

CHILDHOOD SEXUAL ABUSE AND ERECTILE DYSFUNCTION IN GAY AND
BISEXUAL MEN: THE ROLE OF SUBSTANCE USE, EMOTION DYSREGULATION, AND
COPING STRATEGIES

by

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Abstract

Childhood sexual abuse and sexual dysfunction in gay and bisexual men: The role of substance use, emotion dysregulation, and coping strategies

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Sexual dysfunction has been associated with considerable mental health and interpersonal problems. Gay and bisexual men report a higher rate of sexual dysfunction and childhood sexual abuse (CSA) compared to heterosexual men. The relationship between CSA and adult sexual health problems has been well established; however, the pathways leading from CSA to erectile dysfunction are poorly understood. The role that coping strategies, emotion dysregulation, and substance use play in the association between CSA and erectile dysfunction was examined using a mediational model. Results were not found to be statistically significant, with the exception of a significant relationship between CSA and avoidant coping. Possible explanations for the lack of significant findings are discussed, including problems with the measurement of ED. This study provided support for the disproportionately high rates of CSA among gay men.

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Childhood sexual abuse and sexual dysfunction in gay and bisexual males:

The role of substance use, emotion dysregulation, and coping strategies

Sexuality and sexual functioning are essential components of general health and psychological well-being (Ducharme, 2004). As such, sexual dysfunction may have a strong negative impact on quality of life. The term sexual dysfunction refers to a group of diagnostic categories representing what many researchers and clinicians consider to be non-normative sexual functioning, differing from the sexual functioning of healthy adults (Wincze & Weisberg, 2015). These diagnostic categories include disorders of arousal, desire, orgasm, pain, and sexual aversion. In order to meet diagnostic criteria for a sexual dysfunction, significant distress or impairment must be associated with the impaired functioning.

Sexual dysfunction has also been associated with a large number of mental health problems, including depression, fear and avoidance behaviors, low self-esteem, and low self-confidence (Arajuo, Durante, Feldman, Goldstein, & McKinlay, 1998; Bancroft, Carnes, Janssen, Goodrich, & Long, 2005). Sexual dysfunction is also associated with interpersonal problems such as unsatisfactory and non-loving relationships (McCabe et al., 2010) and communication deficits in relationships (Cameron, Rosen, & Swindle, 2005). Finally, sexual dysfunction in one partner is positively associated with sexual dysfunctions in the other partner, resulting in reduced sexual satisfaction in both partners (Fisher, Rosen, Eardley, Sand, & Goldstein, 2005). An important distinction from sexual dysfunction is the concept of sexual health, which goes beyond intact physiology and ‘typical functioning’ to include interpersonal aspects of sexuality, such as communication, intimacy, respect, commitment, and overall satisfaction (Wincze & Weisberg, 2015).

ED is the most commonly reported sexual dysfunction among men presenting for treatment at sexuality and men's health clinics in the United States (Ducharme, 2004). ED is characterized by an inability to attain or maintain an erection that is adequately rigid for commencement or completion of sexual activity (McCabe, 2008). Exact prevalence rates are difficult to identify, and the large variability in prevalence rates is likely the result of different operational definitions of ED, the use of various age groups, and various durations of symptoms in epidemiological studies (Lewis et al., 2010). The Men's Attitudes to Life Events and Sexuality Study surveyed 27,900 men from eight countries from North America, South America, and Europe using several self-report items to assess the presence of ED, the severity of ED, and found that maintaining or attaining an erection was the presenting complaint (Rosen et al., 2004). Men in the United States reported the highest prevalence of ED (22%), while men in Spain reported the lowest prevalence (10%). Additionally, consistent with other literature, the prevalence of ED was found to increase with age (Rosen et al., 2004; McCabe, 2008; Shindel, Horberg, Smith, & Breyer, 2011; Lewis et al., 2010).

Sexual orientation appears to influence both the types of sexual dysfunction experienced and prevalence rates of sexual dysfunction. In general, gay and bisexual men report statistically significantly higher rates of sexual dysfunction compared to heterosexual men (Bancroft et al., 2005; Rosser, Metz, Bockting, & Buroker, 1997). While 4.5% of gay men report experiencing difficulty attaining or maintaining an erection 'most of the time', this statistic drops to 3.6% among heterosexual men (Bancroft et al., 2005). These rates are much lower than the 10-22% prevalence rates noted in the Rosen et al (2004) study; however, this is likely the result of different operational definitions of ED. Additionally, when asked about sexual difficulties, gay men more frequently report experiencing difficulties with ED, while heterosexual men more

frequently report experiencing difficulties with premature ejaculation (Bancroft et al., 2005). As such, understanding potential etiologies of ED in gay men is of particular importance.

The introduction of ED medications, such as Viagra, provided some promise for the eradication of erectile problems in men. The use of Viagra is increasing, and in a community-based anonymous survey of men who have sex with men (MSM), 30.3% had used Viagra (Grov, 2012). However, 40 to 80% of men being treated for ED with Viagra stop using the drug, likely due to the unrealistic expectation that the treatment would result in an erection during 100% of attempts to engage in sexual activity (McCarthy & Fucito, 2005). In reality, men can expect to achieve an erection in approximately 85% of attempts to engage in sexual activity when using Viagra (McCarthy & Fucito, 2005). While many young men may be able to experience autonomous and predictable erections, irrespective of partner stimulation, this ability naturally declines with age (McCarthy & Fucito, 2005). However, the perceived need for “perfect sexual performance,” in which an erection is maintained until completion of sexual activity, does not automatically decline with age. As such, it is possible that for some men, along with the age-related decline in sexual functioning may come a performance-related concern. Therefore, shifting the focus from penetration and performance to pleasure and intimacy may become even more important in elderly individuals. However, researchers argue that focusing on the pleasurable sensations gained from sexual activity, rather than the actual sexual performance, can enhance the sexual experiences of people of all ages (Kleinplatz, Menard, Paradis, Campbell, & Dagleish, 2013).

Pharmaceutical remediation efforts, such as the prescription of Viagra, consider ED to be a medical problem with a medical treatment. This, however, is rarely the case. While many cases of ED are said to be organic in nature (e.g., due to diabetes or high blood pressure), sexual

arousal is often a psycho-physiological process (Ducharme, 2004). As such, psychological factors play a role in almost all cases of ED and understanding the psychological factors that exacerbate and maintain ED is integral in treatment development. Understanding the role of psychological factors in the maintenance of ED is particularly important, as high anxiety, psychological inhibitions, and anger can decrease the effects of erectogenic drugs (Leiblum & Rosen, 2000). When men do not experience an erection after taking erectogenic drugs, it is often accompanied by increases in performance anxiety and hopelessness about their sexual adequacy (Leiblum & Rosen, 2000). Therefore for many men, treating the underlying issues, rather than just the physical symptom is imperative to prevent future psychological distress.

Despite this psychological component of ED, current treatment paradigms continue to treat these ‘dysfunctions’ as medical disorders. That is, even sex therapists focus on treating the symptoms of a supposed disorder, rather than treating the underlying issues. This approach may result in functional, but potentially unfulfilling sex, and drastically limits the opportunity for sex therapy to enhance sexual relations by promoting personal and sexual growth (Kleinplatz, 2003). However, researchers continue to conceptualize successful treatment of sexual dysfunctions as eliminating the physical symptoms. While this may result in improved satisfaction with functioning for some people, others may continue to struggle with underlying issues having caused the physical symptom. It remains unclear whether sex therapy aimed at treating sexual dysfunctions is targeting the larger presenting complaints, encompassing not only the symptom presentation, but also the underlying issues contributing to the dysfunction (e.g., relationship problems, high anxiety, lack of sleep). Treating the symptoms might superficially appear to remove the problem, but it may at times fail to target underlying issues causing the problem. As

such, a need to better understand potential pathways and variables to target in treatment is of importance.

People who have met all clinical criteria, with the exception of the distress criterion, for diagnostically classified sexual dysfunctions have reported high sexual satisfaction (Frank, Anderson, & Rubenstein, 1978). This suggests that people can experience the physical symptoms of sexual dysfunction and still be satisfied without having these physical symptoms treated. The focus on symptoms also paves the path for how the field conceptualizes a positive outcome. Much of the erectile dysfunction literature considers erections within sexual activity as a pass/fail dichotomy: either an erection is sufficiently rigid for penetration and remains this way until the cessation of sexual activity, as marked by orgasm, or it is not. Despite the lack of an erection in a sexual context being considered an arousal disorder (Sachs, 2000), many people continue to think of ED as an obstacle to intercourse, rather than a lack of subjective arousal (Kleinplatz, 2011). Kleinplatz (2011) argues that according to social norms, erections are considered to be cues for having sex. These norms set the stage for men to have sex any time they have an erection, regardless of their level of subjective arousal. By continuing to foster this norm, men are being set up to engage in potentially non-pleasurable sexual activity, which may result in some men adopting a schema of sex being an unpleasurable activity focused on performance and erections, rather than on pleasure and intimacy. Furthermore, the introduction of Viagra and other erectogenic drugs has coincided with an increase in men experiencing delayed ejaculation (Beckman, Waern, Gustafson, & Skoog, 2008). As such, by creating objective indicators of arousal without the accompanying subjective arousal, these drugs may further placing the emphasis on performance, rather than pleasure, resulting in increasing levels of men having difficulty experiencing orgasms (Kleinplatz, 2011). As a result of the focus on

performance and penetration, the emphasis on pleasure, touch, and satisfaction is removed, such that only penetration is considered equivalent to sexual satisfaction. As such, ED is assumed to be a medical problem that needs to be treated in order to achieve the ultimate goal: penetration (McCarthy & Fucito, 2005).

In focusing on penetration, the concept of sexual activity as a means of enhancing relationship satisfaction through intimacy, pleasure, and eroticism is ignored. When defining optimal sexuality, focus groups of heterosexual and gay, lesbian, transgender, and questioning individuals (GLTBQ) yielded similar responses; being present and connected, being pleasure-focused rather, and communication were key components (Kleinplatz et al., 2013). There was no emphasis on performance and function, highlighting the need for sex researchers to broaden their focus from the ability to penetrate to include emotional intimacy and communication.

Additionally, due to the natural decline in the efficiency of vascular and neurological systems, psychological and relationship factors may become increasingly important factors in sexual activity as men age (McCarthy & Fucito, 2005). Of note, the GLTBQ participants in the previously mentioned study highlighted the idea that one's ability to experience great sex does not occur until later in life, when the focus shifts from the narrow focus of penetration to broader, optimal sexuality (Kleinplatz et al., 2013). This report differs starkly from medical interpretations of sex that focus on the decline in sexual functioning with age.

These problematic assumptions are present in the measures we use to assess sexual functioning. Our current measures focus on quantity, performance, and firmness of erections to achieve penetration, rather than on subjective experiences of sex including pleasure, intimacy, and the satisfaction gained from sexual activity. As Western society becomes increasingly medicalized (e.g., Kleinplatz, 2003; Tiefer, 1996; Moynihan, 2003) the overemphasis on sexual

performance, as measured by erections, could possibly prevent people from focusing on the satisfaction gained from sexual relationships.

These societal assumptions are also found within gay men's research. The only self-report tool to measure sexual functioning specifically in gay men is the International Index of Erectile Functioning adapted for use in gay and bisexual men (IIEF-MSM; Coyne et al., 2010). This measure focuses primarily on the ability to penetrate, as 13 of the 22 items focus specifically on ability to achieve and maintain an erection. Moreover, while there are subscales assessing anal intercourse satisfaction and overall sexual satisfaction, neither of these subscales have adequate internal consistencies, and as such, should likely not be interpreted. This further exemplifies the emphasis placed on penetration, rather than overall sexual experience.

While it is important to be aware of the problems associated with focusing on the symptoms of ED, and that a broader conceptualization of the construct is warranted, examining the problems associated with focusing on the symptoms of ED remains important. Despite the aforementioned assumptions regarding sexual dysfunction in men, the literature does show a relationship between ED and psychological distress (Feldman et al., 1994). Moreover, the presence of ED is associated with relationship problems, including communication deficits and non-loving relationships, as well as a lack of sexual satisfaction.

In addition, the pathways leading to ED remain poorly understood. Having a complete understanding of the etiology of ED is necessary in order to be able to identify important treatment targets and develop a comprehensive and successful treatment. While the field of sex research is currently limited as a result of all measures of sexual dysfunction being influenced by penetration and performance biases, it remains important to study ED in order to improve psychological and relationship functioning in all men, including gay and bisexual men. However,

results should be interpreted cautiously, while being conscious of popularized medicalized assumptions. Nonetheless, despite the potential importance of ED, including among gay and bisexual men, the causes of ED and other types of sexual dysfunction in males remain poorly understood. While a large range of psychological problems has been associated with ED, the results are highly unreliable and vary greatly across studies (Bancroft. et al., 2005). As such, further research is warranted to examine predictors of ED in men.

Childhood Sexual Abuse

One relatively consistent predictor of sexual problems broadly defined (McCarty, Roberts, & Hendrickson, 1996), and specifically of sexual dysfunction (Siebel, Rosser, Horvath, & Evans, 2009; Berthelot, Godbout, Hebert, Goulet & Bergeron, 2014; Swaby & Morgan, 2009), is childhood sexual abuse (CSA). Sexual trauma, such as CSA has been associated with a great number of psychiatric problems, including anxiety, depression, substance abuse, and problems with self-esteem and social adjustment, and as such, may be related to sexual dysfunction (Loeb et al., 2002). CSA is often defined by sexual body contact prior to the age of 18 by an individual who was either five years older than the victim, or where the age differences was less than five years, but the contact was either coercive or not desired (Loeb et al., 2002). The Diagnostic and Statistical Manual of Mental Disorders – Fourth Edition (DSM-IV; American Psychiatric Association, 1994) marked the first time in history that sexual abuse was included as a contributing factor to the development of psychological symptoms in adulthood (Steel, Sanna, Hamond, Whipple, & Cross, 2004). The prevalence of CSA among men in community samples is approximately 8% (Stoltenborgh, Van IJzendoorn, Euser, & Bakermans-Kranenburg, 2011). These numbers increase substantially when examining CSA in a population of men who have sex with men (MSM; Duncan, 1990; Doll et al., 1992). Prevalence rates within this population vary

from 11.8% to 37%, suggesting that children who go on to be gay, bisexual, or otherwise MSM are more frequent targets of CSA (Relf, 2001).

Sexual Dysfunction and CSA

Although other forms of childhood abuse (e.g., childhood emotional abuse; Siebel et al., 2009) have also been reliably linked with sexual dysfunction, the majority of research on childhood abuse and sexual dysfunction has focused on CSA, likely due to the sexual nature of CSA. The traumatic aftermath of CSA may create negative associations with sex, such as feelings of pain and traumatic cognitions, which result in sexual dysfunction (Loeb et al., 2002). As such, engaging in sexual activities may elicit emotional discomfort, pain, anxiety, and dysfunction during sex. The result is that sex is no longer a pleasurable and rewarding experience, but rather a stressful and emotionally painful experience. As a result of being distracted by these negative emotions and cognitions during sex, the survivor of CSA may have difficulty maintaining arousal and desire, thus leading to sexual dysfunction. Among adults presenting for sex therapy, 37% of men experienced CSA (Berthelot et al., 2014).

The majority of research examining sexual health in individuals who have experienced CSA has focused on hypersexual behaviors and engagement in sexually risky activities such as unprotected sex with partners of serodiscordant HIV status (e.g., Paul, Catania, Pollack, & Stall, 2001). For example, men with a history of CSA are more likely to engage in high-risk sexual activities that carry risk for HIV transmission and other sexually transmitted infections, such as unprotected sexual activity with multiple partners and brief sexual relationships with casual partners, more often than men without CSA (O'Leary, Purcell, Remien, & Gomez, 2003; McCarty et al., 1996). Gay and bisexual men who have experienced CSA are significantly more likely to have received drugs or money in exchange for sex by another male partner (Van Dorn et

al., 2005; Bartholow et al., 1994). Additionally, they are more likely to report being HIV-positive and have an increased rate of positive syphilis serology, suggesting high rates of sexually risk-taking behavior (Bartholow et al., 1994).

Due to the strong association between risky sexual activity and CSA, it is possible that sexual dysfunction may also be associated with CSA. Although numerous possible etiologies of sexual dysfunction have been proposed, research examining CSA as a potential risk factor of sexual dysfunction remains quite limited. The body of research examining this association is much larger when looking specifically at females who have been victims of CSA, where the association has been strongly supported across multiple studies (Rellini, 2014; Harlow & Stewart, 2005; Westerlund, 1992; Becker, Skinner, Abel, & Treacy, 1982). While not specific to males, two meta-analyses have concluded that CSA is an important risk factor for adult sexual dysfunction (Neumann, Houskamp, Pollock, & Briere, 1996; Lewis et al., 2010). Specifically, the meta-analysis by Lewis and colleagues (2010) found consistent associations between emotional and physical childhood abuse and sexual dysfunction. Due to the high comorbidity of emotional and physical childhood abuse and CSA, Lewis and colleagues (2010) posit that CSA is likely also associated with sexual dysfunction. The literature on the sexual functioning of specifically male survivors of CSA is limited; therefore, more research on the topic is warranted (Rellini, 2014). Studies examining the association between CSA and sexual dysfunction in women and in MSM find stronger results than studies examining the association in heterosexual men.

In a recent study conducted by Siebel and colleagues (2009) examining CSA and sexual dysfunction in MSM, 39% reported having been victims of physical and/or sexual abuse during their childhood. Of the men who reported currently experiencing difficulties with attaining or

maintaining an erection, 40.8% had been victims of physical and/or sexual abuse. Moreover, in a logistic regression comparing MSM with and without childhood abuse, those with abuse histories were two times more likely to report experiencing sexual dysfunction due to a medical condition. When examining ED specifically, the odds of reporting ED was 1.8 times higher for MSM with a history of CSA than those without.

In a study of 1500 men from the National Health and Social Life Survey (Laumann et al., 1999), compared to men who had not experienced CSA, male victims of CSA were three times as likely to report having experienced ED within the last 12 months on a dichotomous response item. Additionally, results showed that, when compared to men who were not victims of CSA, men who experienced CSA were twice as likely to suffer from premature ejaculation and low sexual desire. When examining this relationship in MSM, results showed that MSM were more than twice as likely to experience premature ejaculation and low sexual desire, compared to heterosexual men.

A study examining sexual dysfunction among heterosexual men found no significant associations between CSA and sexual dysfunction (Sarwer, Crawford, & Durlak, 1997). However, these null findings may be an artifact of the majority of men included in the sample having experienced one sole occasion of CSA, in which the perpetrator was a peer, rather than an adult. As such, while the event may have been conceptualized as a trauma in adulthood, it is possible that, at the time of the event, it was considered less traumatic. Boys who do not view unwanted sexual experiences in childhood as abusive or traumatic do not appear to suffer any negative psychological consequences (Hall, 2008). As a result, it is possible that adult sexual functioning may not have been disrupted in the same way as it would have been had the frequency and context of CSA been more severe (Sarwer et al., 1997).

The association between CSA and sexual dysfunction is also apparent earlier on in development. A study examining the sexual functioning of adolescent males following CSA found that 25% of males considered themselves to be sexually dysfunctional (Johnson & Shrier, 1987). ‘Sexually dysfunctional’ referred to non-organic complaints of low or nonexistent libido, premature ejaculation, ED, or orgasmic difficulties. Additionally, in a study examining the association between either childhood or adult sexual abuse on the sexual functioning of male college students, men who had been abused experienced significantly more sexual dysfunction than did men who were not abused (Turchik, 2012).

While several studies do support the existence of a relationship between CSA and sexual dysfunction, the potential pathways leading from CSA to sexual dysfunction are poorly understood across all populations, but especially among gay and bisexual men. There is a host of dysfunctions, disorders, and problematic patterns that may be exacerbated by the presence of CSA, and that appear to play a role in the development and maintenance of sexual dysfunction (Marx & Sloan, 2002). As such, understanding and identifying mediators that account for the association between CSA and ED is an important task. Mediators can offer points of intervention that may prevent the trauma experienced in childhood from transforming into sexual dysfunction in adulthood.

Mediators

Coping. Coping strategies have consistently been linked with psychosocial outcomes following CSA in the research literature (e.g., Steel et al., 2004). Specifically, engaging in avoidant coping strategies (i.e., controlling the emotional responses to a stressor; avoiding seeing friends and family; sleeping more; trying to distract oneself from the problem) following CSA has been associated with negative long-term psychological sequelae (Kuyken & Brewin, 1999).

While avoidant coping strategies can be considered adaptive if used for only a short period of time, extending these strategies across multiple stressful situations will lead to psychological distress (Steel et al., 2004). In a study examining the association between CSA, coping, and psychological distress, even after controlling for abuse characteristics (e.g., frequency, duration) and other coping strategies, participants who used avoidant coping strategies reported more depressive symptomatology (Wright, Crawford, & Sebastian, 2007). By contrast, engaging in problem solving coping strategies (i.e., strategies aimed at reducing the demands of the situation or demanding the resources for dealing with it) following CSA has been associated with lower levels of psychological distress in adulthood (Steel et al., 2004). Finally, using social support seeking as a coping strategy has yielded mixed results with respect to psychological distress in victims of CSA (Wright et al., 2007). Many studies have found that engaging in social support seeking behavior leads to an increase in psychological distress among victims of CSA; however, this may be due to a measurement bias, as people tend to seek support when experiencing distress (Wright et al., 2007).

In addition to being associated with psychological symptoms, avoidant coping strategies have also been linked to medical conditions such as coronary heart disease, hypertension, bronchial asthma, and dyslipidemia (Wiltink, Subic-Wrana, Tuin, Weidner, & Beutel, 2010). All of these conditions are also reliably linked with ED (Miner & Billups, 2008; Rodriguez, Al Dashti, & Schwarz, 2005). Additionally, while less frequently examined, the risk of ED seems to increase with severity of asthma (Chou et al., 2011). As a result of these relationships with sexual dysfunction, it can be hypothesized that coping strategies will have an impact on not only the previously named medical conditions, but also on the associated ED. A preliminary investigation proposing to examine the relationship between coping strategies and ED did not

find any significant results, but this study measured coping style using questionnaires that were designed to measure anxiety and social desirability (i.e., the State Trait Anxiety Inventory and the Social Desirability Scale; Wiltink et al., 2010). Future studies measuring coping strategies using a reliable index of coping strategies are needed in order to comprehensively examine this potential relationship.

Emotion regulation. Survivors of CSA frequently experience emotional numbing, which is one aspect of emotion regulation (Marx & Sloan, 2002). Emotion regulation involves monitoring and evaluating an emotional experience, while modifying it (Thompson & Calkins, 1996). As such, the ability to engage in emotion regulation requires an awareness and understanding of emotions (Thompson & Calkins, 1996). Marx and Sloan (2002) examined the relationship between CSA and emotion regulation and found that emotional expressivity (i.e., open display of emotion, regardless of whether the emotion is positive or negative) and experiential avoidance (i.e., suppressing or avoiding unwanted feelings) were associated with psychological distress. Specifically, as emotional expressivity decreased, severity of psychological distress increased, and as experiential avoidance increased, so did the severity of psychological distress. In a mediational analysis, only experiential avoidance was a significant mediator of the relationship between CSA and psychological distress.

Only recently has research started to focus on the relationship between emotion regulation and sexual dysfunction. As a result of the association between cognitive-affective factors influencing sexual dysfunction (e.g., performance anxiety; Althof et al., 2005), the role of emotion regulation in contributing to sexual dysfunction is of importance. In a preliminary investigation of the relationship between sexual trauma (either in adulthood or childhood) and sexual dysfunction, emotion dysregulation was a significant mediator of the relationship between

sexual trauma and sexual satisfaction, but not sexual dysfunction (Rellini, Vujanovic, & Zvolensky, 2010). This was the first study to examine this relationship, and used a relatively small heterosexual sample in which 26 participants were male. Gay men experience both higher rates of sexual dysfunction and higher rates of CSA. As such, examining this relationship in a larger sample consisting of gay men is imperative. Moreover, neither emotion dysregulation nor sexual trauma was related to sexual functioning in this sample, which is inconsistent with previous literature. However, Rellini and colleagues (2010) used a different measurement of emotion regulation (i.e., the Difficulties in Emotion Regulation Scale; Gratz & Roemer, 2004), which may explain the discrepancy in results. While Marx and Sloan (2002) measured several different aspects of emotion regulation (e.g., experiential avoidance and emotional expressivity), Rellini and colleagues (2010) used a compiled total score, which may not reflect subtle variations across different types of emotion regulation strategies. Therefore, more research is needed to reliably examine this relationship in a larger, heterogeneous sample, while differentiating between the use of varying emotion regulation strategies.

Substance use. Substance use appears to be a behavior exhibited by many survivors of CSA. In a review of studies examining the rates of substance use problems in male victims of CSA, substance use problems were 2.6 times higher for survivors than in the general male population (i.e., 65% in male survivors of CSA compared to 25% in the general population; Simpson & Miller, 2002). There is also evidence to support an increased use of substances in sexual situations (e.g., Paul et al., 2001; Senn, Carey, Venable, Coury-Doniger & Urban, 2006). In a study examining substance use in a sample of MSM who were victims of CSA on more than six occasions, 13.4% of men used alcohol prior to engaging in anal sex, compared to only 8.6% of men who were not victims of CSA (Paul et al., 2001). Additionally, 17% of MSM used drugs

other than alcohol prior to engaging in anal sex, compared to only 6.5% of MSM who were not victims of CSA.

Despite the popular belief that using substances will decrease sexual inhibitions and therefore enhance sexual activity, long-term substance abuse is associated with sexual dysfunction (Peugh & Belenko, 2001). Due to the depressant effects of alcohol on the central nervous system, heavy alcohol use has been linked to sexual dysfunction in males (i.e., erectile dysfunction, hypoactive sexual desire disorder, orgasmic difficulties; McKay, 2005). Forty to fifty percent of men with alcohol use disorder experience erectile dysfunction (Cocores, Miller, Pottash, & Gold, 1988).

The role of stimulants (e.g., cocaine, crystal meth, ecstasy, and amphetamines) in sexual dysfunction is less clear. While new users of stimulant drugs report aphrodisiac effects, men who were chronic users of cocaine, ecstasy, and/or amphetamines report reduced erectile functioning and delayed ejaculation (Peugh & Belenko, 2001). Due to the increased use of substances among male CSA survivors, and the association between substance use and sexual dysfunction, the use of alcohol and stimulants during sexual activity may mediate the relationship between CSA and sexual dysfunction.

Present Study

In summary, the relationship between CSA and sexual dysfunction has been well established in the research literature. Additionally, both CSA and sexual dysfunction are more commonly reported in populations of gay and bisexual men, as compared to heterosexual men. However, the pathways leading from CSA to sexual dysfunction remain poorly understood. Coping, emotion dysregulation, and substance use prior to/during sexual activity have all been

associated with both CSA and sexual dysfunction. As such, the present study aimed to examine the association between these variables.

This study examined the mediating role of coping, emotion regulation, and substance use in the relationship between CSA and ED. Based on the current literature, it is hypothesized that engaging in coping strategies such as problem solving, and in emotion regulation strategies such as cognitive reappraisal will protect against ED. In contrast, engaging in avoidant coping strategies and expressive suppression may contribute to greater severity ED. Finally, the use of substances will also facilitate the development of ED.

The proposed study's findings have important implications for individuals who are at risk for developing sexual dysfunction related to a history of CSA. By better understanding the pathways from CSA to sexual dysfunction, clinicians can focus on preventing and treating the factors that may play a role in the development of sexual dysfunction. Moreover, it will be useful in identifying targets for improving sexual dysfunction treatments for gay and bisexual men, a vulnerable population that has been relatively ignored in the scientific literature. The data in the proposed study may provide valuable insight into designing more tailored sexual dysfunction treatments to improve both sexual and mental health among survivors of CSA.

Methods

Participants

Participants consisted of 471 HIV-negative self-identified MSM within the Toronto metropolitan area that were recruited to participate in the Gay Strengths Study, conducted at the HIV Prevention Lab at Ryerson University. A rolling recruitment strategy was used with convenience sampling (see Appendix A). Targeted recruitment was conducted to achieve a sample that was ethnically representative of the general Toronto population. For example, Black individuals comprise 7.2% of the Toronto population (Statistics Canada, 2011), so recruitment attempted to approximate this proportion in the Gay Strengths Study sample. After 260 participants were recruited in the general convenience sampling, general recruitment was stopped, with continued recruitment of Black participants, South Asian participants, and East/Southeast Asian participants. This objective was generally achieved. For example, Black participants comprised 6.3% of the study sample.

After providing informed consent (see Appendix B), participants completed the baseline questionnaire between March 2012 and September 2014 (see Appendix C). They were recruited through posters at community organizations and venues as well as through the distribution of flyers at community events, such as the Toronto Pride Street Festival. Additionally, advertisements were put online on both a social media site (i.e., Facebook) and a website targeting gay men (i.e., Squirt.org). Additional targeted recruitment of Black, South Asian, and East/Southeast Asian men was conducted through outreach to AIDS service organizations serving these communities.

In order to be eligible, participants had to be men over the age of 18 and were required to have engaged in sexual activity with another man during the six months prior to the initial

assessment. Additionally, they were required to be able to speak and read in English, and be able to attend assessment sessions at three time points, scheduled three months apart. Participants were required to report an HIV-negative status at baseline. If their HIV status changed over the course of the study, they were permitted to continue; however, their data were not used for this thesis since the prevalence of ED is significantly higher for HIV-positive than HIV-negative men (e.g., Asboe et al., 2007; Cove & Petrak, 2004; Ende, Re, DiNubile, & Mounzer, 2006). Participants were not eligible if they reported currently experiencing symptoms of a severe psychological condition (e.g., major depressive disorder, schizophrenia).

A total of 471 MSM completed the baseline assessment. Participants were removed from data analyses if they did not complete all three assessment sessions (18.3%) and if they seroconverted during the course of the study (0.8%). Additionally, 7 (3.4%) participants identified as a transmale, two spirited, or queer gender. These participants were also removed from the final sample, as the study's outcome was erectile functioning, and it was not verified whether these participants possessed or identified with their anatomically male genitalia. The final sample consisted of 365 MSM. Removed participants were compared to the final sample on demographic variables using a Chi-Square Test or a Fisher's Exact Test (FET), depending on whether the main assumption of a Chi-Square Test was met (i.e., expected frequencies in each contingency table cell > 5 ; Field, 2013; see Table 1). After removing participants who did not complete all three time points and/or who seroconverted during the course of the study, removed participants did not differ from the final sample on age, sexual orientation, education, annual income, ethnicity, or relationship status. Removed participants did differ from the final sample on gender, ($p = .02$; FET). Following the removal of participants who did not endorse a male gender identity, removed participants differed from the final sample on gender ($p < .01$; FET)

Table 1

Sociodemographic Characteristics and Comparisons of Included and Removed Participants

	Included (<i>n</i> = 365)	Removed (<i>n</i> = 106)	
Variable	<i>n</i> (%)	<i>n</i> (%)	Test Statistic
Gender			$p < .01$; FET
Male	365 (100)	90 (85)	
Transman	0 (0)	5 (4.7)	
Two-Spirited	0 (0)	6 (5.7)	
Queer	0 (0)	2 (1.9)	
Sexual Orientation			$p < .01$; FET
Gay	321 (87.9)	78 (73.6)	
Bisexual	34 (9.3)	14 (13.2)	
Queer	4 (1.1)	3 (2.8)	
Two-Spirited	2 (.5)	4 (3.8)	
Pansexual	1 (.3)	3 (2.8)	
Undefined	3 (.8)	1 (.9)	
Ethnicity			$p = .62$; FET
White	222 (60.8)	66 (62.3)	
Black	23 (6.3)	9 (8.5)	
Latin American	22 (6.0)	6 (5.7)	
South Asian	28 (7.7)	5 (4.7)	
East/Southeast Asian	31 (8.5)	4 (3.8)	
Middle Eastern	6 (1.6)	3 (2.8)	
Native/Cree	3 (.8)	1 (.9)	
Two or more ethnicities	30 (8.2)	9 (8.5)	
Highest Education			$p = .29$; FET
Did not attend high school	2 (.5)	1 (.9)	
Some high school	7 (1.9)	6 (5.7)	
Completed high school	26 (7.1)	10 (9.4)	
Some secondary education	102 (27.9)	27 (25.5)	
Completed secondary education	134 (36.7)	35 (33)	
Some graduate or professional school	25 (6.8)	9 (8.5)	
Completed graduate or professional school	69 (18.9)	15 (14.2)	
Annual Income			$\chi^2(4) = 2.29$
Under \$20,000	140 (38.4)	46 (43.4)	
\$20,000 - \$39,999	105 (28.8)	27 (25.5)	
\$40,000 - \$59,999	55 (15.1)	16 (15.1)	
\$60,000 - \$79,000	31 (8.5)	7 (6.6)	
Over \$80,000	33 (9.0)	6 (5.7)	
Relationship Status			$\chi^2(2) = 0$

Single	208 (57.0)	58 (54.7)	
Partnered	157 (43.0)	44 (41.5)	
	<i>M (SD)</i>	<i>M (SD)</i>	
Childhood Sexual Abuse	7.32 (4.47)	8.87 (5.90)	$t(136.79) = -2.49^*$
Erectile Function	19.81 (6.81)	20.36 (7.11)	$t(459) = -0.70$
Cognitive Reappraisal	30.39 (7.08)	28.59 (7.87)	$t(466) = 2.23^*$
Expressive Suppression	11.74 (5.19)	11.22 (5.77)	$t(466) = 0.87$
Avoidant Coping	22.77 (4.64)	22.91 (5.30)	$t(465) = -0.26$
Problem Solving Coping	27.52 (4.55)	26.82 (5.07)	$t(465) = 1.35$
Stimulant Use	0.36 (0.74)	0.66 (1.24)	$t(425) = -2.89^*$
Alcohol Use	1.33 (0.83)	1.23 (0.87)	$t(434) = -1.06$

Note. FET = Fisher's Exact Test. Participants were excluded from the final analytic sample if they did not attend all three assessment sessions, if they seroconverted during the course of the study, or if they endorsed a transmale, two-spirited, or queer gender identity. All measures reported are baseline values. Note that the assumption of homogeneity of variances was not met for CSA, and as such, test statistics represent equal variances not assumed.

* $p < .05$

and sexual orientation ($p < .01$; FET). Removed participants did not differ on baseline measurements of erectile function, expressive suppression, avoidant coping, and problem solving coping. However, removed participants reported having experienced more CSA at baseline ($M = 8.87$, $SD = 5.90$) than the final analytic sample ($M = 7.32$, $SD = 4.47$), $t(466) = -2.48$, $p = .01$, Cohen's $d = -.26$. In addition, the removed participants engaged in significantly less cognitive reappraisal ($M = 28.59$, $SD = 7.87$) than the final analytic sample ($M = 30.39$, $SD = 7.08$), $t(466) = 2.23$, $p = .03$, Cohen's $d = .23$. Finally, removed participants engaged in significantly more stimulant use ($M = 0.36$, $SD = 0.74$) than the final analytic sample ($M = 0.66$, $SD = 1.24$), $t(425) = -2.89$, $p = .01$, Cohen's $d = .41$.

Erectile Functioning. The overall severity of ED at time point 3 is was examined based on criteria reported by Shindel and colleagues (2012). According to Shindel and colleagues' (2012) cutoff scores for the IIEF-MSM, no ED was defined as a score between 25 and 30, mild ED was a score ranging from 16 to 24, moderate ED was a score ranging from 11 to 15, and severe ED was a score equal to or below 10. At time point 3, 108 participants (29.6%) did not meet criteria for ED, 110 participants (30.1%) met criteria for mild ED, 61 participants (16.7%) met criteria for moderate ED, and 72 participants (23.3%) met criteria for severe ED.

Childhood Sexual Abuse. The frequency of reported CSA was examined to assess the prevalence of CSA in this sample. While 237 (64.9%) of participants denied experiencing any CSA, 128 participants (35.1%) reported having experienced CSA. In addition, frequency of multi-type abuse was assessed, with 144 participants (39%) reporting having experienced at least two types of abuse in childhood.

Measures

Demographic variables. Participants completed a demographics questionnaire assessing age, gender, sexual orientation, employment status, education level, income, religious beliefs, ethnic background, and relationship status.

Childhood abuse. Childhood abuse was measured using the Childhood Trauma Questionnaire – Short Form (CTQ-SF, Bernstein et al., 2003). The CTQ-SF consists of 28 self-report items adapted from the original 70-item CTQ (Bernstein et al., 1994). Each item is rated using a five-point Likert-type scale (1 = *never true*; 5 = *often true*), and is to be answered within the context of childhood experiences. The CTQ-SF contains five subscales: 1) emotional abuse (e.g., “People in my family said hurtful or insulting things to me”); 2) physical abuse (e.g., “I was punished with a belt, a board, a cord, or some other hard object”); 3) sexual abuse (e.g., “Someone tried to do sexual things or make me watch sexual things”); 4) emotional neglect (e.g., “I thought my parents wished I had never been born”); and 5) physical neglect (e.g., “My parents were too drunk or high to take care of the family”). The cutoff for significant CSA is considered to be 8, indicating that people scoring 7 or less on the CSA subscale of the CTQ are not considered to have experienced significant abuse (Walker et al., 1999).

In a normative community sample of adults, the emotional abuse, physical abuse, sexual abuse, and emotional neglect had high internal consistencies, ranging from $\alpha = 0.83$ to 0.92 (Bernstein et al., 2003). The CSA subscale was shown to have the highest internal consistency ($\alpha = 0.92$). This is consistent with the reliability of the CSA subscale in the current sample, $\alpha = 0.94$. The physical neglect subscale had weak internal consistency ($\alpha = 0.61$). Each of the subscales show strong criterion validity as demonstrated by a comparison to therapist ratings of childhood abuse in the community sample (emotional abuse: $r = 0.48$, $p < 0.001$; physical abuse:

$r = 0.59, p < 0.001$; sexual abuse: $r = 0.75, p < 0.001$; emotional neglect: $r = 0.38, p < 0.001$; and physical neglect: $r = 0.50, p < 0.001$).

Sexual functioning. Sexual dysfunction was assessed using the International Index of Erectile Function adapted for MSM (IIEF-MSM; Coyne et al., 2009). The IIEF-MSM consists of 22 self-report items adapted from the original IIEF and assesses sexual functioning over the past four weeks (Rosen et al., 1997). For example, instead of asking in the original IIEF (Rosen et al., 1997) a question that assumes that all sexual acts involve penetration “When you attempted sexual intercourse, how often was it satisfactory for you?”, the IIEF-MSM asks the “When you attempted sexual intercourse or other sexual activity, how often was it satisfactory for you?”. The IIEF-MSM contains five subscales: 1) erectile function (e.g., “How often were you able to get an erection during sexual activity?”); 2) intercourse satisfaction (e.g., “How much have you enjoyed sexual intercourse or other sexual activity?”); 3) orgasmic function (e.g., “When you had sexual stimulation or intercourse, how often did you ejaculate?”); 4) sexual desire (e.g., “How often have you felt sexual desire?”); and 5) overall satisfaction (e.g., “How satisfied have you been with your overall sex life?”). A low score indicated poor sexual functioning. The erectile function, orgasmic function, and sexual desire subscales had high internal consistency, ranging from $\alpha = 0.82$ to 0.89 (Coyne et al., 2009). Overall satisfaction and intercourse satisfaction had inadequate internal consistencies, $\alpha = 0.42$ and 0.55 , respectively (Coyne et al., 2009). Only the erectile function subscale was analyzed in this study, which had high internal consistency, $\alpha = 0.89$.

Although the IIEF-MSM was psychometrically examined in a sample that was both MSM and HIV-positive, none of the questions directly address HIV-status. In addition, the IIEF-MSM has been used as a measure of sexual functioning in both HIV-positive (Vansintejan,

Janssen, Van de Vijver, Vandevoorde, & Devroey, 2013) and HIV-negative (Shindel et al., 2011) samples of MSM.

Coping strategies. The use of various coping strategies during stressful life events was measured using the Coping Strategy Indicator (CSI; Amirkhan, 1990). This measure consists of three subscales; problem solving, seeking social support, and avoidance. Each subscale consists of 11 items, measured on a three-point Likert-type scale, ranging from 1 (*not at all*) to 3 (*a lot*), with higher scores indicating increased use of the coping strategy. The participant must answer each question keeping in mind the extent to which they display the behavior mentioned in each item during stressful situations. While no specific clinical cut-off has been identified, a typical mean score for the avoidance subscale is 19.03, while a typical mean score for the problem solving subscale is 26.55 (Amirkhan, 1990). Each subscale has strong internal consistency, with the problem solving subscale (e.g., “rearranged things so your problem could be solved”) having an internal consistency ranging from $\alpha = .86$ to $.98$, the social support subscale (e.g., “described your feelings to a friend”) having an internal consistency ranging from $\alpha = .88$ to $.98$, and avoidance (e.g., “wished that people would just leave you alone”) having an internal consistency of $\alpha = .77$ to $.96$ (Desmond Shevlin, & MacLachlan, 2006). Additionally, test-retest reliability was strong, ranging from $.77$ to $.86$, as were convergent and divergent validity, suggesting the CSI has strong psychometric properties (Amirkhan, 1990). In the current sample, the avoidance subscale exhibited moderate internal consistency, $\alpha = .78$, while the problem solving subscale exhibited high internal consistency, $\alpha = .87$.

Emotion regulation. Emotion regulation was assessed using the Emotion Regulation Questionnaire (ERQ; Gross & John, 2003). The ERQ consists of nine questions assessing how individuals regulate and manage their emotions. The measure contains two subscales: 1)

cognitive reappraisal (e.g., “When I want to feel more positive emotion [such as joy or amusement], I change what I’m thinking about”); and 2) expressive suppression (e.g., “When I am feeling negative emotions, I make sure not to express them”). Each subscale contains at least one item pertaining to the regulation of negative emotions and at least one item pertaining to the regulation of positive emotions, which results in a broader assessment of the management and regulation of emotions. Questions are answered using a 7-point Likert type scale, ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). A high score on the cognitive reappraisal subscale (typical mean = 4.6) indicates strong emotion regulation and is adaptive, while a high score on the expressive suppression subscale (typical mean = 3.5) indicates weak emotion regulation, and is seen as maladaptive (Gross & John, 2003).

Internal consistency of the ERQ was assessed using four distinct undergraduate samples (Gross & John, 2003). The internal consistency for both subscales were acceptable, with the reliability of the cognitive reappraisal subscale ranging from $\alpha = 0.75$ to 0.82, and the expressive suppression scale ranging from $\alpha = 0.68$ to 0.76. To assess convergent validity, each of the subscales was compared to a measure of negative mood regulation and a measure of perceived regulation success. With regard to negative mood regulation, a positive relationship was found with cognitive reappraisal ($r = 0.30$) and a negative relationship was found with expressive suppression ($r = -0.22$). The relationships between perceived regulation success and both cognitive reappraisal and expressive suppression were positive ($r = 0.20$ and $r = 0.18$, respectively). In the current sample, both the cognitive reappraisal and expressive suppression subscales exhibited high internal consistency, $\alpha = .88$ and $\alpha = .89$, respectively.

Substance use. Consistent with other studies asking about frequency of substance use behaviors (e.g., Axelrod, Perepletkikova, Holtzman, & Sinha, 2011; Newcomb & Harlow,

1986), the present study assessed substance use in general for several types of substances, as well as substance use two hours prior to or during sexual activity. The questionnaire specifically measured substance use that had occurred within the previous three months. Alcohol use, cocaine, crystal meth, ecstasy, and amphetamine use were each measured by one item (e.g., “Over the past three months, I used cocaine”; “Over the past three months, I drank alcohol and got tipsy or drunk”). These questions had to be answered both in the context of general use, as well as use in sexual situations. Each question was answered on a frequency scale from 0 to 3, with a score of 0 indicating no substance use, and a score of 3 indicating 21 or more instances of substance use. Independent variables were created by combining the use of alcohol as well the use of stimulants in general and prior to sex to create an overall score ranging from 0 to 3, where 0 indicated no alcohol/stimulant use, 1 indicated use only outside of sexual situations, and 2 indicated use within sexual situations.

Procedure

Participants who indicated an interest in participation first underwent a brief phone screen to assess for eligibility criteria. For participants who met criteria for the study, a one-hour initial assessment session was then scheduled. Participants came into the HIV Prevention Lab at Ryerson University and provided written informed consent. They then completed a computer-assisted self-interview questionnaire for their initial assessment session. They also completed two follow-up sessions, occurring at three months and six months following the initial assessment. During these follow-ups, they completed the same computer-assisted self-interview questionnaire package. Following each session, participants were compensated \$30, and were provided with a list of resources for HIV-testing, as well as mental health and substance use counseling resources (see Appendix D).

Data Analysis

To determine whether demographic variables are associated with the outcome variable of erectile dysfunction, Pearson correlations, chi-square analyses, and independent t-tests were conducted. Specifically, due to natural age-related declines in erectile functioning (Rosen et al., 2004; McCabe, 2008; Shindel et al., 2011; Lewis et al., 2010), age was included as a covariate. Additionally, several exploratory analyses were conducted. First, as many adults report having experienced multiple types of childhood abuse (Clemmons, Walsh, DiLillo, & Messman-Moore, 2007), exploratory analyses were conducted to examine whether including the remaining subscales of the CTQ as covariates would influence results. Second, based on previous research showing an association between childhood physical and emotional abuse and ED, exploratory mediational models were analyzed, using each subscale of the CTQ as a predicting variable. Third, as adults who have experienced multi-abuse have more adjustment difficulties as compared to people who have experienced only one form of abuse, an exploratory analysis was conducted to examine whether victims of multi-type abuse had more severe ED (Clemmons, Walsh, DiLillo, & Messman-Moore, 2007). Intercorrelations between all study variables were also conducted; however, simple associations between the model variables are not necessary for an indirect effect to exist (Hayes, 2009).

In order to identify precipitating factors associated with sexual dysfunction in MSM, this study examined whether a history of CSA would temporally predict greater sexual dysfunction. Additionally, this study aimed to establish whether the role of engaging in alcohol and/or stimulant use prior to sexual activity, having emotion regulation difficulties, and engaging in specific coping strategies such as problem solving and avoidance was associated with the relationship between CSA and sexual dysfunction.

Bootstrapping is a non-parametric test that uses resampling to approximate the sampling distribution of the indirect effect (Hayes, 2009, 2013; Preacher & Hayes, 2008). It was developed to replace Baron and Kenny's (1986) *causal steps approach* due to criticisms of this method, including low power and the use of the Sobel test (Hayes, 2009). The Sobel test is problematic as it requires the sampling distribution of the indirect effect to be normally distributed, which it often is not (Hayes, 2009). Bootstrapping works by first resampling the original data between 1,000 and 50,000 times to form a new sample, with a general recommendation of resampling the data 10,000 times (Hayes, 2013). Next, using the resamples data set, bootstrapping calculates the indirect effect. The newly created estimate of the sampling distribution of the indirect effect is then used to compose confidence intervals for the indirect effect. This improved method has incorporated many of the critiques of the *causal steps approach* (Baron & Kenny, 1986), and now poses multiple advantages. Addressing the critique of low power, compared to the current available methods for investigating indirect effects, bootstrapping yields the highest power and lowest Type 1 error (Hayes, 2009). In line with this, the confidence intervals generated by bootstrapping more accurately represent true, rather than ideal, confidence intervals (Hayes, 2009). Additionally, the non-parametric nature of the test means that it does not require the sample or the indirect effect to be normally distributed (Hayes, 2009), a major advantage when examining symptom presentation in a generally healthy population.

The main hypotheses were examined by conducting a mediational analysis using bootstrapping (see Figure 1; Preacher & Hayes, 2008). The first hypothesis was that a history of CSA reported at baseline would predict greater sexual dysfunction at time-point three, relative to those without a history of CSA. The next hypothesis was that a history of CSA at baseline would be associated with greater alcohol and/or stimulant use prior to sexual activity, higher emotion

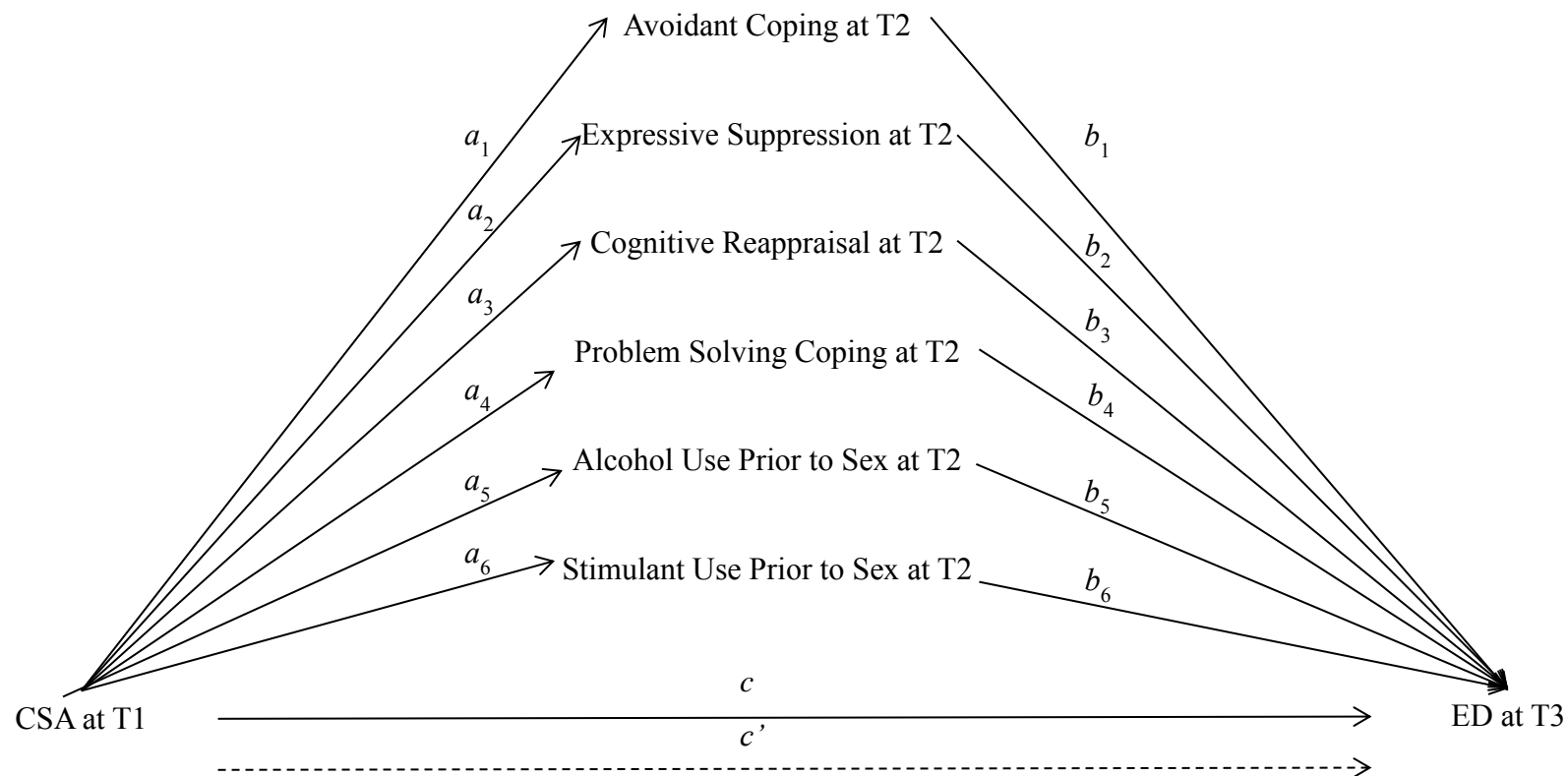


Figure 1. Model depicting the direct and indirect effects of CSA at baseline on ED at Time-point 3, with behavioral and cognitive strategies at Time-point 2 as mediators.

regulation difficulties, less problem solving coping strategies, and more avoidant coping strategies at time-point two. The final hypothesis was that greater alcohol and/or stimulant use prior to sexual activity, emotion regulation difficulties, avoidant coping strategies, and less problem solving coping strategies at time-point two would mediate the association between CSA at baseline and sexual dysfunction at time-point three. CSA, the mediators, and ED were measured at three distinct time-points, rather than cross-sectionally, in order to prevent a reporting bias in the measurement of these constructs. For example, responding to questions regarding CSA may bring up traumatic memories and may therefore influence how participants answer subsequent questionnaire questions.

The PROCESS macro for SPSS was used to conduct bootstrapping mediation analyses to examine total, direct, and indirect effects (Hayes, 2013). PROCESS generates 95% bias-corrected bootstrap confidence intervals for indirect effects in mediation models. Endpoints of confidence intervals will vary with each analysis due to the randomized resampling of data. In order to reduce sampling variation and achieve maximal statistical precision, the number of bootstrap samples was set at 10,000 (Hayes, 2013). To test the hypotheses, bootstrapping mediation analysis were performed using the CSA subscale of the CTQ as the independent variable, the ERQ, CSI, and substance use frequency as the mediator variables, and the erectile functioning (ED) subscale of the IIEF as the dependent variables.

Results

Exploration of Assumptions

Univariate outliers were detected by examining the box plots of each of variables included in the model (i.e., CSA, ED, ERQ, CSI, and substance use frequency). Scores with a z -value exceeding $|3.29|$ were identified as outliers (Field, 2013). Two scores were identified as being outliers in the problem solving coping strategies variable. Regarding CSA, 11 outliers were identified. Although these outliers were considered possible candidates for deletion, they were ultimately not removed. This decision was based on the concept of prevention of unnecessary data reduction, as well as on the non-parametric nature of bootstrapping (Hayes, 2009). There were no outliers for cognitive reappraisal, expressive suppression, or avoidant coping strategies at time-point 2. In addition, no outliers were detected when examining erectile functioning at time-point 3.

Skewness, kurtosis, and histograms were examined to assess for whether the model variables were normally distributed. Table 2 shows the skewness and kurtosis of each variable in the model. Based on examination of z -scores and visual surveying of histograms, the variables were not normally distributed. CSA (see Figure 2), expressive suppression (see Figure 3), avoidant coping (see Figure 4), age (see Figure 5), and stimulant use (see Figure 6) tended to cluster around the lower end, while ED (see Figure 7), cognitive reappraisal (see Figure 8), and problem solving coping (see Figure 9), and alcohol use (see Figure 10) tended to cluster around the higher end. However, as bootstrapping does not require variables to be normally distributed, no transformations were made (Hayes, 2009).

Table 2

Skewness and Kurtosis of Study Variables

Variable	Skewness			Kurtosis		
	Statistic	SE	z	Statistic	SE	z
CSA at T1	1.96	.13	15.08***	2.86	.26	11.00***
EF at T3	-.39	.13	-3.00*	-.74	.26	-2.85**
Expressive Suppression at T2	.14	.13	1.08	-.98	.26	-3.77***
Cognitive Reappraisal at T2	-.44	.13	-3.38***	.03	.26	0.12
Avoidant Coping at T2	.09	.13	0.69	-.57	.26	-2.19*
Problem Solving Coping at T2	-.68	.13	-5.23***	-.04	.26	-0.15
Stimulant Use at T2	3.21	.12	26.75***	21.19	.24	88.29***
Alcohol Use at T2	-.50	.12	-4.17***	-1.46	.23	6.35***
Age	.78	.13	6.00***	.08	.26	0.31

Note. SE = standard error; T1 = Baseline; T2 = Time-point 2; T3 = Time-point 3.

* $p < .05$; ** $p < .01$; *** $p < .001$

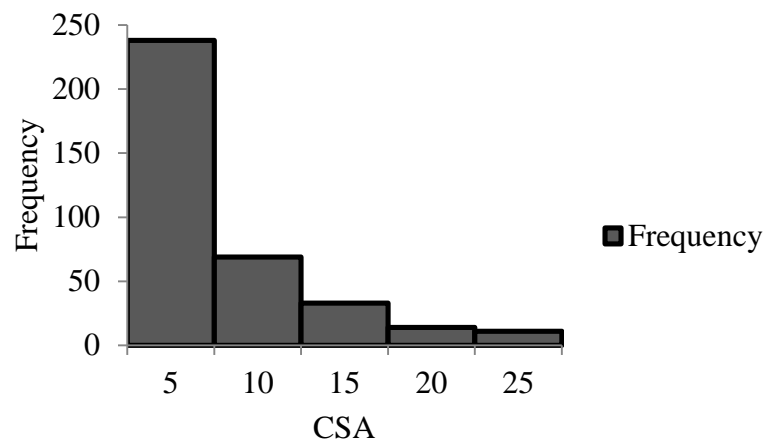


Figure 2. Histogram displaying distribution of CSA at baseline.

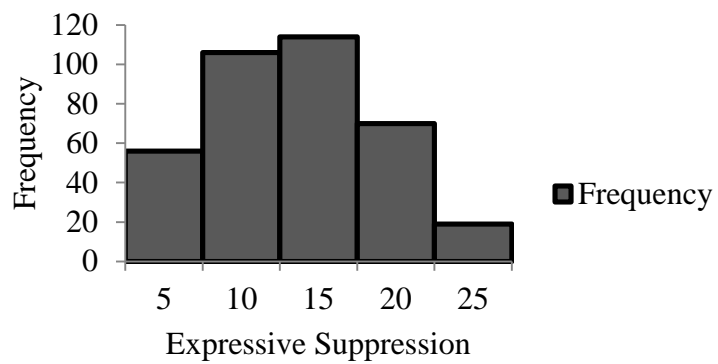


Figure 3. Histogram displaying distribution of expressive suppression at Time-point 2.

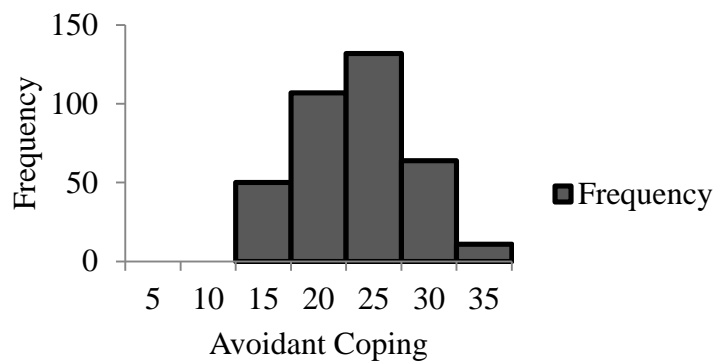


Figure 4. Histogram displaying distribution of avoidant coping at Time-point 2.

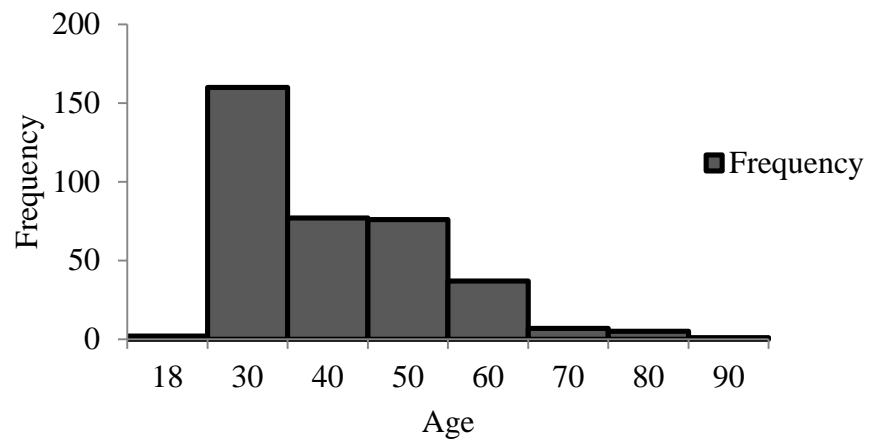


Figure 5. Histogram displaying distribution of age at baseline.

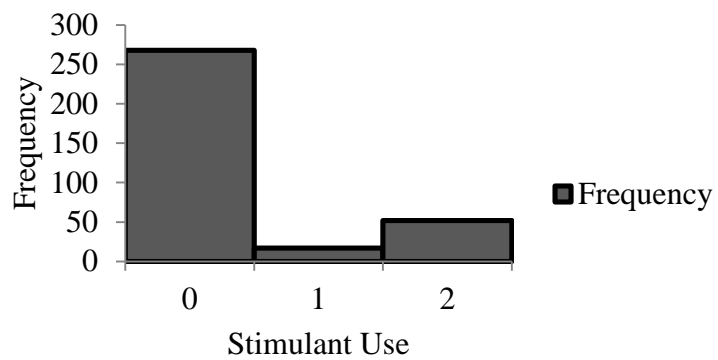


Figure 6. Histogram displaying distribution of stimulant use at Time-point 2.

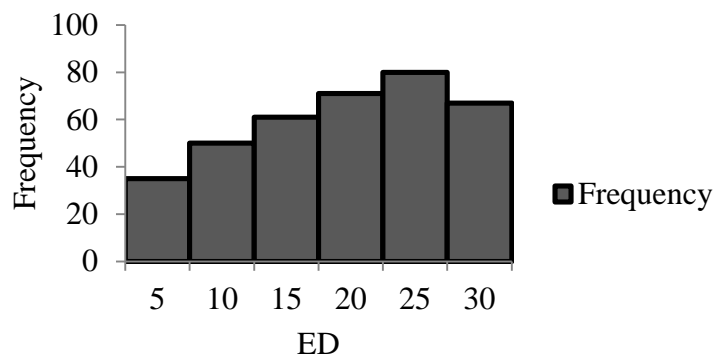


Figure 7. Histogram displaying distribution of erectile dysfunction at Time-point 3.

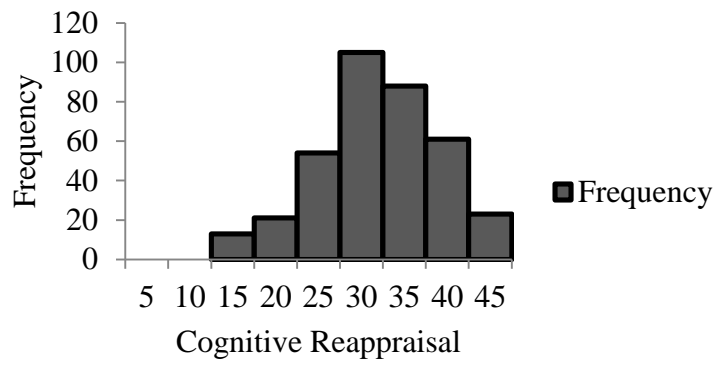


Figure 8. Histogram displaying distribution of cognitive reappraisal at Time-point 2.

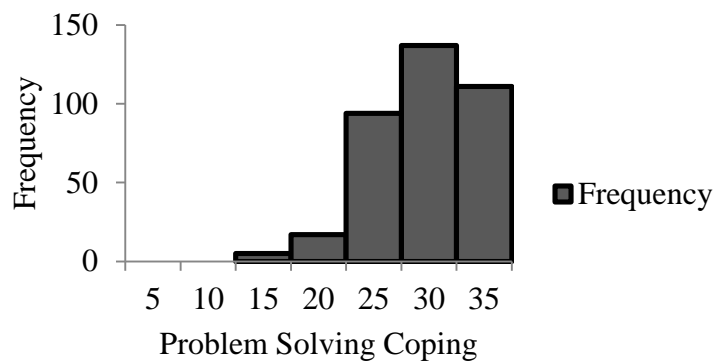


Figure 9. Histogram displaying distribution of problem solving coping at Time-point 2.

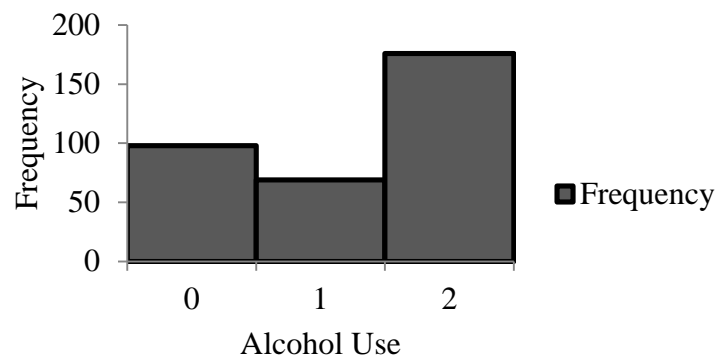


Figure 10. Histogram displaying distribution of alcohol use at Time-point 2.

Table 3

Correlations Among Model Variables

	1	2	3	4	5	6	7	8	9
1. CSA at T1	-								
2. ED at T3	.04	-							
3. Cognitive Reappraisal at T2	.04	.09	-						
4. Expressive Suppression at T2	.00	-.07	-.06	-					
5. Avoidant Coping at T2	.12*	-.11*	-.08	.33**	-				
6. Problem Solving Coping at T2	.00	.08	.40**	-.12*	-.07	-			
7. Stimulant Use at T2	-.02	.04	-.03	.04	-.02	.01	-		
8. Alcohol Use at T2	-.08	.08	-.05	-.04	-.09	-.05	.21**	-	
9. Age	.13*	-.08	.02	-.03	-.14**	.09	.03	-.29**	

Note. T1 = baseline; T2 = time-point 2; T3 = time-point 3.

* $p < .05$; ** $p < .01$

Descriptive Statistics

Covariates. The association between the model variables and potential covariates were explored (see Table 3). Age was included as a main covariate, while the remaining subscales of the CTQ were entered as covariates in an exploratory analysis. Age was positively associated with CSA, $r(365) = .13, p = .01$, suggesting an increase in reported CSA was correlated with having a higher age. Additionally, age was negatively associated with avoidant coping, $r(364) = -.14, p = .01$, indicating that as people get older, they use more avoidant coping strategies. Age was not correlated with ED, $r(351) = -.07, p = .18$, cognitive reappraisal, $r(365) = .02, p = .67$, expressive suppression ($r(365) = -.03, p = .59$), or problem solving coping ($r(364) = .09, p = .08$). Although age was not associated with ED in our sample, it was included as a covariate as age is often associated with ED (e.g., Laumann et al., 2007).

The remaining subscales of the CTQ were each positively associated with CSA, suggesting that people who have experienced one form of childhood abuse are more likely to have experienced another form as well. Specifically, CSA was positively associated with childhood emotional abuse, $r(365) = .40, p < .01$, childhood physical abuse, $r(365) = .138, p < .01$, childhood emotional neglect, $r(365) = .27, p < .01$, and childhood physical neglect, $r(365) = .30, p < .01$. Among coping strategies, the use of avoidant coping strategies was positively associated with emotional abuse, $r(364) = .20, p < .01$, physical abuse, $r(364) = .16, p < .01$, and physical neglect, $r(364) = .17, p < .01$. The use of problem solving coping was associated with both emotional neglect, $r(364) = -.15, p < .01$, and physical neglect, $r(364) = -.11, p = .03$. Cognitive reappraisal was associated with emotional neglect, $r(364) = -.14, p < .01$. ED was not associated with any of the remaining subscales of the CTQ.

Model Intercorrelations

Associations between each of the model variables are presented in Table 3. Contrary to the study hypothesis, CSA at baseline and ED at time-point 3 were not associated, $r(351) = .04, p = .50$. CSA at baseline was associated with problem solving coping at time-point 2, $r(364) = .12, p = .02$. Problem solving coping at time-point 2 was also associated with ED at time-point 3, $r(350) = -.12, p = .02$. Among the mediators, expressive suppression was associated with avoidant coping, $r(364) = .33, p < .01$, and problem solving coping, $r(364) = -.12, p = .02$, at time-point 2. Additionally, problem solving coping and cognitive reappraisal were associated at time-point 2, $r(364) = .40, p < .01$. Alcohol use and stimulant use at time-point 2 were also associated, $r(331) = .21, p < .01$. The remaining study variables were not correlated.

Mediational Analysis

In order to test the study's main hypothesis, a mediational analysis was conducted using ordinary least squares path analysis in PROCESS. As illustrated in Figure 11, CSA at baseline predicted avoidant coping ($a_1 = .13, p = .03$) at time-point 2. Contrary to the hypothesis, CSA at baseline did not predict expressive suppression ($a_2 = -.02, p = .76$), cognitive reappraisal ($a_3 = .06, p = .45$), problem solving coping ($a_4 = -.00, p = .99$), alcohol use ($a_5 = -.02, p = .09$), or stimulant use ($a_6 = -.00, p = .75$) at time-point 2. Additionally, avoidant coping ($b_1 = .10, p = .39$), expressive suppression ($b_2 = -.04, p = .68$), cognitive reappraisal ($b_3 = .08, p = .30$), problem solving coping ($b_4 = .10, p = .39$), alcohol use ($b_5 = .71, p = .21$), or stimulant use ($b_6 = .24, p = .71$) at time-point 2 did not predict ED at time-point 3. Since a bias-corrected confidence interval for the indirect effect ($ab = -0.03$) based on 10,000 bootstrap samples crossed zero (-.10 to .02), it is not possible to reject the null hypothesis. As such, CSA at baseline did not indirectly influence ED through its effect on emotion regulation and coping strategies. Additionally, CSA

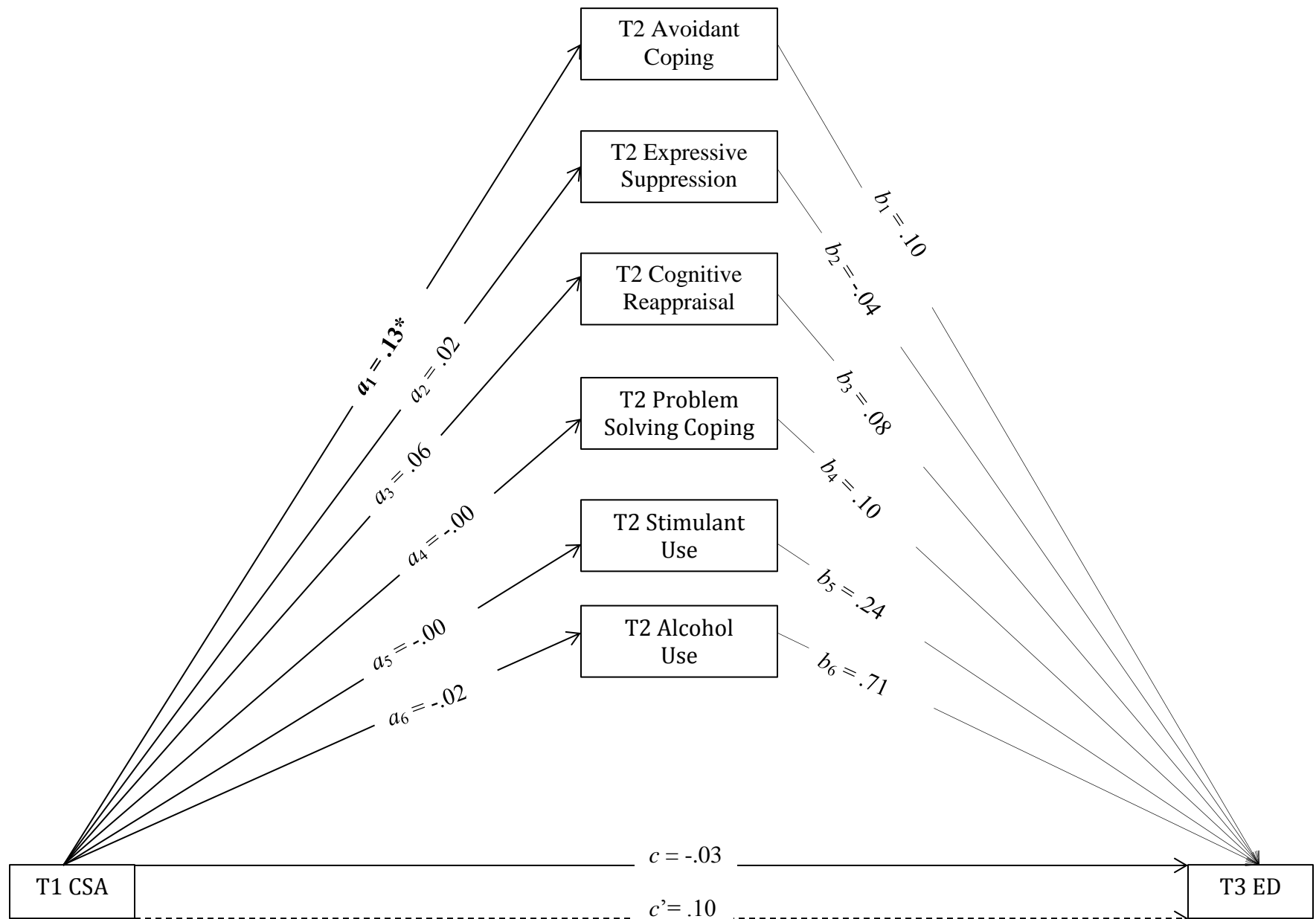


Figure 11. Results of the mediational model depicting the direct and indirect effects of CSA on sexual dysfunction, with behavioral and cognitive strategies as mediators. T1= Baseline; T2 = Time-point 2; T3 = Time-point 3; * $p < .05$

did not influence ED independent of its effects on emotion regulation, coping strategies, and substance use ($c' = .10, p = .43$).

Additional Exploratory Analyses

Childhood abuse as covariates. An exploratory analysis was conducted to examine whether including each of the remaining subscales of the CTQ would influence the model results. This is based on many adults reporting multiple types of childhood abuse (Clemmons et al., 2007), as well as findings of high correlations among CTQ subscales within this sample. After including childhood physical abuse, childhood emotional abuse, childhood physical neglect, and childhood emotional neglect as covariates, the results of the study model remained unchanged. CSA at baseline predicted avoidant coping ($a_1 = .13, p = .03$) at time-point 2. The remaining pathways were not significant, and CSA at baseline did not indirectly influence ED through its effect on emotion regulation and coping strategies ($ab = -.04$).

Multi-type abuse. As adults who have experienced multiple types of childhood abuse have more adjustment difficulties as compared to people who have experienced only one form of abuse (Clemmons et al., 2007), an exploratory analysis was conducted to examine whether victims of multi-type abuse had more severe ED. However, no differences in ED severity were found between people with only one or no types of abuse and people with two or more types of abuse, $t(362) = .69, p = .49$.

Other forms of childhood abuse as predictors. Based on previous studies showing an association between other forms of childhood abuse and ED, four separate mediational models were conducted using a different subscale of the CTQ as a predictor in each of the models. A model examining the relationship between childhood physical abuse and ED, with coping strategies, emotion regulation, and substance use included as mediators found only a significant

relationship between childhood physical abuse and avoidant coping ($a = .21, p < .01$). All other pathways in Figure 11 were not significant. Similarly, when including childhood emotional abuse as the main study predictor, only the path between childhood emotional abuse and avoidant coping was significant ($a = .19, p < .01$). With respect to childhood neglect, when including childhood emotional neglect, the path between childhood emotional neglect and problem solving coping was the only significant pathway ($a = -.11, p = .03$). When using childhood physical neglect, only the path between childhood physical neglect and avoidant coping was significant ($a = .26, p < .01$).

Discussion

The study proposed and tested a model explaining the association between ED and CSA in gay men. Specifically, the model examined the use of emotion regulation, coping strategies, and substance use as mediators of the relationship between CSA and ED, using a three time-point design (i.e., time-point 1 [baseline], time-point 2 [three-month follow-up], and time-point 3 [six-month follow-up]). Four main study hypotheses were tested, based on previous literature: (1) having a history of more severe CSA would be associated with experiencing more severe sexual dysfunction in adulthood; (2) having a history of more severe CSA would be associated with less problem solving coping and emotional expressivity, and more avoidant coping, cognitive reappraisal, and substance use in adulthood; (3) engaging in problem solving coping strategies and emotional expressivity would result in improved sexual functioning, while engaging in avoidant coping strategies and cognitive avoidance would result in poorer sexual functioning; (4) coping strategies, emotion regulation, and substance use would mediate the relationship between CSA and ED in adulthood.

Summary of Findings

Removed participants. Participants retained in the sample differed from removed participants on several variables. First, removed participants experienced significantly more CSA. Second, removed participants engaged in significantly less cognitive reappraisal, which is considered to be less psychologically adaptive. Finally, removed participants engaged in significantly more stimulant use than the final sample. Although the reason behind discontinuing the study is unknown, the differences between removed and retained participants suggest that the removed participants may have had more severe psychological distress and may have

experienced greater adjustment problems compared to the final sample, which may explain their inability to attend all three assessment sessions.

Age. While previous literature has shown an association between age and ED, no relationship was found between ED and age in this sample. However, this is likely due to the relatively low age of the sample, with the mean age being 38 years of age. Sexual functioning has been shown to decline with age (McCarthy & Fucito, 2005), and it specifically appears to start declining at around age 40 (Delamater, 2012; Moreira et al., 2008). As such, the lack of association between ED and age in this sample may be due to the relative youth of the sample.

Childhood abuse. Consistent with previous literature, each of the childhood abuse subscales were associated. As such, reporting experiencing one sort of childhood abuse or neglect was associated reporting experiencing another sort. This phenomenon of experiencing more than one type of childhood maltreatment is referred to as multi-type abuse and is common amongst victims of maltreatment (Clemmons et al., 2007). As the number of maltreatment types increases, victims show increasingly greater adjustment difficulties, suggesting that the cumulative impact of multi-type abuse is greater, compared to the experience of a single abuse (Clemmons et al., 2007). As each abuse subscale was associated in this sample, participants in this sample have likely experienced a great amount psychological distress and adjustment issues.

Erectile functioning. Seventy percent of the sample reported experiencing at least mild ED. When excluding participants who reported experiencing only mild ED, 40% of participants remained, meeting criteria for moderate to severe ED. These prevalence rates are significantly higher than previously cited rates of 4.5% (Bancroft et al., 2005) as well as the worldwide rates of 10 to 22% (Rosen et al., 2004). The large variability in prevalence rates is likely the result of different operational definitions of ED, the use of various age groups, and various durations of

symptoms in epidemiological studies. For example, the mean age of the sample in the study by Bancroft and colleagues (2005; $M = 34.8$, $SD = 10.5$) was slightly younger than this sample ($M = 35.69$, $SD = 12.69$), which may explain the different prevalence rates. Additionally, Bancroft and colleagues (2005) measured ED using only a single item question (i.e., “in the past three months, have you experienced any difficulty in obtaining or maintaining a full erection during sexual activity?”). Similarly, participants included in the study by Rosen and colleagues (2004), indicated whether they experienced erectile difficulties based on a dichotomous (i.e., “yes” or “no”) question, and were then asked to rate their difficulties as “mild”, “moderate”, or “severe”. As such, the difference in prevalence rates across these studies may be the result of the measure used to assess for ED.

The prevalence rate of ED reported by this sample may be inflated by the measure used to assess for ED. The IIEF-MSM (Coyne et al., 2010) is currently the only self-report measurement tool adapted to and validated for use with gay and bisexual men. However, there are several problems with the scale, which may inflate prevalence of ED. First, individuals who report not having engaged in any sexual activity during the past three months receive a score of “0” on each scale item. This is problematic as having lower scores on the IIEF-MSM indicates poorer sexual functioning. As such, people who are not engaging in any sexual activity are considered to have the most severe sexual dysfunction, based on this scale. While a lack of sexual activity may be indicative of avoidance of sexual activity due to feared sexual dysfunction, other possibilities for reporting no sexual activity may be a lack of access to sex, lack of a committed sexual partner, relationship problems, abstinence from sex for a variety of personal reasons, or simply a non-pathological lack of interest in sex. Therefore, many

problematic assumptions are made when labeling people who do not engage in sex as “sexually dysfunctional.”

A second major problem with the IIEF-MSM is based on the fact that gay men differ in their anal sex roles. Gay men who self-identify as being a “top” prefer the insertive anal sex role, while men who self-identify as being a “bottom” prefer the receptive anal sex role. Additionally, some gay men identify as “versatile”, and enjoy both insertive and receptive anal sex. The IIEF-MSM includes two items for assessing ED in insertive anal sexual activity while only one item measures ED in receptive anal sexual activity. As such, men who exclusively prefer the receptive anal sex role will be forced to answer “no sexual activity” to the two questions pertaining to insertive anal sex, thus resulting in an item score of “0”. Similarly, men who exclusively prefer the insertive anal sex role will be forced into selecting a score of “0” for the receptive anal sex question. This discrepancy results in men who identify exclusively with the receptive anal sex role appearing to have worse sexual functioning, regardless of actual functioning. Additionally, men who identify as versatile, and who have engaged in sexual activity in the past three months, will appear to have the greatest quality of sexual functioning, an artifact based solely on the fact that they are able to answer every question. As such, the prevalence rates of this sample should be interpreted with caution.

A third problem with the IIEF-MSM is that it does not assess for distress related to ED. The DSM-5 includes distress as a required criterion in order to receive a diagnosis of ED. This is largely due to previous research having shown that people can have fulfilling and satisfying sex lives without being able to attain or maintain an erection (Wincze & Weisberg, 2015). As such, by ignoring the distress criterion, the IIEF-MSM may be labeling men leading satisfactory sexual lives as “sexually dysfunctional”, which does not accurately reflect the DSM-5 diagnosis of ED.

Childhood sexual abuse. Higher rates of reported CSA have consistently been found among gay men, as compared to heterosexual men (Relf, 2001). Prevalence rates within this population vary from 11.8% to 37% (Relf, 2001), which is consistent with this sample's prevalence of 35.1%. As such, the high prevalence of reported CSA in this sample is not surprising.

Possible reasons for the higher prevalence of CSA among gay men compared to heterosexual men are likely complex and interactive. The limited literature focusing on this difference in prevalence explicitly states that by no means does CSA "cause" growing up to be a gay man (Relf, 2001). Instead several possible explanations for the increased prevalence have been suggested. First, having reached gay-related developmental milestones (i.e., age of first awareness of being sexually attracted to other males, engaging in sexual activity with another male, deciding that one is gay, disclosure of sexual orientation to another person) at an earlier age is associated with increased likelihood of having experienced CSA (Friedman, Marshal, Stall, Cheong, & Wright, 2008). This suggests that the higher prevalence of CSA among gay men is likely, at least in part, related to having reached gay-related developmental milestones. Relatedly, young men exploring their sexuality and questioning their sexual identities may be more likely to seek out sexual relations with older men, putting them at greater risk for sexual coercion (Relf, 2001). Finally, gay men may be more likely to report CSA compared to heterosexual men, as CSA among heterosexual men is frequently cited as being underreported (Spataro, Moss, & Wells, 2001).

Model intercorrelations. Of the study's four hypotheses, two hypotheses were partially supported. A significant, positive association between CSA and avoidant coping was found, suggesting that survivors of CSA engage in more avoidant coping in adulthood. Additionally,

consistent with the hypothesis, avoidant coping was negatively associated with ED, suggesting that increased use of avoidant coping strategies is associated with poorer sexual functioning. Associations were found between several of the proposed mediators in the model (i.e., problem solving coping was associated with expressive suppression and cognitive reappraisal, avoidant coping and cognitive reappraisal were associated, and alcohol use and stimulant use were associated); however, no hypotheses were based on associations between mediators. Most surprisingly, CSA and ED were not associated.

The lack of significant findings with respect to ED in this sample may be an artifact of the problematic nature of the IIEF-MSM. Based on the problems associated with this measure, it is probable that participants' scores on this measure do not accurately reflect their erectile functioning. As such, it would be inaccurate to suggest that these findings are representative of gay and bisexual men's sexual health.

However, it is also possible that the lack of significant findings in the present sample is due to the problematic nature of the studies having previously found associations between CSA and ED. Each of the studies that have previously found associations between CSA and ED (e.g., Siebel et al., 2009; Laumann et al., 1999; Turchik, 2011) have measured ED using a dichotomous variable. That is, participants have been asked to rate whether they experienced difficulties attaining/maintaining erections or not (e.g., "Have you had recurrent or persistent [happened more than once or twice] inability to attain or keep an adequate erection to the completion of sexual activity"; Siebel et al., 2009). These dichotomous variables fail to examine variability in the severity of sexual dysfunction. That is, they do not consider whether CSA is results in more severe sexual dysfunction, only whether CSA and reporting of erectile difficulties are associated. Moreover, participants will have subjective interpretations of erectile difficulties.

For example, one participant who experiences erectile dysfunction 50% of the time may indicate that they do experience erectile difficulties, while another may base his response on the 50% of the time where he does not experience erectile difficulties, and indicate no erectile difficulties. This would indicate a broad variability in actual sexual functioning of participants described as having ED or not in these dichotomous studies, thus increasing the possibility of error in results. In addition to the use of a dichotomous variable, the previously mentioned studies found only small to moderate effect sizes of the relationship between CSA and ED. For example, Siebel and colleagues (2009) reported an odds ratio of 1.83 (95%CI [1.18,2.85]), which represents a small effect size (Chen, Cohen, & Chen, 2010). Additionally, while Laumann and colleagues (1999) reported a medium effect size, with an odds ratio of 3.13 (95%[1.49-6.59]; Chen et al., 2010), the larger confidence interval represents a low level of precision of the odds ratio (Szumilas, 2010). Therefore, the significant results found in these studies represent small effect sizes that may have been influenced by large sample sizes. As such, there remains a possibility that there is no actual relationship between CSA and ED.

The findings also suggest that CSA is not associated with the majority of the model mediators, with the exception of avoidant coping. This is consistent with previous research showing that survivors of CSA engage in more avoidant coping strategies in adulthood (Paul et al, 2001). However, the lack of association between CSA and substance use was unanticipated, as meta-analyses have previously indicated a relationship between CSA and substance use (Paul et al, 2001). The lack of findings in this sample may be the result of a recruitment bias.

Participants were recruited to participate in the “Gay Strengths Study”, with phrases included in the advertisements such as “Are you a strong, gay man?” As such, while approximately half of the sample did experience CSA, they likely represent a subset of the population who currently

feel they are well-adjusted and “strong”. Had the advertisements recruited specifically gay men who were victims of CSA without the emphasis on the recruitment of “strong” men, it is plausible that the results would have reflected associations between CSA and alcohol use, stimulant use, and expressive suppression.

Mediation model. Based on previous research examining resilience and learned helplessness, coping strategies, emotion regulation, and substance use were hypothesized to mediate the relationship between CSA and ED in adulthood. However, this hypothesis was not supported. While CSA at baseline did predict the use of problem solving coping at time-point 2, problem solving coping did not significantly predict ED. None of the other mediational pathways were found to be significant in the analysis. Additionally, CSA at baseline did not predict ED at time-point 3.

Exploratory analyses. An exploratory analysis was conducted to examine whether victims of multi-type abuse had more severe ED, based on research showing that adults who have experienced multiple types of childhood abuse have more adjustment difficulties as compared to people who have experienced only one form of abuse (Clemmons et al., 2007). However, no significant differences in ED were found between people with only one or no types of abuse and people with two or more types of abuse. This suggests that erectile functioning is not affected by the number of abuse-types a person has endured. In addition, none of the remaining four subscales of the CTQ (childhood physical abuse, childhood emotional abuse, childhood physical neglect, and childhood emotional neglect) were predictors of ED. As such, within this sample, ED does not appear to be related to childhood abuse of any form. While this is inconsistent with previous studies, it remains unclear whether problems with the IIEF-MSM or

psychometric problems with the dichotomous measures used in other studies are responsible for the differing findings.

Limitations

There are several possible explanations for the lack of significant findings with respect to the study model. First, the outcome variable was operationalized and scored by a measure which has a number of flaws. As previously discussed, the IIEF-MSM results in inflated scores of erectile functioning for men who identify with a versatile anal sex role, while men who identify primarily with the receptive or insertive anal sex role will appear to have poorer erectile functioning. In addition, the scale assumes that men who have not engaged in sexual activity in the previous three months have not done so due to poor erectile functioning, an assumption that disqualifies a plethora of other possibilities for abstaining from sexual activity. As such, a number of the participants captured in the ‘severe ED’ group were likely mislabeled, and represent either people who self-identify with the receptive anal sex role or people who have not engaged in any recent sexual activity. However, to date, no other measure of sexual functioning in gay and bisexual men exists. As such, the use of clinical interviews based on criteria outlined in the *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* (DSM-5; APA, 2013) should be employed in future research examining the sexual functioning of gay men.

Second, only approximately one third of the sample reported having experienced CSA. While all participants were included in the analysis, to compare those who were victims of CSA to those who were not, having a sample consisting only of victims of CSA would have been beneficial within the model. Additionally, the sexual abuse subscale of the CTQ assesses for frequency of sexual threats, harassment, and assaults. However, the CTQ does not assess for the perpetrator of the sexual abuse. Research has shown that victims of intrafamilial CSA will have

more adverse psychological outcomes, as compared to those with a history of extrafamilial CSA (Lev-Wiesel, Amir, & Besser, 2004). In addition, survivors of rape in childhood have been found to have more post traumatic stress symptoms, as well as more severe psychopathology in adulthood, as compared to survivors of less severe CSA (e.g., CSA of varying type, duration, and frequency; McLean, Morris, Conklin, Jayawickreme, & Foa, 2014). As such, future research should examine not only the frequency, but also the severity of CSA, as well as examining the perpetrator of the abuse.

Finally, very few participants reported engaging in problematic substance use. With respect to stimulant use, 82% of participants denied using any substance use during the previous three months. While 63% of participants reported engaging in alcohol use, the frequency of substance use was not assessed. Rather, participants reported whether they engaged in substance use in general only, or in sexual situations. However, it is specifically long-term substance use that has been associated with sexual dysfunction in men. As such, future research would benefit from assessing severity and duration of substance use in order to get a more accurate indicator of whether the substance use is present, but infrequent, or present and very severe.

Future Directions

As outlined by the limitations of this study, future research would benefit from incorporating a number of proposed changes to the methodology of the current model. With respect to the assessment of ED, gay men's health literature would benefit from the creation of a novel, reliable, and validated measure of ED. Specifically, the revised measure should aim to address critiques of the IIEF-MSM, including having the same number of questions for men who engage in either the insertive or receptive anal sex roles. In addition, the measure should not assume that men who have not recently engaged in sexual activity are refraining from doing so

due to poor sexual functioning. In creating this measurement, it would be imperative to include questions related to distress regarding current sexual functioning, for several reasons. First, distress is a diagnostic criterion of each sexual dysfunction in the DSM-5. As such, researchers should not be giving participants a label of “sexual dysfunction” if distress related to the “dysfunction” is not assessed. Second, many people report having poor sexual functioning, but also report having very high sexual satisfaction (Wincze & Weisberg, 2015). There is no need to create treatment targets for men who do not necessarily wish to receive treatment, based on their high sexual satisfaction. As such, including a measure of distress within the new measurement of sexual dysfunction is of high importance.

In the interim, research examining the sexual functioning of gay men should be based on clinical interviews assessing diagnostic criteria outlined in the DSM-5, in order to obtain a more accurate assessment of ED, as the DSM-5 emphasizes the requirement of distress in order to receive a diagnosis of ED. These interviews should be careful to expand definitions of sexual activity from looking solely at sexual intercourse, to a broader repertoire of sexual activities. Future research would also benefit from incorporating psychophysiological measures of ED (e.g., penile plethysmography, thermographic imaging) into future research examining sexual functioning. Chivers and colleagues (2010) have found a strong association between self-reported sexual arousal and psychophysiological measures of ED among both gay men and heterosexual men, and therefore, incorporating these objective measures of sexual functioning would provide a more accurate representation of erectile functioning, without being influenced by potential reporting biases. These physiological measurements should be used in conjunction with clinical interviews assessing for distress related to sexual dysfunction.

Future research would also benefit from examining how CSA influence adult sexual satisfaction, agency, and their overall sexual experience. It is possible that for survivors of CSA, erections do not represent a cue to engage in a pleasurable sexual experience, but rather, to engage in potentially unwanted sexual activity. As such, survivors of CSA may report decreased sexual satisfaction and a poorer overall sexual experience. In addition, survivors of CSA may also report a decreased sense of sexual agency (i.e., an individual's ability to act on their own sexual needs, desires, and wishes; Wood, Mansfield, & Koch, 2007) based on their early sexual experiences being coercive in nature. As such, examining the extent to which survivors of CSA exhibit sexual agency is of importance.

In addition to the problems with the measurement of ED in this model, having assessed for the etiology of ED would have been of beneficial. As such, future research should examine the etiology of ED within participants. While psychogenic ED may be influenced by CSA, this is likely not the case for exclusively organic ED. Several medical conditions are known to cause ED, including atherosclerosis, spinal cord injury, and multiple sclerosis (Ende, 1990). In addition, conditions such as coronary heart disease and hypotension are reliably linked with ED due to problems with blood circulation (Miner & Billups, 2008; Rodriguez, Al Dashti, & Schwarz, 2005). As such, including participants who experience organic ED in studies examining psychosocial predictors of psychogenic ED will limit the opportunity to identify important psychosocial targets in the treatment of psychogenic ED. Future research should include organic ED as an exclusion criterion, to prevent this potential deflation of results from occurring.

With respect to CSA, future research should aim to assess this construct more thoroughly. Specifically, it would be beneficial to examine victims of intrafamilial and of extrafamilial CSA,

and to assess for differences in sexual functioning depending on the perpetrator. As victims of intrafamilial CSA have poorer overall psychological adjustment (Lev-Wiesel et al., 2004), it is possible that this also results in poorer sexual functioning. As such, examining differences in the sexual functioning of victims of intrafamilial and extrafamilial CSA is an important direction for future research. Similarly, it is important to examine whether being a victim of more severe abuse (i.e., forced sex) is a moderator of the severity of sexual functioning. Due to the high association between more severe CSA and severe psychopathology, relative to less severe CSA (McLean et al., 2014), it would be important to examine whether poorer sexual functioning is also present for these survivors.

Notwithstanding methodological issues, it remains a possibility that there is no association between CSA and ED. While previous studies (e.g., Siebel et al., 2009; Laumann et al., 1999; Turchik, 2011) have found this association, the methodology of each of these previous studies is limited by the use of a one-item measure to assess for ED. As such, it is possible that these studies did not accurately assess for the construct of ED, and that these findings, therefore, are an artifact of a flawed measurement tool. Future research should examine whether the relationship between CSA and ED exists, as well as alternative explanations for a lack of relationship between these two variables. For example, being a survivor of CSA has frequently been cited as being associated with dissociation (e.g., Mulder, Beautrais, Joyce, & Fergusson, 2014). In addition, cognitive interference (e.g., performance anxiety, focusing on rigidity of erections; Barlow, 1986) is associated with ED. However, if a male dissociates during sex, it is possible that with adequate stimulation, he will be able to achieve and maintain an erection, as dissociation may prevent the cognitive interference during sex that causes ED. In addition, the potential lack of relationship between being a survivor of CSA and having ED in adulthood is

supported by the increased prevalence of risky sex among survivors (e.g., unprotected sex with multiple partners; O’Leary et al., 2003). Men would likely not be able to engage in frequent insertive sex if they suffered from ED. However, the type of sex these men are having should be further examined. That is, they may be able to engage in receptive anal intercourse without an erection, but would be unable to do so if they acted as the insertive partner. As such, it is imperative for future research to further examine the existence of a relationship between CSA and ED.

Finally, future research should also aim to assess and identify treatment targets of sexual health more broadly, rather than within the narrow focus of erectile dysfunction. While for some men, treating simply the symptoms of ED may result in increased satisfaction and overall quality of life, for many, this is just the tip of the iceberg. By examining issues related not only to physiological sexual functioning, but also issues related to intimacy, communication, and respect, research would expand treatment targets to overall sexual health and sexuality. Additionally, this approach would prevent any assumptions regarding “proper” sexual functioning from being made, and instead, would identify personalized experiences of overall sexual satisfaction and health.

Implications

Despite the lack of support for the hypothesized model, several important implications can be drawn from the findings, regarding gay and bisexual men’s overall psychological health. First, consistent with the literature, gay men report disproportionately high rates of CSA. While not associated with ED in this study, previous studies have found a number of poor psychological outcomes associated with CSA (e.g., anxiety, depression, substance abuse, and problems with self-esteem and social adjustment; Loeb et al., 2002). As such, assessing for the

presence of CSA is important for clinicians working with gay and bisexual men, as it may be contributing to the maintenance and development of psychopathology.

Additionally, CSA was found to be associated with engaging in avoidant coping strategies. The use of avoidant coping strategies is problematic for several reasons. First, avoidant coping strategies are associated with both depression and general psychological distress (Wright et al., 2007). Second, avoidant coping strategies are also associated with a variety of medical conditions, including as coronary heart disease, hypertension, bronchial asthma, and dyslipidemia (Wiltink et al., 2010). As such, it would be worthwhile for clinicians to intervene in cases where they observe clients to be using an excess of avoidant coping, in favor of using approach-oriented coping strategies (i.e., social support seeking and problem solving coping).

This study has shed light on the lack of a good, empirically supported measure for the assessment of ED in gay and bisexual men. Due to the higher rates of ED among gay and bisexual men, relative to heterosexual men, the development of an empirically validated measure to assess for ED in research and clinical settings is essential.

Finally, despite the problems with the IIEF-MSM, findings suggest that some degree of ED is likely an issue for many gay and bisexual men. While it was not associated with CSA in the present sample, previous research has shown associations between ED and depression, fear and avoidance behaviors, low self-esteem, and low self-confidence (Araujo et al., 1998; Bancroft et al., 2005). As such, it remains an important assessment and treatment target for sex therapists. While the IIEF-MSM has its problems, there may be benefit to using it as a screener for ED, permitting that the assessor considers described limitations during results interpretation. Treatment protocols for sexual dysfunction in the general population (e.g., Wincze, 2009), as

well as suggestions for conducting sex therapy with gay and bisexual men (e.g., Hart & Schwartz, 2010) should be considered.

Conclusions

Based on previous literature showing an association between CSA and ED in gay and bisexual men, this study proposed and tested a psychosocial model explaining this association, using emotion regulation, coping strategies, and substance use as mediators. While the hypothesized model was not supported, the findings provided further support for the relationship between being a survivor of CSA and the use of avoidant coping strategies, among gay and bisexual men. Future research should aim to develop a new, empirically supported measure to assess for sexual dysfunction in gay and bisexual men, based on the outlined methodological suggestions. Research should also focus on better assessing CSA, in order to examine whether relationship to the perpetrator and severity of abuse may moderate the relationship between CSA and ED. Finally, research would benefit from examining sexual health more broadly, and moving away from the assumption that all men with symptoms of ED are dissatisfied

This can be achieved through including questions regarding agency, control, respect, and assertive communication regarding sexuality, as well as incorporating questions about general sexual satisfaction and pleasure. Future research is warranted, as gaining a better understanding of the development and maintenance of psychogenic ED in gay and bisexual men is important for the implementation of effective treatment strategies for this population.

Appendix A

Recruitment Materials

Protective Factors Against HIV Risk Behaviour Among Gay and Bisexual Men: A Longitudinal Study

Date: _____

Staff's name: _____

Where did you hear about our study? _____

Do you have a few minutes so that I can provide you with some additional information concerning our study?

If yes:

The goal of our study is to identify the protective factors and sexual strategies used by gay and bisexual men to keep themselves sexually healthy. The study will also examine how these protective factors and safer sex practices relate to one another in predicting low sexual risk behaviour.

As a participant, you would be required to attend three 1-hour sessions, during which you would complete a questionnaire package. The first session would be scheduled at your earliest convenience. Three-months and 6-months following your initial appointment, you would return for the second and third sessions, where you will once again complete a questionnaire package. For your participation, you will be compensated \$30 at each session you attend (for a total of \$90). A smaller group will be invited back to complete a qualitative interview where you would receive an additional \$30.

All study sessions will be conducted at our offices at Ryerson University, which is located downtown, near Dundas Square. I can give you more detailed directions at the end of our call today. We would like to emphasize that all participant information will be kept confidential. Any information you complete will be entered into our databases via a subject identification number; therefore, no names or contact information will be listed.

Do you have any questions at this point?

Would you be interested in participating in our study?

If yes:

So, now I am going to be asking you some questions to determine whether you are eligible to participate in our study.

- 1) How old are you? _____ (*Must be 18 years or older; refer to Ineligibility section, #1*)
- 2) What is your HIV status? _____ (*Must be HIV-neg; refer to Ineligibility section, #2*)
- 3) When was the last time you engaged in any type of genital play with another male? _____ (*Must have engaged in sexual activity with another male within the last SIX months; refer to Ineligibility section, #3*)
- 4) Have you ever been diagnosed with a psychological problem? YES NO
If yes, what was your diagnosis? _____
Are you currently receiving treatment for this problem? YES NO

If no, when did you stop treatment? _____

Are you currently experiencing symptoms? YES NO

(If participant is currently experiencing symptoms, refer to Ineligibility section, #4)

If a participant is eligible:

5) What is your availability? _____

6) Where can we reach you in order to confirm your appointment?

NOTE: If the participant would like to leave a pseudonym, please ask them to make note of the name that they have provided.

Name: _____

Telephone number: _____ Can we leave a message? YES NO

Email address: _____

Your appointment is scheduled for: _____

Our office is located at 105 Bond Street, close to Yonge and Dundas. The closest subway station is Dundas station. We are located on the second floor, room 207. I will send you a confirmation email with this information.

If a participant is ineligible:

Thank you for your interest in our study. Unfortunately, you are not eligible to participate in this study at this time because _____.

Possible reasons for ineligibility:

- 1) Age → We are seeking participants over the age of 18.
- 2) HIV + → Explain that this particular study is recruiting HIV-negative men. However, we are currently recruiting for the Gay Poz Sex study, which is a sexual health and research program for gay men who are HIV-positive. We would be happy to send you more information regarding the study. You may also contact Rick or Scott at 416-340-8484, ext. 277. If you are interested, do we have permission to give Rick you contact information? For more information, please visit GayPozSex.org
- 3) No sexual activity with another male in the last SIX months → Explain that we are seeking sexually active participants for this study. Ask the participant permission to recontact them in 3 months to reassess their eligibility.
- 4) Diagnosis & currently experiencing symptoms for severe major depression, bipolar disorder, schizophrenia, or other severe mental illness that would hinder their ability to accurately complete the study. The participant is only ineligible if they are still experiencing symptoms. If you are unsure whether to exclude the participant, please consult with the lab manager. → Explain to the participant that we are seeking participants who are currently not experiencing symptoms or taking certain medications.

For referrals to specific therapists who work with specific problems (e.g. drug/alcohol abuse, social anxiety, etc.)

- [Ontario Psychological Association](#)

730 Yonge Street, Suite 221

Toronto, Ontario

Telephone: (416) 961-0069

Email: info@psych.on.ca

For Cognitive-behavioral therapy services for anxiety

- **The Clinic on Dupont**
(416) 515-2649
101 Dupont Street, Toronto, Ontario
- CAMH Anxiety Disorders Clinic
416-535-8501 ext. 6819
11th floor, 250 College street (at Spadina)
- **Association of Cognitive and Behavioural Therapies**
www.abct.org

For general mental health and distress services:

- **Centre for Addiction and Mental Health (CAMH)**
(416) 979-6885
250 College Street, Toronto, Ontario
24-hours, 7 days per week emergency psychiatric assessment, treatment & crisis follow-up
- **Community Mental Health Crisis Response Program**
(serves North York and Etobicoke area)
2 Lansing Square, Ste. 600
Toronto ON M2J 4P8
Phone: (416) 498-0043
- **Gerstein Centre (Crisis Line)**
100 Charles Street East
Toronto, Ontario
(416) 929-5200
The Gerstein Centre provides crisis intervention to adults, living in the City of Toronto, who experience mental health problems. The Centre provides supportive counselling for immediate, crisis issues and referrals to other services for on-going, non-crisis issues.
- **Distress Centres of Toronto**
24-Hour Crisis Support Line
(416) 408-4357

Addiction treatment services:

- **CAMH Addiction Concerns**
(416) 595-6111 or 1-800-463-6273 (toll free).

- **Bellwood Health Services**
1-800- 387-6198.
- **Alcoholics Anonymous**
(416)487-5591

For LGBT or HIV-related concerns:

- ACT Services for People Living with HIV
399 Church St – 4th Floor
Toronto, Ontario
(416) 340-2437
- David Kelley Services
Lesbian, Gay & HIV/AIDS Counseling
355 Church Street
Toronto, Ontario
(416) 595-9618
e-mail: dks@fsatoronto.com

The Gay Strengths Study

Come tell us what you do to keep yourself sexually healthy!



Complete three questionnaires over three sessions to receive \$90 for your participation! To find out more about our study, please contact our research team at 416-979-5000 ext. 1-2179 or email

gaynstrong@gmail.com
[facebook.com/gaynstrong](https://www.facebook.com/gaynstrong)



The GAY STRENGTHS Study



Despite challenges, gay & bisexual men are strong and
find ways to bounce back!

Come tell us:
What you do to keep yourself **sexually healthy**

Complete 3 surveys over 3 sessions
Receive \$90 for your participation!

To find out more about our study, please contact our research team at
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The Gay Strengths Study 



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Appendix B

Informed Consent Form

Consent Agreement

Protective Factors Against HIV Risk Behaviour Among Gay and Bisexual Men: A Longitudinal Study

You are being asked to participate in a research study. Before you give your consent to be a volunteer, it is important that you read the following information and ask as many questions as necessary to be sure you understand what you will be asked to do.

Principal Investigators: Trevor A. Hart, Ph.D., C. Psych & Barry D. Adam, Ph.D.

Purpose of the Study:

The purpose of this study is to identify the traits and strategies used during sexual activity by men who have sex with men.

Description of the Study:

You are eligible to participate in the study if you:

- Are an HIV-negative male who has had any sexual activity with another man in the past 6 months.
- Speak and understand English
- Anticipate that you will be able to attend all assessment sessions

If you meet inclusion criteria and choose to participate in this study, you will be required to attend three (baseline, 3-month follow-up, & 6-month follow-up) 1-hour sessions during which you will be asked to fill out a questionnaire package. A smaller group of participants will be selected to attend follow-up in-person interviews.

Questionnaire and interview questions will focus on experiences you may have had throughout childhood, adolescence, and adulthood. Some questions will ask you about your sexual history and sexual behaviours, as well as your experience particularly as a man who has sex with men.

Note: You may decline to answer any question. You may withdraw from the session at any time by indicating to the assessor that you do not wish to continue. Should you choose to withdraw from the study, all data generated as a result of your participation will be immediately destroyed.

Your decision to participate will not affect already-standing relationships at Ryerson or with any supporting agencies.

Risks and Discomforts: There are no physical risks involved in participating in this study. It is possible that some of the questions asked in this study might make you feel uncomfortable. If you are uncomfortable with any portions of the study, please notify the research assistant. Also, please be advised that you can withdraw from the study at any time if you wish to do so, without any consequences.

Benefits of the Research and Benefits to You: Your participation in this study will help us to understand the health risk behaviours of men who have sex with men, and will help us to develop effective interventions to lower these risks in the gay and bisexual men's community.

Withdrawal from the Study: Your participation in the study is completely voluntary. You may choose to withdraw at any time. Your decision not to participate will not influence your relationship with the researchers involved in the study or with Ryerson University, now or in the future. You can stop participating in the study at any time. If you don't complete all portions of the study, you will still be reimbursed for the portions you have completed. However, if you decide you would no longer like to be a part of the study, your data will not be used.

Confidentiality: All information you provide during the research will be kept private. Your name will not appear in any report or publication of the research. The questionnaires and interview notes will be kept in a locked filing cabinet in a locked office. We will keep this consent form and the participation list separate from the questionnaires and interview notes. All questionnaires and interview notes will be destroyed 10 years after the study is over. We will keep your records as private as the law allows.

We will keep all the facts about you private. **We would have to breach your confidentiality only:**

- a) If you intend to harm yourself,
- b) If you intend on harming someone else,
- c) If you inform us that a child is currently at risk for abuse or neglect,
- d) If you report sexual abuse by a health care practitioner, or
- e) If the records are subject to a subpoena by the courts (records can be opened by a specific court order but it is highly unlikely that this would ever happen).

We will use a study number rather than your name on study records. No one will see your name and other facts that might point to you when we present this study or publish its results.

Compensation/Cost:

You will be compensated to participate in this study as follows:

- 1-hour baseline session @ \$30.00
- 1-hour 3-month follow-up session @ \$30.00
- 1-hour 6-month follow-up session @ \$30.00

Questions About the Research? If you have questions about the research in general or about your role in the study, please feel free to contact:

Dr. Trevor Hart
Principal Investigator/Director
HIV Prevention Lab, Ryerson University
416-979-5000 extension 619
E-mail: trevor.hart@ryerson.ca

Dr. Barry Adam
Co-Principal Investigator
University of Windsor
416-642-6486 extension 2242
E-mail: adam@uwindsor.ca

This research has been reviewed by the Ryerson University's Research Ethics Board and conforms to the standards of the Canadian Tri-Council Research Ethics guidelines. If you have any questions about this process, or about your rights as a participant in the study please contact:

Toni Fletcher
Research Ethics Board
Ryerson University
416-979-5000 extension 7112
E-mail: toni.fletcher@ryerson.ca

Agreement:

Your signature below means that you have read the information in this agreement and have had a chance to ask any questions you have about the study. Your signature also means that you agree to participate in the study and have been told that you can change your mind at any time. You have been given a copy of this agreement.

You have been told that by signing this consent agreement you are not giving up any of your legal rights.

Name of Participant (please print)

Signature of Participant

Date

Signature of Investigator

Date

Please indicate if you would like to receive an electronic version of the results/findings at the end of the study:

- ☐ Yes, I would like to receive an electronic copy of the results/findings.
- ☐ No, I would not like to receive an electronic copy of the results/findings.

Appendix C
Study Questionnaires

Part I:
Survey Questions

Socio-Demographic Questionnaire

Instructions: Here are some basic questions about YOU. Please do not attach your name to this or any other sheet. Remember, all of your answers are confidential and you can not be identified by any of the pieces of information you provide on this, or any other sheet in the questionnaire package.

Please enter your date of birth:

What is your employment status?

- ☐ Full time employed
- ☐ Part time employed
- ☐ Self-employed
- ☐ Housewife/husband
- ☐ Unemployed
- ☐ Retired
- ☐ Other (please specify) _____

What is the highest level of education you have reached/completed?

- ☐ Did not attend high school
- ☐ Some high school education
- ☐ High school diploma
- ☐ Some university, college or technical school education
- ☐ Bachelor's degree, college diploma, or technical certificate
- ☐ Some graduate or professional school
- ☐ Graduated graduate or professional school

Annual income: Please indicate which of the following best represents your annual income.

- ☐ Under \$20,000
- ☐ \$20,000 - \$39,999
- ☐ \$40,000 - \$59,999
- ☐ \$60,000 - \$79,999
- ☐ Over \$80,000

Please indicate who (if anyone) you live with (Check as many as apply to you)

- ☐ By myself
- ☐ Roommate(s)
- ☐ Partner(s) or spouse(s)
- ☐ Parent(s)
- ☐ Grandparent(s)
- ☐ Other Family Member(s) – [e.g. sibling(s), aunt(s), uncle(s), cousin(s)]
- ☐ Child(ren)
- ☐ Group or residential program
- ☐ Other (please specify) _____

What is your current relationship status? Please check off all that apply.

- ☐ Single
- ☐ Have a boyfriend(s)
- ☐ Have a girlfriend(s)
- ☐ Living with a male partner(s) for a year or more

- ☐ Living with a female partner(s) for a year or more
- ☐ Have a husband
- ☐ Have a wife
- ☐ Separated/Divorced/Widowed

With which sex role do you most identify?

- ☐ Top
- ☐ Top/Versatile
- ☐ Versatile
- ☐ Bottom/Versatile
- ☐ Bottom
- ☐ Other (please specify) _____

Have you ever taken an HIV test in the past 3 months? (Check one)

- ☐ Yes
- ☐ No
- ☐ I don't know

What is your HIV status?

- ☐ HIV-negative
- ☐ HIV-positive
- ☐ I do not know my HIV status
- ☐ Other (please specify) _____

If you have been tested for HIV in the past 3 months, were any of these tests mandatory (such as for immigration or work purposes?)

- ☐ Yes
- ☐ No
- ☐ I have never been tested

In the last six months, which of these bars have you gone to? (check all that apply)

The Barn
 Black Eagle
 (George's) Play
 Goodhandy's
 O'Grady's
 Remington's
 Woody's/Sailor
 Zipperz
 None

In the last six months, which of these clubs or bathhouses have you been to? (check all that apply):

Cellar
 Central Spa

Club M4
Flash
Spa XS
Steamworks
Urge
None

On which of these websites or apps do you have an online profile or posted a message? (check all that apply):

adam4adam.com
barebackrt.com
craigslist.org
dudesnude.com
facebook.com
gay.com
gay411.com
gayromeo.com
grindr
m4m-world.com
manhunt.net
plentyoffish.com
recon.com
scruff
squirt.org
None

Which of these scenes do you like taking part in? (check all that apply):

bareback
BDSM
bear
circuit parties
dance clubs
drag
leather
party & play/PNP
poz
sex parties
none of these
other

CTQ-SF

Instructions: These questions ask about some of your experiences growing up as a child. Although these questions are very personal, please try to answer as honestly as you can. For each question, circle the number that best describes how you feel.

1	2	3	4	5	
Never	Rarely	Sometimes	Often	Very Often	
1. I didn't have enough to eat.	1	2	3	4	5
2. I knew that there was someone to take care of me and protect me.	1	2	3	4	5
3. People in my family called me things like stupid, lazy, or ugly.	1	2	3	4	5
4. My parents were too drunk or high to take care of the family.	1	2	3	4	5
5. There was someone in my family who helped me feel that I was important or special.	1	2	3	4	5
6. I had to wear dirty clothes.	1	2	3	4	5
7. I felt loved.	1	2	3	4	5
8. I thought my parents wished I had never been born.	1	2	3	4	5
9. I got hit so hard by someone in my family that I had to see a doctor or go to the hospital.	1	2	3	4	5
10. There was nothing I wanted to change about my family.	1	2	3	4	5
11. People in my family hit me so hard that it left me with bruises or marks.	1	2	3	4	5
12. I was punished with a belt, a board, a cord, or some other hard object.	1	2	3	4	5
13. People in my family looked out for each other.	1	2	3	4	5
14. People in my family said hurtful or insulting things to me.	1	2	3	4	5
15. I believe that I was physically abused.	1	2	3	4	5
16. I had the perfect childhood.	1	2	3	4	5

17. I got hit or beaten so badly that it was noticed by someone like a teacher, neighbor, or doctor.	1	2	3	4	5
--	---	---	---	---	---

1	2	3	4	5
Never	Rarely	Sometimes	Often	Very Often

18. I felt that someone in my family hated me.	1	2	3	4	5
--	---	---	---	---	---

19. People in my family felt close to each other.	1	2	3	4	5
---	---	---	---	---	---

20. Someone tried to touch me in a sexual way, or tried to make me touch them.	1	2	3	4	5
--	---	---	---	---	---

21. Someone threatened to hurt me or tell lies about me unless I did something sexual with them.	1	2	3	4	5
--	---	---	---	---	---

22. I had the best family in the world.	1	2	3	4	5
---	---	---	---	---	---

23. Someone tried to make me do sexual things or watch sexual things.	1	2	3	4	5
---	---	---	---	---	---

24. Someone molested me.	1	2	3	4	5
--------------------------	---	---	---	---	---

25. I believe that I was emotionally abused.	1	2	3	4	5
--	---	---	---	---	---

26. There was someone to take me to the doctor if I needed it.	1	2	3	4	5
--	---	---	---	---	---

27. I believe that I was sexually abused.	1	2	3	4	5
---	---	---	---	---	---

28. My family was a source of strength and support.	1	2	3	4	5
---	---	---	---	---	---

ERQ

Instructions: We would like to ask you some questions about your emotional life, in particular, how you control (that is, regulate and manage) your emotions. The questions below involve two distinct aspects of your emotional life. One is your emotional experience, or what you feel like inside. The other is your emotional expression, or how you show your emotions in the way you talk, gesture, or behave. Although some of the following questions may seem similar to one another, they differ in important ways. For each item, please answer using the following scale:

1	2	3	4	5	6	7
Strongly Disagree			Neutral			Strongly Agree

1. I control my emotions by changing the way I think about the situation I'm in 1 2 3 4 5 6 7

2. When I want to feel less negative emotion, I change the way I'm thinking about the situation 1 2 3 4 5 6 7

3. When I want to feel more positive emotion, I change the way I'm thinking about the situation 1 2 3 4 5 6 7

4. When I want to feel more positive emotion (such as joy or amusement), I change what I'm thinking about 1 2 3 4 5 6 7

5. When I want to feel less negative emotion (such as sadness or anger), I change what I'm thinking about 1 2 3 4 5 6 7

6. When I'm faced with a stressful situation, I make myself think about it in a way that helps me stay calm 1 2 3 4 5 6 7

7. I control my emotions by not expressing them 1 2 3 4 5 6 7

8. When I am feeling negative emotions, I make sure not to express them 1 2 3 4 5 6 7

9. I keep my emotions to myself 1 2 3 4 5 6 7

Substance Use

Instructions: Please choose the box that best describes the number of times you have used the following substances **in general** during the **past three (3) months** and **within 2 hours before or during sexual activity**.

0	1	2	3
None	1 to 10 times	11 to 20 times	21 or more times

Over the <u>past three (3) months</u> ...	In general				Before or during sexual activity			
1. I drank any alcohol.	0	1	2	3	0	1	2	3
2. I drank alcohol and got tipsy or drunk.	0	1	2	3	0	1	2	3
3. I used tobacco (including chewing tobacco).	0	1	2	3	0	1	2	3
4. I used Marijuana (including Hashish).	0	1	2	3	0	1	2	3
5. I used heroin.	0	1	2	3	0	1	2	3
6. I used methadone.	0	1	2	3	0	1	2	3
7. I used cocaine (including crack).	0	1	2	3	0	1	2	3
8. I used speedball.	0	1	2	3	0	1	2	3
9. I used Crystal Meth or Tina.	0	1	2	3	0	1	2	3
10. I used Ecstasy or "X".	0	1	2	3	0	1	2	3
11. I used GHB or "G".	0	1	2	3	0	1	2	3
12. I used other amphetamines, uppers, or speed.	0	1	2	3	0	1	2	3
13. I used Ketamine or K.	0	1	2	3	0	1	2	3
14. I used other barbiturates, downers or sleeping pills.	0	1	2	3	0	1	2	3
15. I used erectile enhancing drugs (e.g., Viagra, Levitra, Cialis)	0	1	2	3	0	1	2	3
16. Other drugs (please specify):_____	0	1	2	3	0	1	2	3

CSI

Instructions: Please indicate to what extent you use the following strategies during stressful situations:

1	2	3
A lot	A little	Not at all

1. Rearranged things so your problem could be solved.	1	2	3
2. Thought of many ideas before deciding what to do.	1	2	3
3. Tried to distract yourself from a problem.	1	2	3
4. Did all you could to keep others from seeing how bad things really were.	1	2	3
5. Set some goals for yourself to deal with the situation.	1	2	3
6. Weighed up your options carefully.	1	2	3
7. Daydreamed about better times.	1	2	3
8. Tried different ways to solve the problem until you found one that worked.	1	2	3
9. Spent more time than usual alone.	1	2	3
10. Thought about what needs to be done to straighten things up.	1	2	3
11. Turned your full attention to solving the problem.	1	2	3
12. Formed a plan in your minds.	1	2	3
13. Watched television more than usual.	1	2	3
14. Stood firm and fought for what you wanted in the situation.	1	2	3
15. Avoided being with people in general.	1	2	3
16. Buried yourself in a hobby or sports activity to avoid the problem.	1	2	3
17. Slept more than usual.	1	2	3
18. Fantasized about how things could have been different.	1	2	3
19. Identified with characters in movies or novels.	1	2	3
20. Tried to solve the problem.	1	2	3
21. Wished that people would just leave you alone.	1	2	3
22. Tried to carefully plan a course of action rather than acting on impulse.	1	2	3

IIEF-MSM

INSTRUCTIONS: Each of the following questions has several possible answers. Check off the answer that best describes your own situation **over 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 intercourse.

Active Anal intercourse is defined as penetrating (entry) your partner's anus.

Passive Anal intercourse is defined as being penetrated (entry) by your partner.

Sexual stimulation includes situations like foreplay with a partner, looking at erotic pictures, sexual fantasy, etc.

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.

Ejaculate is defined as the ejection of semen from the penis (or the feeling of this)

1. **How often were you able to get an erection during sexual activity?**
 - ☐ 0 No sexual activity
 - ☐ 1 Almost never/never
 - ☐ 2 A few times (much less than half the time)
 - ☐ 3 Sometimes (about half the time)
 - ☐ 4 Most times (much more than half the time)
 - ☐ 5 Almost always/always

2. **When you had erections with sexual stimulation, how often were your erections hard enough for penetration?**
 - ☐ 0 No sexual activity
 - ☐ 1 Almost never/never
 - ☐ 2 A few times (much less than half the time)
 - ☐ 3 Sometimes (about half the time)
 - ☐ 4 Most times (much more than half the time)
 - ☐ 5 Almost always/always

3. **Have you had, or attempted to have, active anal intercourse (i.e., where you penetrated or attempted to penetrate your partner)?**
 - ☐ 0 No
 - ☐ 1 Yes

4. **When you attempted active anal intercourse, how often were you able to penetrate (enter) your partner?**
 - ☐ 0 Did not attempt intercourse
 - ☐ 1 Almost never/never
 - ☐ 2 A few times (much less than half the time)
 - ☐ 3 Sometimes (about half the time)

- ☐ 4 Most times (much more than half the time)
☐ 5 Almost always/always
5. **During active anal intercourse, how often how were you able to maintain your erection after you had penetrated (entered) your partner?**
- ☐ 0 Did not attempt intercourse
☐ 1 Almost never/never
☐ 2 A few times (much less than half the time)
☐ 3 Sometimes (about half the time)
☐ 4 Most times (much more than half the time)
☐ 5 Almost always/always
6. **During active anal intercourse, how difficult was it to maintain your erection to completion of intercourse?**
- ☐ 0 Did not attempt intercourse
☐ 1 Extremely difficult
☐ 2 Very difficult
☐ 3 Difficult
☐ 4 Slightly difficult
☐ 5 Not difficult
7. **Have you had, or attempted to have, passive anal intercourse (i.e., where you were penetrated by your partner)?**
- ☐ 0 No
☐ 1 Yes
8. **During passive anal intercourse, how often were you able to maintain your erection after you had been penetrated (entered) by your partner?**
- ☐ 0 Did not attempt intercourse
☐ 1 Almost never/never
☐ 2 A few times (much less than half the time)
☐ 3 Sometimes (about half the time)
☐ 4 Most times (much more than half the time)
☐ 5 Almost always/always
9. **During passive anal intercourse, how difficult was it to maintain your erection to completion of intercourse?**
- ☐ 0 Did not attempt intercourse
☐ 1 Extremely difficult
☐ 2 Very difficult
☐ 3 Difficult
☐ 4 Slightly difficult
☐ 5 Not difficult

10. **During non-intercourse sexual activity (e.g., masturbation, oral sex), how often were you able to maintain your erection until the completion of sexual activity?**
- ☐ 0 Did not attempt intercourse
 - ☐ 1 Almost never/never
 - ☐ 2 A few times (much less than half the time)
 - ☐ 3 Sometimes (about half the time)
 - ☐ 4 Most times (much more than half the time)
 - ☐ 5 Almost always/always
11. **How many times have you had or attempted to have sexual intercourse or other sexual activity?**
- ☐ 0 No attempts
 - ☐ 1 One to two attempts
 - ☐ 2 Three to four attempts
 - ☐ 3 Five to six attempts
 - ☐ 4 Seven to ten attempts
 - ☐ 5 Eleven+ attempts
12. **When you had or attempted to have sexual intercourse or other sexual activity, how often was it satisfactory for you?**
- ☐ 0 Did not attempt intercourse
 - ☐ 1 Almost never/never
 - ☐ 2 A few times (much less than half the time)
 - ☐ 3 Sometimes (about half the time)
 - ☐ 4 Most times (much more than half the time)
 - ☐ 5 Almost always/always
13. **How much have you enjoyed sexual intercourse or other sexual activity?**
- ☐ 0 No intercourse
 - ☐ 1 No enjoyment
 - ☐ 2 Not very enjoyable
 - ☐ 3 Fairly enjoyable
 - ☐ 4 Highly enjoyable
 - ☐ 5 Very highly enjoyable
14. **When you had sexual stimulation or intercourse, how often did you ejaculate?**
- ☐ 0 No sexual stimulation/intercourse
 - ☐ 1 Almost never/never
 - ☐ 2 A few times (much less than half the time)
 - ☐ 3 Sometimes (about half the time)
 - ☐ 4 Most times (much more than half the time)

- ☐ 5 Almost always/always
- 15. When you had sexual stimulation or intercourse, how often did you have the feeling of orgasm or climax with or without ejaculation?**
- ☐ 0 No sexual stimulation/intercourse
☐ 1 Almost never/never
☐ 2 A few times (much less than half the time)
☐ 3 Sometimes (about half the time)
☐ 4 Most times (much more than half the time)
☐ 5 Almost always/always
- 16. How often have you felt sexual desire?**
- ☐ 1 Almost never/never
☐ 2 A few times (much less than half the time)
☐ 3 Sometimes (about half the time)
☐ 4 Most times (much more than half the time)
☐ 5 Almost always/always
- 17. How would you rate your level of sexual desire?**
- ☐ 1 Very low/ none at all
☐ 2 Low
☐ 3 Moderate
☐ 4 High
☐ 5 Very high
- 18. How satisfied have you been with your overall sex life?**
- ☐ 1 Very dissatisfied
☐ 2 Moderately dissatisfied
☐ 3 Equally satisfied and dissatisfied
☐ 4 Moderately satisfied
☐ 5 Very satisfied
- 19. How satisfied have you been with your sexual relationship with your regular partner?**
- ☐ 1 Very dissatisfied
☐ 2 Moderately dissatisfied
☐ 3 Equally satisfied and dissatisfied
☐ 4 Moderately satisfied
☐ 5 Very satisfied
☐ 6 I do not have a regular partner
- 20. How do you rate your confidence that you could get and keep an erection?**
- ☐ 1 Very low
☐ 2 Low
☐ 3 Moderate

- ☐ 4 High
- ☐ 5 Very high

21. How often do you wake up with an erection?

- ☐ 0 None of the time
- ☐ 1 Almost never/never
- ☐ 2 A few times (much less than half the time)
- ☐ 3 Sometimes (about half the time)
- ☐ 4 Most times (much more than half the time)
- ☐ 5 Almost always/always

22. When you masturbated, how often could you get an erection?

- ☐ 0 No masturbation
- ☐ 1 Almost never/never
- ☐ 2 A few times (much less than half the time)
- ☐ 3 Sometimes (about half the time)
- ☐ 4 Most times (much more than half the time)
- ☐ 5 Almost always/always

Appendix D

Referral Resources

Ryerson University Debriefing Form

Thank you for participating in the Gay Strengths Study! We would like to take this opportunity to remind you that this study asked questions about your sexual history and sexual behaviours, as well as your experience particularly as a man who has sex with men. This study aims to identify sexual strategies used by gay and bisexual men that lead to various sexual risk outcomes.

We would also like to take this opportunity to inform you of clinics available in the Greater Toronto Area (GTA) and surrounding areas where you can go to be tested for HIV and other STIs (sexually transmitted infections), should you wish to do so. Each of the clinics listed offer free and anonymous testing centres for HIV and STIs. Please be sure to contact the centres if you would like to ask about their confidentiality policies. Here is a list of available centres in the GTA and surrounding area:

Central Region

Simcoe Muskoka District Health
15 Sperling Dr., Barrie
(705) 721-7520
(877) 721-7520 x8376

Simcoe Muskoka District Health
Men Only Drop-In Clinic
80 Bradford Street, Unit 403, Barrie
Rapid Testing, Tuesday, 3-6pm

Greater Toronto Area:

Anishnawbe Health Toronto
225 Queen St. E., Toronto
(416) 360-0486

Planned Parenthood
36-B Prince Arthur Ave., Toronto
(416) 961-0113 (for youth aged 13-29)

Bay Centre for Birth Control, Regional Women's Health Centre
790 Bay St., Toronto, 8th Floor
(416) 351-3700

East Mississauga – Peel Public Health Clinic
325 Central Parkway West, Unit 21 Mississauga
(905) 270-0587

Birth Control & Sexual Health Centre
960 Lawrence Ave West, Suite 403
(416) 789-4541

West Mississauga – Healthy Sexuality Clinic
2227 South Millway, Mississauga
(905) 820-3663

Brampton- Healthy Sexuality Clinic
150 Central Park Dr., Suite 09, Brampton
(905) 791-5905

Queen West Community Health Centre
168 Bathurst St., Toronto
(416) 703-8482

Caledon – Healthy Sexuality Clinic
18 King Street East, Bolton
(905) 791-5905

Rexdale Community Health Centre
Jamestown site
1701 Martin Grove Road, Etobicoke
(647) 288-0282

Centre Francophone de Toronto
22 College St., Toronto
(416) 922-2672

Scarborough Centre for Healthy Communities
Community Health Centre
2660 Eglinton Ave East, Scarborough
(416) 642-9445

Hassle Free Clinic
556 Church St., Toronto
(416)- 922-0603 (for men)
(416) 922- 0566 (for women)

The Works
277 Victoria St., Ground Floor, Toronto
(416) 392-0521
Walk-in, 11am-4pm

In order to schedule your future study sessions, please notify us if your contact information changes over the next 6 months. Feel free to contact us at any time by telephone or email.

Email: gaynstrong@gmail.com

Phone: 416-979-5000, ext. 2179

Facebook: facebook.com/gaynstrong

Your next session will be: _____

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