisexual or lesbian and thus were excluded from further analyses. These women were excluded because norms for the Female Sexual Functioning Index were developed with a heterosexual sample of women (Rosen et al., 2000). In addition, 57 women reported not being in a current romantic relationship and thus were excluded from further analyses. The final sample consisted of 156 women age 18 years and older who resided in the United States. All participants reported being involved in a current romantic relationship. In addition, all participants were heterosexual, defined as being mostly or exclusively interested in men. The mean age of participants was 34.90 years (*SD* = 11.89). A majority of participants (84.6%) were Caucasian. Other ethnicities included Asian American (6.4%), African American (5.8%), Hispanic/Latino (4.5%), American Indian (1.9%), and Hawaiian Native/Pacific Islander (1.3%).

In terms of relationship status, 60.3% of participants were married and 22.40% were in a long term relationship. Only 9.6% of participants were dating and 7.7% of participants were cohabitating with a romantic partner. One participant indicated that she was in a domestic partnership, one participant indicated that she was engaged, one participant indicated that she had an open marriage, and one participant indicated that she was separated.

In regards to sexual trauma history, 46 participants (29.5%) reported experiencing either sexual abuse as a child or sexual assault as an adult. A total of 30 participants (19.2%) endorsed experiencing childhood sexual abuse. A total of 16 participants (10.3%) reported experiencing sexual assault after the age of 18.

Procedures

Women were recruited from Mechanical Turk, a survey website affiliated with Amazon.com. Mechanical Turk displays surveys to potential participants based upon specific inclusion criteria. The present survey was available to (a) women ages 18 and older who (b) resided in the United States. An informed consent form (Appendix A) was posted on the website and all interested participants were required to indicate their approval of the consent form before they were able to begin the survey. Women were instructed that the survey took approximately 10 minutes to complete and that they would receive $.40 upon completion of the study (the recommended reimbursement rate for a survey of similar length, according to instructions on the website). Data were collected within a time span of 10 days. Mechanical Turk provides the mechanism of compensation for respondents: the researcher had to pay Mechanical Turk by credit card before data collection could begin. One benefit of Mechanical Turk is that each survey respondent has a rating associated with his or her account. Therefore, respondents are generally motivated to provide accurate, thoughtful responses to surveys and are even timed to ensure that they are not completing surveys too quickly or in a haphazard or inconsistent manner. Following survey completion, a debriefing form (Appendix B) was presented to all participants.

Measures

Women completed a demographics questionnaire indicating their age, ethnicity, relationship status, and sexual orientation. To assess disgust sensitivity, the Disgust Propensity and Sensitivity Scale-Revised (DPSS-R) was used (van Overveld, de Jong, Peters, Cavanagh, & Davey, 2006) (Appendix C). Participants were instructed to read 16 statements and to mark the answer which was most appropriate to them on a scale from 1 (never) to 5 (always). Higher scores on the DPSS indicate higher levels of disgust propensity and sensitivity. Previous research

has indicated that the DPSS is internally consistent, with alpha coefficients of .89 (propensity) and .87 (sensitivity) (Cavanagh & Davey, 2000). Test–retest reliability for this measure is good for both propensity (.69) and sensitivity (.77). In this study, Cronbach alpha coefficients were .83 for propensity and .74 for sensitivity, and .72 for the DPSS-R total scale. van Overveld and colleagues (2006) found that there was a strong correlation between the disgust sensitivity and propensity scales of the DPSS-R (r = .60). A similarly strong correlation between disgust sensitivity and propensity was also evident in this study (r = .64). Due to the high inter-correlation among these subscales in this study, this measure was considered unidimensional.

The Female Sexual Function Index (FSFI) (Rosen et al., 2000) was used to assess female sexual dysfunction (Appendix D). On this instrument, higher scores indicate better sexual functioning. High inter-item correlations were observed for all six domains of sexual functioning in previous studies (desire, arousal, lubrication, orgasm, satisfaction, and pain; Cronbach alpha values > 0.82). Test-retest reliability, measured at two to four weeks apart, is relatively high for all of the domains (r = 0.79 – 0.86) and for the total scale (r = 0.88). Good construct validity was demonstrated by significant mean differences between a clinical sample and control groups for each of the domains ($p < 0.001$). Additionally, divergent validity with the Locke-Wallace Marital Adjustment Test was demonstrated. For this study, in addition to individual sexual functioning scales, the full scale (overall) score of the FSFI was derived from a computational formula outlined by Rosen and colleagues and used to test the two hypotheses and the research question. High inter-item correlations were observed for all six domains of sexual functioning and the total score in this study, as evidenced by Cronbach alpha values (desire = .83, arousal = .76, lubrication = .76, orgasm = .76, satisfaction = .78, pain = .76, and total score = .92). Table 1 reveals that all FSFI subscales are highly correlated. Table 2 reveals

that all FSFI subscale scores were highly correlated in both samples of women (those with and without a history of sexual trauma).

Finally, to assess sexual trauma experiences, four questions from the National Violence Against Women survey were utilized (Tjaden & Thoennes, 1998) (Appendix E). Additional questions probed if the perpetrator was a close friend or relative (yes/no), whether or not the victim disclosed the event to someone (yes/no), and if the victim was under the age of 18 (yes/no). These variables have been shown to relate to disgust (Bonanno et al., 2002) and psychological well-being (Smyth, 1998) and were the subject of exploratory post-hoc analyses.

Results

Data Cleaning and Exploration

Prior to testing specific hypotheses, descriptive statistics, analytic assumptions, missing data patterns, and reliability coefficients of measures were examined. There were no missing data. Means, standard deviations, skew, and kurtosis were calculated for each of the independent and dependent variables. Examination of these values and histograms for each variable revealed that all conformed to assumptions of normality; thus, no transformations were conducted.

Hypothesis 1

The first hypothesis was that women with a history of childhood sexual abuse or sexual assault would have significantly lower sexual functioning than women without such a history in all 6 domains of sexual functioning on the FSFI (desire, arousal, lubrication, orgasm, satisfaction, and pain).

In order to explore the first hypothesis, the six domain scores on the FSFI of women who had and had not experienced a history of sexual trauma (as indicated by a positive response to any 1 of the 4 questions on the National Violence Against Women survey) were compared using

a multivariate analysis of variance (MANOVA). Preliminary assumption testing was conducted to check for normality, linearity, univariate and multivariate outliers, homogeneity of variance-covariance matrices, and multicollinearity, with no serious violations noted. There was a statistically significant effect of sexual trauma history on the combined dependent variables, F (6, 149) = 5.38, p = <.001; Wilks' Lambda = .82; partial eta squared = .18.

A series of follow-up one-way analyses of variance (ANOVA) were conducted after the significant multivariate effect. Results revealed the sexual satisfaction domain was significant, F (1, 154) = 5.68, p = .018, partial eta squared = .04. An inspection of the mean scores indicated that women with a history of sexual trauma reported lower sexual satisfaction (M = 3.87, SD = 1.56) than women without a history of sexual trauma (M = 4.50, SD = 1.45). The desire domain was also significantly different among sexual trauma victims and nonvictims, F (1, 154) = 6.55, p = .011, partial eta squared = .04. An inspection of the mean scores indicated that women with a history of sexual trauma reported higher sexual desire (M = 3.97, SD = 1.21) than women without a history of sexual trauma (M = 3.44, SD = 1.17). No other FSFI subscales revealed differences between victimized and non-victimized groups. In addition, the total FSFI scores were not significantly different among sexual trauma victims (M =25.31, SD = 8.56) and nonvictims (M = 25.96, SD = 8.80), F (1, 154) = .179, p = .673. Therefore, on the whole the first hypothesis was not supported. See Table 3 for dependent variable means and ANOVA results.

Hypothesis 2

The second hypothesis stated that disgust would be significantly, negatively related to all six domains of sexual functioning. Because of its association with sexual functioning, age was considered a covariate for these analyses. In order to test this hypothesis, partial correlations between the total score on the DPSS and the six domain scores on the FSFI were evaluated for

direction and significance, when taking age into account (Table 4). A Bonferroni correction was applied to correct for inflation of Type I error; therefore, each correlation was evaluated at an α level of .008. Although all partial correlations were significant at $p < .05$, only two correlations reached statistical significance when using a Bonferroni correction. There was a significant negative partial correlation between the disgust total score and the pain domain of sexual functioning, $r = -.29$, $n = 153$, $p < .001$, with high levels of disgust being associated with higher sexual pain (lower scores are indicative of higher sexual pain). In addition, there was a significant negative partial correlation between the disgust total score and the FSFI total score, $r = -.25$, $n = 153$, $p = .002$, with high levels of disgust being associated with lower levels of sexual functioning. On the whole, the second hypothesis was supported, particularly for the relation between disgust and sexual pain.

Research Question

The research question assessed if disgust would moderate or mediate any of the significant relationships found in hypothesis 1. The ANOVAs from hypothesis 1 found sexual satisfaction and desire domains were significantly different between victims and nonvictims. Therefore, the research question assessed if disgust would mediate or moderate these relationships.

The meditational hypothesis was tested according to Barron and Kenny's (1986) test of mediation that contains 4 steps. The first step is to show that the initial variable is correlated with the outcome. Standard multiple regression was used to assess the ability of reported sexual trauma history to predict sexual satisfaction. Sexual trauma history explained 3.6% of the variance in sexual satisfaction, $F(1, 154) = 5.68$, $p = .018$. The second step is to show that the initial variable is correlated with the mediator. Standard multiple regression was used to assess

the ability of reported sexual trauma history to predict DPSS-R scores. Sexual trauma history explained only 0.1% of the variance in DPSS-R scores, F (1, 154) = .094, p = .760. The initial variable (history of sexual trauma) was not correlated with the mediator (disgust); therefore, disgust could not mediate the relationship between a history of sexual trauma and sexual satisfaction.

The moderation analysis was completed according to Barron & Kenny's (1986) test of moderation. To test whether disgust moderates the relationship between a history of sexual trauma and sexual satisfaction, a hierarchical multiple regression analysis was conducted. Age was entered at Step 1, explaining 3.1% of the variance in sexual satisfaction, F (1, 154) = 5.00, p = .027. After entry of the DPSS-R total score and the history of sexual trauma at Step 2, the total variance explained by the model as a whole was 11.2%, F (3, 152) = 6.40, p < .001. These 2 variables explained an additional 8.1% of the variance in sexual functioning, after controlling for age, $F_{change}(2, 152) = 6.91$, $p < .001$. After the entry of the interaction of the DPSS-R total score and history of sexual trauma at Step 3, the total variance explained by the model as a whole was 11.5%, F (4, 151) = 4.92, p = .001. This interaction term only explained an additional 0.3% of the variance in sexual functioning after controlling for age, DPSS- R total score, and a history of sexual trauma, $F_{change}(1, 151) = 0.55$, $p = .460$. Because the interaction term was not significant, moderation was not supported.

The research question also examined if disgust would mediate or moderate the relationship between a history of sexual trauma and sexual desire. Because sexual trauma history did not predict disgust, only moderation analyses were explored with a hierarchical multiple regression analysis. Age was entered at Step 1, explaining 16.8% of the variance in sexual desire, F (1, 154) = 31.06, p < .001. After entry of the DPSS-R total score and the history

of sexual trauma at Step 2, the total variance explained by the model as a whole was 22.4%, F (3, 152) = 14.67, $p < .001$. These 2 variables explained an additional 5.7% of the variance in sexual functioning, after controlling for age, $F_{change}(2, 152) = 5.55$, $p = .005$. After the entry of the interaction of the DPSS-R total score and history of sexual trauma at Step 3, the total variance explained by the model as a whole was 22.5%, F (4, 151) = 10.98, $p < .001$. This interaction term only explained an additional 0.1% of the variance in sexual functioning after controlling for age, DPSS- R total score, and a history of sexual trauma, $F_{change}(1, 151) = .16$, $p = .668$. Because the interaction term was not significant, moderation was not supported.

Exploratory Analyses

Additional analyses explored victimized women on a set of variables to see if aspects of victimization, such as age when abuse occurred (childhood versus adulthood only), disclosure of abuse (yes/no), and close relationship to the perpetrator (yes/no), were related to sexual functioning and disgust. First, exploratory analyses were conducted to compare victimized women who experienced childhood sexual abuse with victimized women who only experienced adult sexual assault in regards to sexual satisfaction, FSFI total score, and DPSS-R total score. Endorsing the follow up question, "Did this [abuse] happen before you were 18 year old?" in response to a positive response to any one of the four violence against women questions constituted experiencing childhood sexual abuse. Endorsing one of the four violence against women questions without endorsing that this occurred before age 18 constituted experiencing only adult sexual assault. An independent samples t-test revealed no significant difference in sexual satisfaction for women who experienced childhood sexual abuse ($M = 3.74$, $SD = 1.61$, $n = 30$) and women who only experienced adult sexual assault ($M = 4.10$, $SD = 1.5$, $n = 161$); t (44) = -0.73, $p = .472$. Similarly, there was no significant difference in FSFI total scores for

women who experienced childhood sexual abuse (*M* = 25.42, *SD* = 8.31, *n* = 30) and women who only experienced adult sexual assault (*M* = 25.12, *SD* = 9.30, *n* = 16); *t* (44) = .11, *p* = .912. No significant differences in DPSS-R total scores were observed for women who experienced childhood sexual abuse (*M* = 41.13, *SD* = 7.13, *n* = 30) and women who only experienced adult sexual assault (*M* = 41.25, *SD* = 8.84, *n* = 16); *t* (44) = -0.05, *p* = .961.

A second set of exploratory analyses were conducted to compare victimized women who knew their perpetrator well and victimized women who were not close to their perpetrator in regards to sexual satisfaction, FSFI total score, and DPSS-R total score. Endorsing the follow up question, "Was this someone close to you, such as a father, stepfather, uncle, brother, or other relative or close family member?" in response to a positive response to any one of the four violence against women questions constituted being close to their perpetrator. An independent samples t-test revealed no significant difference in current sexual satisfaction for women who were close to their perpetrator (*M* = 3.49, *SD* = 2.04, *n* = 11) and women who were not (*M* = 3.99, *SD* = 1.40, *n* = 35); *t* (44) = -0.92, *p* = .363. Similarly, there was no significant difference in FSFI full scale scores for victimized women who were close to their perpetrator (*M* = 23.36, *SD* = 11.38, *n* = 11) and women who were not close to their perpetrator (*M* = 25.93, *SD* = 7.57, *n* = 35); *t* (44) = -0.86, *p* = .392. Finally, there was no significant difference in DPSS-R total scores for women who were (*M* = 41.09, *SD* = 3.91, *n* = 11) and were not (*M* = 41.20, *SD* = 8.56, *n* = 35) close to their perpetrator; *t* (44) = -0.04, *p* = .968.

Third, exploratory analyses were conducted to compare if women who experienced penetration differed from women who did not experience penetration during sexual trauma in regards to sexual satisfaction, FSFI total score, and DPSS-R total score. Endorsing any one of the first 3 violence against women questions that described an act of penetration constituted

experiencing penetration during sexual trauma. An independent samples t-test revealed no significant difference in sexual satisfaction for women who experienced penetration (M = 3.74, SD = 1.59,n = 34) and women who did not (M = 4.23, SD = 1.47, n = 12); t (44) = -0.94, p = .354. Also, there was no significant difference in FSFI full scale scores for women who experienced penetration (M = 24.95, SD = 8.73, n = 34) and those who did not (M = 26.35, SD = 8.34, n = 12); t (44) = -0.48, p = .631. Finally, there was no significant difference in DPSS-R total scores for women who experienced penetration (M = 41.38, SD = 7.92, n = 34) and women who did not (M = 40.58, SD = 7.18, n = 12); t (44) = 0.31, p = .760.

A fourth set of exploratory analyses were conducted to compare women who did and women did not disclose information about sexual trauma in regards to sexual satisfaction, FSFI total score, and DPSS-R total score. Endorsing the follow up question, "Did you ever tell anyone about what happened?" in response to a positive response to any one of the four violence against women questions constituted disclosing information about sexual trauma. An independent samples t-test revealed no significant differences in sexual satisfaction for women who disclosed information about sexual trauma (M = 3.87, SD = 1.65, n = 33) and those who did not (M = 3.85, SD = 1.39, n = 13); t (44) = 0.06, p = .950. Similarly, there was no significant difference in FSFI total scores for women who disclosed information about sexual trauma (M = 25.69, SD = 9.50, n = 33) and women who did not (M = 24.36, SD = 5.71, n = 13); t (44) = 0.47, p = .641. Finally, there was no significant difference in DPSS-R total scores for women who did (M = 40.21, SD = 7.25, n = 33) and did not (M = 43.61, SD = 8.43, n = 13) disclose information about sexual trauma; t (44) = -1.37, p = .178.

Another set of exploratory analyses compared women with and without a history of sexual trauma. Wiegel, Meston, and Rosen (2005) define any FSFI full scale score of 26.55 or

higher as sufficiently elevated to meet criteria for having a sexual dysfunction. A total of 39.1% of women who endorsed a history of sexual trauma were categorized as meeting criteria for a clinically significant sexual dysfunction according to the cut off proposed by Wiegel and colleagues. In comparison, a total of 33.6% of women who did not endorse a history of sexual trauma were categorized as meeting criteria for a clinically significant sexual dysfunction. A chi-square test for independence indicated that this difference was not statistically significant, χ^2 (1, N = 156) = 0.43, p = .317. A final exploratory analysis compared women with and without a history of sexual trauma on having attempted intercourse in the 4 weeks prior to study participation. A total of 89.1% of non-victimized women reported attempting intercourse in the past four weeks, while 91.3% of victimized women had attempted intercourse in the past four weeks. A chi-square test for independence indicated that this difference was not statistically significant χ^2 (1, N = 156) = .17, p = .463.

A final set of exploratory analyses compared rates of attempted intercourse in the prior 4 weeks for women who experienced and women who did not experience sexual trauma. An independent samples t-test was conducted to compare rates of avoiding sexual intercourse. There was no significant difference in scores for women who experienced (M = 2.77, SD = 1.58) and women who did not experience (M = 2.76, SD = 1.71) sexual trauma, t (232) = 0.07, p = .941. Another independent samples t-test was conducted to compare rates of engaging in sexual intercourse for women who experienced and women who did not experience sexual trauma. There was no significant difference in scores for women who experienced (M = 3.71, SD = 1.63) and women who did not experience (M = 3.49, SD = 1.54) sexual trauma, t (232) = 0.93, p = .353.

Discussion

General Findings

Overall, this sample of women was relatively similar to larger community samples of women in regards to rates of sexual dysfunction and rates of experienced sexual trauma. For instance, 41.3% of women in this study were categorized as meeting criteria for a clinically significant sexual dysfunction. This number is similar to a national probability survey by Laumann and colleagues (1999) who found that 43% of women met criteria for a current sexual dysfunction. Similarly, in regards to sexual trauma history, 29.5% of the women in this study reported some form of sexual victimization and 19.2% reported experiencing childhood sexual abuse in particular. These percentages are similar when compared to stratified random samples of the general population. For instance, Elliott and colleagues (2004) found that approximately 22% of women reported experiencing sexual assault as an adult. The National Comorbidity Study found that approximately 14% of women experience childhood sexual abuse (Molnar et al., 2001). Therefore, this sample appears similar to larger, nationally representative samples of women in regards to sexual functioning and the incidence of sexual trauma.

This study furthers our understanding of how specific domains of sexual functioning are related to women's history of sexual trauma. Hypothesis 1 revealed that there was a statistically significant difference between women who did and did not endorse a history of sexual trauma on the linear combination of sexual functioning subscale scores. This is consistent with prior research results: a history of sexual trauma is associated with an increase in sexual difficulties among women (Becker et al., 1986; Davis & Petretic-Jackson, 2000; McHichi Alami & Kadri, 2004; Neumann et al., 1996). However, when the results for the dependent variables were considered separately, the only areas of sexual functioning that exhibited differences between those with and without a history of sexual trauma were the satisfaction and desire domains. As

anticipated, women without a history of sexual trauma reported higher sexual satisfaction than women with a history of sexual trauma. This makes sense in light of research that states how women with a history of sexual trauma tend to develop more negative sexual self-schemas and experience more negative affect during sexual arousal than women without such a history (Meston et al., 2006). It is plausible that factors such as negative sexual self-schemas and more negative affect during sexual arousal could contribute to decreased sexual satisfaction.

The desire domain of sexual functioning also significantly differentiated women who did and did not have a history of sexual trauma. Interestingly, and perhaps counterintuitively, women with a sexual trauma history reported higher sexual desire than women with a history of sexual trauma. This finding contradicts a wide array of research that states a history of sexual trauma can negatively impact sexual desire. However, some research has found that women who experience childhood sexual abuse actually exhibit an increase in sexual desire (Bergmark, Avall-Lundqvist, Dickman, Steineck, & Henningsohn, 2005). Some women who experience childhood sexual abuse exhibit “sexualization”, a common effect of childhood sexual abuse. Sexualization occurs when sexual abuse impacts a child’s sexuality in a developmentally inappropriate fashion. (Finkelhor & Browne, 1985). Components of childhood sexual abuse such as being rewarded and given attention for performing sexual acts may contribute to sexualization. In addition, sexualized children often having a misunderstanding of normative sexual behavior based their memories of sexual assault. Sexualization encompasses a child’s sexual feelings as well as attitude towards sex. Sexualized children have heightened sexual awareness and exhibit developmentally inappropriate sexual behaviors (Davis & Petretic-Jackson, 2000). Prior research has found that children who experience sexual abuse are more likely than children who do not experience sexual abuse to touch other children in a sexual

manner and to act sexually aggressive and forceful towards other children (Masson, 1995). As adults, these women tend to oversexualize romantic relationships and are at higher risk of experiencing sexual assault in the future (Finkelhor & Browne, 1985). Jehu (1988) has found that survivors of childhood sexual abuse are likely to engage in the oversexualization of relationships in general. This oversexualization involves viewing nonsexual relationships as having sexual components when this perception is clearly inaccurate or inappropriate (Jehu, 1988). In addition, women who are survivors of sexual abuse tend to engage in several short-lived sexual experiences and are more likely to endorse acting in a promiscuous manner when compared to nonvictims (Davis & Petretic-Jackson, 2000). Perhaps victims of sexual trauma in this study place excessive importance on sexual relationships or are engaged in relationships for a shorter duration of time. These factors may subsequently impact the increased levels of sexual desire experienced by survivors of sexual abuse. However, this difference was only marginally significant and would need to be replicated in future studies prior to drawing any conclusions about the association between sexual trauma and heightened sexual desire.

Another explanation for the relationship between a history of sexual trauma and an increase in sexual desire could have to do with the natural progression of romantic relationships. Prior research indicates that women with a history of sexual trauma tend to engaged in several short-lived sexual experiences compared to women with no history of sexual trauma (Davis & Petretic-Jackson, 2000). If women with a history of sexual trauma enter into more relationships for shorter periods of time, they may be more apt to endorse feelings of increased sexual desire and arousal in new relationships. Sternberg's (1986) triangular theory of love states that the beginnings of romantic relationships are characterized by passion, physical attraction, and sexual desire. Over time, romantic relationships tend to grow stronger in areas such as commitment and

intimacy and the initial feelings of passion decline. Perhaps women in this sample who experienced sexual trauma were in earlier stages of romantic relationships where passion and sexual desire would naturally be higher.

Yet a third reason why victimized women may exhibit high sexual desire but low sexual satisfaction would be that they have a high need for emotional closeness, but lack skills for obtaining this. Components of sexualization such as exhibiting a developmentally inappropriate understanding of sexual interactions and a misunderstanding of normative sexual behavior, may make it more difficult to obtain skills needed for developing satisfying romantic relationships.

Prior research has shown that there is an association between sexual satisfaction and sexual functioning. Treatment outcome studies have shown that when sexual functioning improves, sexual satisfaction tends to improve at similar rates. (Billups et al., 2001; Nijland et al., 2006). Furthermore, in married couples both sexual dysfunctions and sexual difficulties (such as not being able to relax during sex) have been found to relate to overall levels of sexual satisfaction (Frank, Anderson, & Rubinstein, 1978). Sexual satisfaction is one of the six domains of the FSFI that factors into the full scale score of sexual functioning. Prior research has shown high inter item correlations among all 6 domain scores and the full scale score on the FSFI, as evidenced by Cronbach alpha values of 0.82 and higher (Rosen et al., 2000) This study exhibited a large, statistically significant correlation (r = .81) between overall sexual functioning and sexual satisfaction. However, some research indicates that sexual functioning and sexual satisfaction are not completely overlapping. Ferenidou and colleagues (2008) assessed how women's sexual satisfaction was associated with sexual functioning. A total of 164 women who visited a general hospital for reasons that were not associated with sexual functioning filled out the FSFI and the Symptom Checklist of Sexual Function-women version

(SCSF-w). A total of 48.8% of women endorsed experiencing at least one sexual dysfunction, yet 80.5% of the women sampled indicated that they were satisfied with their sexual functioning. Therefore, future studies may wish to continue to explore both the mechanics of sexual functioning, such as lubrication, separately from the appraisal of sexual experiences (i.e., sexual satisfaction).

This study also expanded on how disgust is specifically related to domains of sexuality for women. Hypothesis 2 revealed that higher levels of disgust were associated with lower sexual functioning across all domains; however, once correcting for the number of analyses, only levels of overall sexual functioning and an increase in sexual pain were related to disgust. While these findings are correlational, they do contribute to the paucity of research available and suggest that this may be an interesting area to investigate further. Individuals who are high in disgust may tend to have lower sexual functioning because the act of sexual intercourse is one where biological contamination (core disgust), reminders of animal origin in mating (animal reminder disgust), and improper sexual practices (interpersonal disgust) may occur simultaneously during sexual activity. The questions on the FSFI target all three of the domains of disgust and focus on physiological functioning, interpersonal experiences, and emotional experiences of sex. It may be that individuals who are high in disgust find multiple aspects of sexually activities less pleasant than others.

Hypothesis 2 also found that higher levels of disgust were associated with increased levels of sexual pain. This finding supports prior research that found women with vaginismus exhibit increased feelings of disgust towards sexual stimuli compared to women without vaginismus (de Jong et al., 2009). For individuals who experience a sexual pain disorder, a

disgust response likely manifests as a classically conditioned aversion, in which sexual activity is associated with pain and elicits unpleasant reactions, such as disgust.

Although prior research has found that subjective feelings of disgust in response to erotic materials are negatively associated with sexual arousal in both men and women (Koukounas & McCabe, 1997), this study did not find an association between disgust and sexual arousal. The Koukounas & McCabe study consisted of measuring self-reported levels of sexual arousal after viewing a series of erotic film clips. A total of 20 men and 20 women participated in the experiment and women reported more overall disgust in response to watching erotic film clips than did men. The current study may have found different results due to the vastly different methodology used to assess sexual arousal. Participants in Koukounas and McCabe's study may have experienced elevated levels of disgust because of the more salient erotic film clips that they had just viewed, whereas this study assessed how overall levels of disgust were related to self-reported sexual functioning. It may be that subjective feelings of disgust in general do not impact sexual arousal, but rather sexual functioning is impacted if there is disgust in response to specific sexual cues or activities.

de Jong and colleagues (2009) found that women who were diagnosed with vaginismus tended to exhibit greater disgust propensity compared to women who were not diagnosed with vaginismus. This study included a sample of women who were suffering from primary (life-long) vaginismus (n = 20), dyspareunia (n = 22), and a group of women with no sexual complaints (n = 30). These women completed self-report measures of disgust sensitivity and disgust propensity. The women who met criteria for primary vaginismus and dyspareunia were seeking treatment at a gynecological medical facility at the time of this study. The women in the study by de Jong and colleagues were motivated to seek treatment and likely had more severe

sexual dysfunctions that impacted their desire to seek professional treatment than women in the current study. Furthermore, the women in their study were particularly young, with average ages between 25 and 30 years (standard deviations were also small; between 3 and 6 years). In comparison, the current study did not seek participants who met criteria for certain sexual dysfunctions. Nevertheless, in this study, higher levels of disgust were associated with increased levels of sexual pain. This study assessed if participants met the FSFI cut off score for clinically significant sexual dysfunction, but specific DSM diagnoses were not able to be made. It is unknown if participants in this study suffered from life-long sexual dysfunctions since the information obtained from the FSFI was confined to the last four weeks. The current study also had an older sample (*M* age = 34.9) that had a wider variability of ages (*SD* = 11.89) than did the de Jong et al. study. It appears that the relation between sexual pain and disgust holds despite the differences in samples and methodologies.

Although there was an association between sexual trauma history and sexual satisfaction, disgust neither mediated nor moderated this relation. In the meditational analysis, there was no significant relationship between sexual trauma history and disgust. Although sexual violations and disgust are clearly related in the empirical literature (Bonanno et al., 2002; de Jong et al., 2009; Haidt et al., 1997; Long & Jackson, 1994), this was not the case in the present sample of women. Often within the literature, disgust is a common emotion that is experienced when disclosing childhood sexual abuse or sexual assault (Bonanno et al., 2002). Adults who are victims of sexual assault or who recall experiencing childhood sexual abuse commonly self-report experiencing disgust when thinking of the sexually traumatic event (Boanno et al., 2002; Long & Jackson, 1994). Many studies that focus on the relationship between sexual trauma and disgust focus on how disgust is the primary emotion that is elicited in response to sexual

violations. Participants of studies are often survivors of childhood sexual abuse who express disgust when describing the sexually traumatic event. This study focused more broadly on how one's level of disgust is related to a history of sexual trauma. Participants in this study did not have to disclose information or details about the sexual trauma that took place. Even though victims of sexual trauma in this study did not differ from nonvictims on self-reported scores of disgust, victims of sexual trauma may still have experienced disgust if they had been asked to describe in detail their past sexual traumas. The self-report methodology used to measure disgust levels in the current study is also substantially different from facial coding of disgust when describing a sexually traumatic event. This methodological difference, too, could have contributed to the contradictory results.

Perhaps examining different types of sexual trauma and taking into account the severity of the trauma may further clarify if any type of sexual trauma history has a more salient relationship to disgust sensitivity. Perhaps women who have experienced more severe, continuous sexual trauma would be more likely to anticipate disgust in response to sexual activity. Prior research has found that anticipatory disgust may inhibit sexual arousal and negatively impact sexual functioning (de Jong & Peters, 2009). It would be interesting to explore this question with a larger sample of women, asking more probing questions about their trauma history severity, frequency, and duration.

Exploratory analyses found that a history of sexual trauma did not significantly impact the rate that women attempted intercourse in the month prior to study participation. In short, these women did not appear to be avoiding sexual contact with their current partners. However, since being in a current romantic relationship was one of the criteria for study inclusion, there may be an association between sexual trauma and sex avoidance that was not adequately

captured with this study: perhaps women who avoid sex as a consequence of sexual trauma are less likely to be in current romantic relationships. Therefore, women who were eligible to participate in this study, and thus were in a relationship, were not representative of all women with sexual trauma histories. This possibility could be further explored in future studies.

In addition, a history of sexual trauma did not significantly impact the occurrence of a sexual dysfunction according to FSFI cut off scores, yet trends in the expected direction were apparent. This finding was surprising in light of the array of literature indicating that sexual trauma tends to put women at greater risk for sexual dysfunctions and sexual difficulties (Becker et al., 1986; Davis & Petretic-Jackson, 2000; McHichi Alami & Kadri, 2004; Neumann, et al., 1996). Of course, this finding is variable and, for some subsets of individuals, a history of sexual trauma does not impair normal sexual functioning.

Exploratory analyses were completed to see if certain components of the sexual trauma, such as sexual trauma occurring in childhood, having a close relationship with the perpetrator, experiencing penetration during the event, and disclosing information about the event, impacted sexual satisfaction, sexual functioning, and levels of disgust in victimized women. No significant differences were found for any of these analyses. When comparing this study in light of other research showing associations between these event variables and psychological outcomes, there are several factors that may have influenced why there were no significant differences found for the exploratory analyses. The methodology for the completion of this study and the means of endorsement of sexual trauma varied greatly between this and prior studies. For instance, this study took place online and took a short amount of time to complete. Several other studies took place in research laboratories and required extensive interviews that elicited detailed information about one's past trauma history (e.g., Boanno et al., 2002; Kendall-Tackett et al.,1993 Ullman et

al., 2007). Women who would make more of an effort to attend a longer, in-person interview about sexual trauma may differ from women who would fill out a five minute online survey about sexual traumatic experiences. The samples of women from these prior studies tended to be larger, around 600-700 women, and were predominately women who lived in large metropolitan areas. This sample was much smaller and consisted of women throughout the United States; the only resource they needed was access to a computer that was networked. Furthermore, prior studies often recruited participants based on some inclusion criteria that may have impacted the aftermath of the sexual trauma. One can imagine how studies requiring prior sexual trauma to involve penetration by a close relative (e.g., Boanno et al., 2001) may greatly impact one's disclosure as well as subsequent sexual functioning and disgust sensitivity. Prior research studies have often focused on women at the more severe end of the spectrum of sexually traumatic experiences, whereas this study included women who had experienced attempted sexual abuse and assault, but penetration did not have to occur. This study also differed from prior studies by including women who were not close to or did not know their perpetrator.

Prior research has also used different methodology and samples of women to compare the relationship between disgust and sexual functioning. When assessing how disgust is related to sexual arousal, prior researchers have utilized explicit video clips as a component of data collection (Koukounas & McCabe, 1997). This methodology more accurately targets the feeling of disgust in response to a sexually arousing image, rather than global levels of disgust and sexual functioning. Prior research examining the relationship between sexual functioning and disgust had clearly defined control groups of women who met criteria for sexual dysfunctions; some of these women were required to have lifelong sexual dysfunctions (de Jong et al., 2009). The online methodology of data collection and differing methodology used for meeting criteria

for a sexual dysfunction may also contribute to why the additional exploratory analyses were not significant and contradicted previous findings.

Clinical Implications

In this study, a history of sexual trauma was associated with negative subjective evaluations about sex, but not with the physiological components of sexual functioning. Clinicians should be aware than many women may present with normal physiological sexual functioning, but that subjective negative feelings and evaluations of sex may be targets of treatment.

Research has indicated that there is a difference between physical symptoms of sexual dysfunction and personal distress as a result of these symptoms (Ferenudou et al., 2008). Perhaps these differences may explain why a history of sexual trauma may impact sexual satisfaction and one's perception of one's sex life, but not the physiological components of sexual functioning. Sexual satisfaction appears to affect women's help seeking behavior more than sexual functioning (Ferenidou et al., 2008). Clinicians may tend to see more women who have indicated that they are dissatisfied with their sexual life, rather than women who are endorsing specific physiological concerns related to sexual functioning. It is also important to keep in mind that several components of romantic relationships contribute to women's reported sexual satisfaction. For instance, a wide variety of non-genital behaviors such as caressing, communication, and affection are better predictors of sexual satisfaction than genital responsiveness (Leiblum, 1998). Relationship factors, such as relationship satisfaction, stability, adjustment, intimacy, communication, and happiness, have been related to sexual functioning and sexual satisfaction in women (Meston & Bradford, 2007; van Lankveld, 2008). Difficulties

with some of these behaviors, as opposed to a strict focus on the mechanics of sex, may be areas of focus for treatment for women who present with decreased sexual satisfaction.

In general, help seeking by women who experience sexual dysfunction is not common and seeking out psychological services in particular is rare. For instance, a majority of women who do seek help for sexual concerns do so from a primary care physician or gynecologist rather than a psychologist (Kadri, McHichi Alami., & McHakra Tahiri, 2002). As the number of sexual dysfunctions a woman experiences increases, help seeking behavior increases (Ferenidou et al., 2008). Compared to about 20% of women with only one sexual dysfunction, rates of help seeking in women with two or more dysfunctions increases to approximately 50% (Ferenidou et al., 2008). Therefore, clinicians should keep in mind that the women who do present with difficulties with sexual functioning likely have more complicated presentations. A comprehensive assessment is encouraged for women who present with sexual difficulties (Meston et al., 2008). This assessment should most definitely include an evaluation of sexual trauma history. Furthermore, feelings that interfere with sexual functioning, such as fear, anxiety, and disgust, should be evaluated and potentially incorporated as targets of treatment.

This study indicated that higher levels of disgust were associated with experiencing more pain during sexual intercourse and overall lower sexual functioning. This study joins others (de Jong & Peters, 2009; de Jong et al., 2009, Koukounas & McCabe, 1997) in finding an association between disgust and sexual functioning, yet treatments for sexual dysfunctions do not address the mental contamination concerns that are prevalent for individuals high in disgust. Treatments for sexual dysfunctions are considered forms of counter conditioning, rather than exposure therapies. The focus on disgust-relevant cognitions and emotions may be a helpful

component of treatment for individuals who present with sexual dysfunctions. The use of exposure to disgust relevant sexual cues in the treatment of sexual dysfunctions may be helpful.

Limitations and Future Directions

The current study had a number of notable strengths. First, this study examined the specific domains of sexual functioning that are impacted by prior sexual trauma. Second, this study contributed to the paucity of research available that speaks to how disgust sensitivity impacts different domains of sexual functioning. The degree of impairment in sexual functioning in this study is quantified in a consistent manner. Also, this study performed an empirical test to fill a gap within the literature that assessed if disgust served as a mediator or moderator in the relation between sexual trauma and sexual satisfaction. In addition, several exploratory analyses examined how different components of traumatic sexual experiences may impact sexual functioning and disgust.

Despite its strengths, this study had some important limitations. One limitation is the cross sectional nature of this sample, making the temporal associations between sexual trauma and current sexual functioning tentative at best. Prospective studies in this arena would be welcome additions. Another limitation of this study is an unclear interpretation of cause and effect due to the correlational nature of this project. While this topic cannot be studied in an experimental fashion, it would be helpful for future research to investigate similar variables but with different populations and using different methodologies. For instance, it would be helpful to compare a clinical sample of women with diagnosed sexual dysfunctions to a community sample of women when assessing how sexual trauma and disgust impact sexual functioning. It would also be helpful to use a variety of different methodologies to examine these relationships. For instance, it would be ideal to have physiological samples of sexual functioning that can be

obtained by using a photoplesmography sensor. Another possible future direction would be to examine feelings of disgust and the impact of sexual trauma while the participant is in a state of arousal, as can be induced by viewing erotic images. It would also be helpful to collect qualitative data that shed light on how women with a history of sexual trauma experience sexuality in a romantic relationship and how this subjective experience is similar to or differs from the experiences of untraumatized women.

Research participants completed this study online. Thus, the experimenter had limited control over testing conditions. Although experimenter contact information was provided in both the informed consent and debriefing, the experimenter was not available to answer questions or address concerns while participants were completing this study. Furthermore, integrity of the data is an important issue involved with online data collection. Safeguards such as accepting only one submission from each registered user and each IP address were in place, yet the quality of data collection is virtually impossible to ascertain. There was no opportunity to follow up and interview participants after participation to determine if some people answered the questions in an untruthful or hurriedly manner. One helpful component that is built into the Mechanical Turk system is that each user is rated on quality of responses to past surveys. Participants are given credit for answering questions or completing tasks in a thoughtful and complete manner. Questions are often built into surveys to ensure that participants are reading each question and answering appropriately. Researchers also see the amount of time that it takes for each participants to complete the survey. Researchers can set a certain "acceptance rate" based upon the quality of past responses that participants must meet before they are eligible to take a survey. For this particular survey, an acceptance rate that was recommended on the Mechanical Turk website for individuals administering surveys was used and only participants

who had received positive scores 95% of the time or more were eligible to take the survey. This rating system that is imbedded in Mechanical Turk likely contributed to the lack of missing data and may suggest participants were thoughtful and careful in responding.

There are several limitations of online survey research to take into account. This survey was available for women who were 18 years of age and who resided in the United States. In addition, as this survey was on Mechanical Turk, all participants had to have access to and some knowledge of how to use the internet. Therefore, it is likely that this sample was not representative of women in the United States. Subject selection effects could also be present for this survey. Participants in need of money may be more likely to complete online studies for a nominal financial return. In addition, participants who completed this survey may have been more interested in sexuality or had certain experiences in regards to a sexual trauma history that were relevant to this study. However, rates of both sexual dysfunction and sexual trauma were similar in this study as in other, more rigorous and nationally representative studies. Therefore, it is also possible that this was a fair approximation of adult women's experiences.

Another limitation of this study was the relatively brief assessment of women's sexual trauma histories. More information is needed for future research. Asking sexual trauma memory questions to obtain more detailed information about the extent and severity of sexual trauma would be helpful. This study asked only four questions that assessed sexual trauma history. Follow up questions included if the perpetrator was someone close to the victim, if this happened before age 18, and if the victim ever told anyone. Obtaining more detailed information, such as what type of actual or threatened violence occurred, how often it occurred, and whether the victim feared for her life or safety, would be tremendously helpful. Furthermore, in the current study it was impossible to differentiate participants who had only experienced sexual abuse as

children and those who had been revictimized again as adults. Assessing if the sexual abuse spanned both childhood and adulthood would be important for future studies as well. Such information would be extremely helpful in assessing the frequency and severity of sexual trauma that occurred and examining how these impact sexual functioning.

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Appendix A

Informed Consent

Title: Women's Sexual Health and Experiences Survey

Researcher(s):
Tara C. McGahan, Graduate Student
Ana J. Bridges, Ph.D., Faculty Advisor
University of Arkansas
College of Arts and Sciences
Department of Psychology
121 Memorial Hall,
Fayetteville, AR 72701-1201
(XXX) XXX-XXXX

Administrator(s):
Ro Windwalker, Compliance Coordinator
Research & Sponsored Programs
Research Compliance
University of Arkansas
120 Ozark Hall
AR 72701-1201
479-575-2208
irb@uark.edu

Description: In this experiment, you will be asked to answer some questions about your sexual health and your past experiences.

Risks and benefits: There are minimal risks associated with this experiment, including experiencing discomfort when answering questions about your sexual health. Some of the questions may be personal, but you are free to skip over items. The benefits are contributing to the understanding of what factors affect women's health and experiences. The information gained from this study will be used to contribute to the development of better treatments for women who present to treatment with sexual difficulties. Another benefit includes the opportunity to contribute data to a project used in the training of students in clinical science.

Voluntary Participation: Your participation in the research is completely voluntary. You are free to discontinue your participation at any time without penalty.

Confidentiality: To the fullest extent possible by the university policy and law, your data will be kept confidential. Your data will be assigned a unique identification number, and there will be no way to connect your identity to this number. Your data may contribute to publications or presentations in a conference, but results will be reported in aggregate; thus, no one will know your individual responses.

Right to Discontinue: You have the right to discontinue participation in this experiment at any time. Choosing to discontinue participation will not prevent you from receiving any incentives promised to you as a participant of this study.

Informed Consent: I, _____, have read the description, including the purpose of the study, the procedures to be used, the potential risks and side effects, the confidentiality, as well as the option to discontinue participation in the study at any time. My consent below indicates that I freely agree to participate in this experimental study and that I have received a copy of this agreement from the investigator.

Appendix B

Debriefing form

Thank you for participating in this study. We were interested in studying factors that contribute to sexual difficulties for women. Previous research has indicated that childhood experiences, such as abuse can impact later sexual functioning. How easily one experiences feelings of disgust has also been shown to impact one's sexuality. However, the role of disgust in the relationship between childhood sexual abuse and female sexual dysfunction has not been examined. In this study, we examined this relationship. Understanding how feelings of disgust impacts sexual functioning may lead to novel treatments for sexual dysfunctions, including possibly exploring some treatments that have been helpful in treating other disorders.

If you would like to read more about this topic, here are some articles that you might find interesting:

Laumann, E. O., Paik, A., & Rosen, R. C. (1999). Sexual Dysfunction in the United States: Prevalence and Predictors. *Journal of the American Medical Association, 281*, 537-544.

Meston, C. M., & Bradford, A. (2007). Sexual Dysfunctions in Women. *Annual Review of Clinical Psychology, 3*, 233-256.

If you have any questions or concerns about this study, please contact Tara McGahan (XXXXXXXX@XXXX.XXX or XXX-XXX-XXXX). If you would like to see the results to this study, please contact Tara McGahan. An anticipated date of obtaining the results is May 2011.

Appendix C

Disgust Propensity and Sensitivity Scale-Revised (DPSS)

Please read each statement and indicate how often this is true for you, using the following scale:

a. Never
b. Rarely
c. Sometimes
d. Often
e. Always

1 I avoid disgusting things.
2 When I feel disgusted, I worry that I might pass out.
3 It scares me when I feel nauseous.
4 I think disgusting items could cause me illness/infection.
5 I feel repulsed.
6 Disgusting things make my stomach turn.
7 I screw up my face in disgust.
8 When I notice that I feel nauseous, I worry about vomiting.
9 When I experience disgust, it is an intense feeling.
10 I experience disgust.
11 It scares me when I faint.
12 I become disgusted more easily than other people.
13 I worry that I might swallow a disgusting thing.
14 I find something disgusting.
15 It embarrasses me when I feel disgusted.
16 I think feeling disgust is bad for me.

Appendix D

Female Sexual Function Index (FSFI)

INSTRUCTIONS: These questions ask about your sexual feelings and responses during the past 4 weeks. Please answer the following questions as honestly and clearly as possible. Your responses will be kept completely confidential. In answering these questions the following definitions apply: Sexual activity can include caressing, foreplay, masturbation and vaginal intercourse. Sexual intercourse is defined as penile penetration (entry) of the vagina. Sexual stimulation includes situations like foreplay with a partner, self-stimulation (masturbation), or sexual fantasy.

CIRCLE ONLY ONE ANSWER PER QUESTION.

Sexual desire or interest is a feeling that includes wanting to have a sexual experience, feeling receptive to a partner's sexual initiation, and thinking or fantasizing about having sex.

1. Over the past 4 weeks, how **often** did you feel sexual desire or interest?

1. Almost always or always
2. Most times (more than half the time)
3. Sometimes (about half the time)
4. A few times (less than half the time)
5. Almost never or never

2. Over the past 4 weeks, how would you rate your **level** (degree) of sexual desire or interest?

1. Very high
2. High
3. Moderate
4. Low
5. Very low or none at all

Sexual arousal is a feeling that includes both physical and mental aspects of sexual excitement. It may include feelings of warmth or tingling in the genitals, lubrication (wetness), or muscle contractions.

3. Over the past 4 weeks, how **often** did you feel sexually aroused ("turned on") during sexual activity or intercourse?

1. No sexual activity
2. Almost always or always
3. Most times (more than half the time)
4. Sometimes (about half the time)
5. A few times (less than half the time)
6. Almost never or never

4. Over the past 4 weeks, how would you rate your **level** of sexual arousal ("turn on") during sexual activity or intercourse?

1. No sexual activity
2. Very high
3. High
4. Moderate
5. Low
6. Very low or none at all

5. Over the past 4 weeks, how **confident** were you about becoming sexually aroused during sexual activity or intercourse?

1. No sexual activity
2. Very high confidence
3. High confidence
4. Moderate confidence
5. Low confidence
6. Very low or no confidence

6. Over the past 4 weeks, how **often** have you been satisfied with your arousal (excitement) during sexual activity or intercourse?

1. No sexual activity
2. Almost always or always
3. Most times (more than half the time)
4. Sometimes (about half the time)
5. A few times (less than half the time)
6. Almost never or never

7. Over the past 4 weeks, how **often** did you become lubricated ("wet") during sexual activity or intercourse?

1. No sexual activity
2. Almost always or always
3. Most times (more than half the time)
4. Sometimes (about half the time)
5. A few times (less than half the time)
6. Almost never or never

8. Over the past 4 weeks, how **difficult** was it to become lubricated ("wet") during sexual activity or intercourse?

1. No sexual activity
2. Extremely difficult or impossible

3. Very difficult
4. Difficult
5. Slightly difficult
6. Not difficult

9. Over the past 4 weeks, how often did you **maintain** your lubrication ("wetness") until completion of sexual activity or intercourse?

1. No sexual activity
2. Almost always or always
3. Most times (more than half the time)
4. Sometimes (about half the time)
5. A few times (less than half the time)
6. Almost never or never

10. Over the past 4 weeks, how **difficult** was it to maintain your lubrication ("wetness") until completion of sexual activity or intercourse?

1. No sexual activity
2. Extremely difficult or impossible
3. Very difficult
4. Difficult
5. Slightly difficult
6. Not difficult

11. Over the past 4 weeks, when you had sexual stimulation or intercourse, how **often** did you reach orgasm (climax)?

1. No sexual activity
2. Almost always or always
3. Most times (more than half the time)
4. Sometimes (about half the time)
5. A few times (less than half the time)
6. Almost never or never

12. Over the past 4 weeks, when you had sexual stimulation or intercourse, how **difficult** was it for you to reach orgasm (climax)?

1. No sexual activity
2. Extremely difficult or impossible
3. Very difficult
4. Difficult
5. Slightly difficult
6. Not difficult

13. Over the past 4 weeks, how **satisfied** were you with your ability to reach orgasm (climax) during sexual activity or intercourse?

1. No sexual activity
2. Very satisfied
3. Moderately satisfied
4. About equally satisfied and dissatisfied
5. Moderately dissatisfied
6. Very dissatisfied

14. Over the past 4 weeks, how **satisfied** have you been with the amount of emotional closeness during sexual activity between you and your partner?

1. No sexual activity
2. Very satisfied
3. Moderately satisfied
4. About equally satisfied and dissatisfied
5. Moderately dissatisfied
6. Very dissatisfied

15. Over the past 4 weeks, how **satisfied** have you been with your sexual relationship with your partner?

1. Very satisfied
2. Moderately satisfied
3. About equally satisfied and dissatisfied
4. Moderately dissatisfied
5. Very dissatisfied

16. Over the past 4 weeks, how **satisfied** have you been with your overall sexual life?

1. Very satisfied
2. Moderately satisfied
3. About equally satisfied and dissatisfied
4. Moderately dissatisfied
5. Very dissatisfied

17. Over the past 4 weeks, how **often** did you experience discomfort or pain during vaginal penetration?

1. Did not attempt intercourse
2. Almost always or always
3. Most times (more than half the time)
4. Sometimes (about half the time)
5. A few times (less than half the time)

6. Almost never or never

18. Over the past 4 weeks, how **often** did you experience discomfort or pain following vaginal penetration?

1. Did not attempt intercourse
2. Almost always or always
3. Most times (more than half the time)
4. Sometimes (about half the time)
5. A few times (less than half the time)
6. Almost never or never

19. Over the past 4 weeks, how would you rate your **level** (degree) of discomfort or pain during or following vaginal penetration?

1. Did not attempt intercourse
2. Very high
3. High
4. Moderate
5. Low
6. Very low or none at all

20. Over the past 4 weeks, how **often** did you avoid sexual activity or intercourse?

1 Never
2. Almost Never
3. Rarely (less than half the time)
4. Sometimes (about half the time)
5. Frequently (more than half of the time)
6. Almost always
7. Always

21. Over the past 4 weeks, approximately how **often** have you engaged in intercourse or sexual activities?

1 Never
2. Once or twice over the past month
3. Three to four times over the past month
4. 1-2 times per week
5. 3-4 times per week
6. Daily
7. Multiple times per day

Appendix E

Sexual Trauma History

Please answer the following four questions about possible sexual experiences

1	Did a man or boy ever make you have sex by using force or threatening to harm you or someone close to you? Just so there is no mistake, by sex we mean putting a penis in your vagina or your anus.	Yes	No
	1a. If *yes,* was this someone close to you, such as a father, stepfather, uncle, brother, or other relative or close family member?	Yes	No
	1b. If *yes,* did you ever tell anyone about what happened?	Yes	No
	1c. If *yes,* did this happen before you were 18 year old?	Yes	No
2	Did a male or female ever make you have oral sex by using force or threat of force? Just so there is no mistake, by oral sex we mean that a man or boy put his penis in your mouth or someone, male or female, penetrated your vagina or anus with their mouth.	Yes	No
	2a. If *yes,* was this someone close to you, such as a father, stepfather, uncle, brother, or other relative or close family member?	Yes	No
	2b. If *yes,* did you ever tell anyone about what happened?	Yes	No
	2c. If *yes,* did this happen before you were 18 year old?	Yes	No
3	Did anyone, male or female, ever put fingers or objects in your vagina or anus against your will or by using force or threats?	Yes	No
	3a. If *yes,* was this someone close to you, such as a father, stepfather, uncle, brother, or other relative or close family member?	Yes	No
	3b. If *yes,* did you ever tell anyone about what happened?	Yes	No
	3c. If *yes,* did this happen before you were 18 year old?	Yes	No
4	Did anyone, male or female, ever **attempt** to make you have vaginal, oral, or anal sex against your will, but intercourse or penetration did not occur?	Yes	No
	4a. If *yes,* was this someone close to you, such as a father, stepfather, uncle, brother, or other relative or close family member?	Yes	No

4b. If *yes*, did you ever tell anyone about what happened? Yes No

4c. If *yes*, did this happen before you were 18 year old? Yes No

Table 1

Pearson Correlation Matrix among Variables of Interest

	Desire	Arousal	Lubrication	Orgasm	Satisfaction	Pain	Full Scale	Age
Desire	1							
Arousal	.644**	1						
Lubrication	.513**	.832**	1					
Orgasm	.435**	.788**	.772**	1				
Satisfaction	.441**	.751**	.668**	.673**	1			
Pain	.363**	.732**	.855**	.691**	.586**	1		
Full Scale	.632**	.937**	.930**	.875**	.808**	.857**	1	
Age	-.410**	-.418**	-.367**	-.269**	-.177*	-.249**	-.366**	1
DPSS-R	-.145	-.149	-.128	-.154	-.172	-.258**	-.199*	.083

*p < .05
**p < 0.01

Table 2

Pearson Correlation Matrix among FSFI Domains for Women with and without a History of Sexual Trauma

	Desire	Arousal	Lubrication	Orgasm	Satisfaction	Pain	Full Scale
				Sexual Trauma History			
Desire	1	.593**	.463**	.394**	.320**	.327**	.601**
Arousal		1	.813**	.779**	.627**	.581**	.923**
Lubrication			1	.796**	.561**	.634**	.901**
Orgasm				1	.499**	.480**	.841**
Satisfaction					1	.470**	.723**
Pain						1	.760**
Full Scale							1
				No Sexual Trauma History			
Desire	1	.636**	.506**	.491**	.521**	.394**	.644*
Arousal		1	.892**	.854**	.768**	.713**	.950**
Lubrication			1	.826**	.676**	.783**	.932**
Orgasm				1	.692**	.681**	.899**
Satisfaction					1	.612**	.821**
Pain						1	.847**
Full Scale							1

*p < .05, ** p <.001

Table 3

Hypothesis 1: Mean Scores and Significance Level for Dependent Variables

	Victimized (N = 61) Mean (SD)	Non Victimized (N = 169) Mean (SD)	F (df)	Sig.
Desire	3.97 (1.20)	3.44 (1.17)	6.55	.011*
Arousal	4.35 (1.81)	4.24 (1.80)	0.11	.737
Lubrication	4.73 (1.94)	4.67 (1.87)	0.04	.852
Orgasm	3.90 (2.04)	4.34 (1.82)	1.79	.183
Satisfaction	3.87 (1.56)	4.49 (1.45)	5.68	.018*
Pain	4.50 (1.88)	4.79 (1.93)	0.70	.405
Full Scale	25.31 (8.56)	25.96 (8.80)	0.18	.673

* $p < .05$

Table 4

Partial Correlations between DPSS-R Total and FSFI Subscales, Adjusted for Age

	DPSS-R Total
Desire	-.197*
Arousal	-.203*
Lubrication	-.171*
Orgasm	-.184*
Satisfaction	-.190*
Pain	-.289**
Full Scale	-.247**

* p < .05
**p < . 008

Figure 1

Kaplan's Triphasic Model of Sexual Functioning

Desire➔Arousal➔Orgasm

Figure 2

Basson's Model of Sexual Functioning

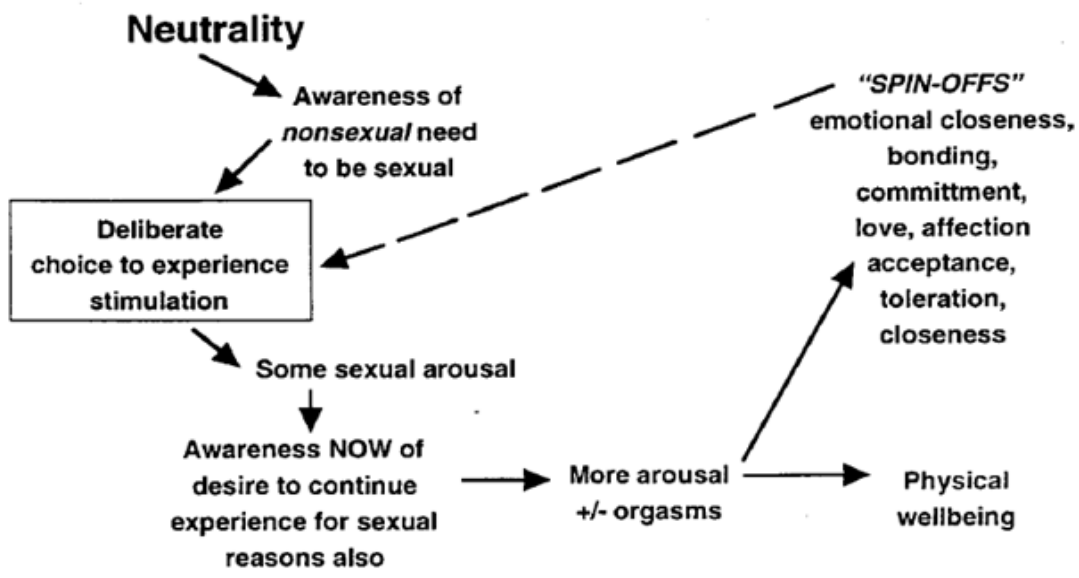

Figure 3

Factors Contributing to the Etiology and Maintenance of Female Sexual Dysfunction