SEXUAL CONTINGENT SELF-WORTH AND THE WELL-BEING OF COUPLES COPING WITH PROVOKED VESTIBULODYNIA

by

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DEDICATION

This thesis is dedicated to my parents, Dorota Glowacka and Zbyszek Glowacki. I could not have done this without you.

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ABSTRACT

Provoked vestibulodynia (PVD)—a recurrent vulvovaginal pain condition—is associated with disruptions to women and partners' psychological and sexual well-being. A novel factor that may impact couples' well-being is sexual contingent self-worth (CSW), which is self-esteem that is dependent on maintaining what one perceives to be a successful sexual relationship. According to the theoretical model of CSW, if an individual perceives failure in the contingent domain, then they will experience distress about the domain and in turn poorer well-being. Those with greater sexual CSW may perceive a sexual problem, such as PVD, as a significant failure in their sexual relationship and, in turn, experience poorer psychological and sexual well-being. This dissertation aimed to develop and validate a measure of sexual CSW and to use this measure to evaluate how sexual CSW is related to women's pain and the well-being of couples coping with PVD. In Study 1, I developed the Sexual CSW Scale in a community sample and found that it was composed of two factors (positive and negative sexual events) that could be summed for a total score. I confirmed this factor structure in a second community sample and found support for the scale's internal consistency, test-retest reliability over a period of two weeks, and convergent, discriminant, and incremental validity. Individuals who reported sexual problems had greater sexual CSW than those without sexual problems. Studies 2 and 3 examined sexual CSW in women with PVD and their partners. In Study 2, I examined the cross-sectional associations between sexual CSW, relationship CSW (self-esteem based on the overall relationship), and the well-being of couples. Results showed that women's greater sexual CSW was associated with their own greater sexual distress and pain intensity during intercourse. When the partners of women with PVD had greater sexual CSW, they had lower sexual and relationship satisfaction and greater sexual distress and women reported lower relationship satisfaction and greater depressive symptoms. In contrast, partners' greater relationship CSW was associated with their greater sexual satisfaction and their own and women's greater relationship satisfaction and fewer depressive symptoms. Thus, greater sexual CSW was associated with poorer psychological, relational, and sexual well-being in couples coping with PVD and with women's greater pain. Study 3 aimed to examine whether daily sexual distress was a potential pathway that explained the links between greater sexual CSW and poorer daily well-being and women's pain in couples coping with PVD. Results indicated that only women's greater sexual CSW was significantly associated with their own greater sexual distress, therefore only women's sexual distress was examined as a mediator between women's sexual CSW and their own outcomes. I found that women with greater sexual CSW were more likely to experience greater sexual distress on days that they engaged in sexual activity than women with lower sexual CSW. On days that women with greater sexual CSW were more sexually distressed (compared to their average level of sexual distress), they in turn were less sexually satisfied and reported greater depressive symptoms, anxiety, and pain during intercourse. Thus, there was a significant indirect effect of women's greater sexual CSW on women's poorer daily psychological and sexual well-being through women's greater daily sexual distress. Overall, the findings in this dissertation support the continued investigation of sexual CSW in couples coping with PVD. Psychological interventions that target reducing sexual CSW may help couples affected by PVD adjust to this pain condition.

LIST OF ABBREVIATIONS AND SYMBOLS USED

%	Percentage
α	Cronbach's alpha (measure of internal consistency)
APIM	Actor–Partner Interdependence Model
β	Standardized beta coefficient
b	Unstandardized beta coefficient
BDI-II	Beck Depression Inventory II
CBT	Cognitive-behavioural therapy
CI	Confidence interval
CFA	Confirmatory factor analysis
CFI	Comparative Fit Index
CSI	Couples Satisfaction Index
CSW	Contingent self-worth
CSWS	Contingencies of Self-Worth Scale
df	Degrees of freedom
EFA	Exploratory factor analysis
F	F-test statistic
FSDS - R	Female Sexual Distress Scale – Revised
GMSEX	Global Measure of Sexual Satisfaction
GPPPD	Genito-Pelvic Pain/Penetration Disorder
ICC	Intraclass correlation coefficient
M	Mean
MSAQ	Multidimensional Sexual Approach Questionnaire
N	Population sample size
n	Sample size
NFI	Normed Fit Index
p	P-value for significance testing
P	Partners
POMS-SF	Short Form of the Profile of Mood States
PVD	Provoked vestibulodynia
r	Pearson product-moment correlation coefficient
RCSES	Relationship Contingent Self-Esteem Sc
RCT	Randomized controlled trial
RMSEA	Root Mean Square Error of Approximation
SCSW	Sexual Contingent Self-Worth Scale
SD	Standard deviation
SE	Standard error
SF-MPQ	Short-Form McGill Pain Questionnaire
SFQ	Sexual Functioning Questionnaire
SPSS	Statistical Package for the Social Sciences
SSCS	Sexual Self-Consciousness Scale
t	t-value for t-tests
W	Women
χ2	Chi-square value
Z	Z-score; standard score

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"Did you hear about the rose that grew
from a crack in the concrete?
Proving nature's law is wrong it
learned to walk without having feet.
Funny it seems, but by keeping its dreams,
it learned to breathe fresh air.
Long live the rose that grew from concrete."

Tupac Shakur, *The rose that grew from concrete* (New York, NY: Pocket Books, 1999).

CHAPTER 1: INTRODUCTION

Sexuality is an integral aspect of an individual's sense of self. It affects many facets of one's life, including general health and psychological well-being (Davison, Bell, LaChina, Holden, & Davis, 2009). Sexuality also plays a significant role in maintaining connection, intimacy, and an overall sense of closeness in romantic relationships (Byers, 2005; Christopher & Sprecher, 2000; Fallis, Rehman, Woody, & Purdon, 2016). Not surprisingly, when problems arise in one's sexual relationship, these difficulties could negatively impact many other facets of well-being for the affected individuals and their romantic partners. Coping with sexual dysfunctions, such as genito-pelvic pain, is one of the difficulties that may occur in a sexual relationship and is linked to negative consequences for both members of a couple. It is important to understand what factors are associated with greater pain and poorer well-being to inform effective treatments for affected couples. Such interventions are essential for ensuring that genito-pelvic pain does not interfere with so many aspects of couples' lives.

1.1 Overview of Provoked Vestibulodynia

1.1.1 Definition of Provoked Vestibulodynia

Genito-Pelvic Pain/Penetration Disorder (GPPPD) is characterized by persistent or recurring difficulty in at least one of the following areas for at least six months: (1) vaginal penetration, (2) vulvovaginal or pelvic pain during intercourse or penetration attempts, (3) tensing of the pelvic floor muscles during penetration attempts, and/or (4) fear or anxiety about vulvovaginal or pelvic pain before, during, or after vaginal penetration (American Psychiatric Association, 2013). To meet the diagnostic criteria for GPPPD, these symptoms must cause the individual clinically significant distress and not

be a consequence of severe relationship distress or another major stressor or non-sexual mental disorder. The presence of GPPPD can be lifelong (present since first sexual experience) or acquired after a period of being symptom-free (American Psychiatric Association, 2013). The prevalence of GPPPD remains unknown; however, estimates for pain during intercourse (also known as dyspareunia) range from 14% to 34% for younger women and 6.5% to 45% for older women (van Lankveld et al., 2010).

A common cause of GPPPD is vulvodynia, which is vulvar pain that occurs for at least three months and cannot be explained by known physical causes (Bornstein et al., 2016). The prevalence of vulvodynia in the general population is estimated to be 7% to 8% of women (Harlow et al., 2014). Vulvodynia subtypes are categorized based on the onset of the pain (lifelong or acquired), location of pain (localized, generalized, or mixed), the context in which pain occurs (provoked by contact, spontaneous, or mixed), and the temporal pattern (persistent, intermittent, constant, immediate, or delayed; Bornstein et al., 2016).

Provoked vestibulodynia (PVD) is the most common subtype of vulvodynia. PVD is defined by vulvovaginal pain that is triggered by pressure on the vulvar vestibule (Bornstein et al., 2016). The vulvar vestibule refers to the tissue around the vaginal entrance and urethra (Harlow, Wise, & Stewart, 2001). The pain is often experienced in the context of vaginal intercourse (dyspareunia), but women with PVD may report pain in non-sexual contexts, such as inserting a tampon or during a gynaecological examination. The pain may be lifelong or acquired after some time of pain-free sexual intercourse (Bornstein et al., 2016).

1.1.2 Consequences of PVD

The research suggests that women with PVD tend to experience consequences that extend beyond the pain itself. In fact, there is evidence that PVD is associated with various psychological, sexual, and relational aspects of a woman's life. It is important to note that there is a dearth of longitudinal studies in this literature; thus, much of what we know about the outcomes linked to PVD is based on correlational associations. However, many of the connections to poorer well-being, that I will discuss below, have been consistently found in the literature.

One such finding is that the psychological well-being of women with PVD may be negatively affected by this pain condition. Studies have shown that women with PVD experience greater anxiety and depressive symptoms than women without PVD (Bergeron, Corsini-Munt, Aerts, Rancourt, & Rosen, 2015; Granot & Lavee, 2005; Nylanderlundqvist & Bergdahl, 2003; Payne, Binik, Amsel, & Khalife, 2005). One study found that women who reported an antecedent mood or anxiety disorder were four times more likely to subsequently develop vulvodynia than women without previous mood or anxiety difficulties (Khandker et al., 2011). The same study indicated that women diagnosed with vulvodynia were more likely to experience new mood or anxiety problems after the onset of the pain condition compared to women without vulvodynia. Thus, the associations between vulvodynia and greater emotional problems appear to be bidirectional. These findings are further supported by qualitative studies that have indicated that many women with PVD report shame, emotional isolation, feelings of inadequacy, and a sense of losing their identity (Ayling & Ussher, 2008; Sheppard, Hallam-Jones, & Wylie, 2008). Yet, there are a few studies that did not find support for

associations between vulvodynia and depressive or anxiety symptoms (Aikens, Reed, Gorenflo, & Haefner, 2003; Desrosiers et al., 2008; Meana, Binik, Khalife, & Cohen, 1997; Payne et al., 2007). Despite some disagreement in the literature, PVD appears to be linked to a women's poorer emotional well-being.

Since PVD pain is most often felt in the context of vaginal intercourse, women tend to experience consequences to all aspects of their sex lives. Compared to women without pain, women with PVD have a greater likelihood of reporting other sexual functioning difficulties, such as problems with orgasm, lubrication, arousal, and desire (Meana et al., 1997; Pazmany, Bergeron, Verhaeghe, Oudenhove, & Enzlin, 2014; Smith, Pukall, & Chamberlain, 2013). They also tend to engage in vaginal intercourse less frequently than women without PVD, which is not surprising since this activity is painful for them (Meana et al., 1997). Additionally, this pain condition may be associated with how women think about their sexuality. For example, women with vulvodynia report greater sexual distress, sexual anxiety, negative thoughts about penetration, and lower sexual self-esteem than women without this pain condition (Bergeron et al., 2015; Gates & Galask, 2001; Klaassen & Kuile, 2009; Meana et al., 1997; Pazmany et al., 2014). One of the most consistent findings in the research is that women with PVD tend to experience lower sexual satisfaction (i.e., the overall evaluation of the positive and negative aspects of a sexual relationship) than those without this pain (Hallam-Jones, Wylie, Osborne-Cribb, Harrington, & Walters, 2001; Rosen, Santos-Iglesias, & Byers, 2017; Smith & Pukall, 2011; Smith et al., 2013). In fact, a systematic review of 33 studies reported that women with PVD were consistently more sexually dissatisfied than controls (Smith & Pukall, 2011).

Despite PVD being associated with problems in the sexual relationship, most research suggests that these difficulties do not extend to the overall romantic relationship. The majority of quantitative studies have found that women with PVD report being just as satisfied with their relationships as women without this pain condition (Desrosiers et al., 2008; Pazmany et al., 2014; Smith & Pukall, 2011; Smith et al., 2013). However, other controlled studies have found that women with PVD report lower relationship satisfaction (Brauer, Kuile, Laan, & Trimbos, 2008; Hallam-Jones et al., 2001; Masheb, Brondolo, & Kerns, 2002). In qualitative studies, women with vulvodynia reported that they do not believe that they are adequate romantic partners and that they fear that they will lose their partners because of the pain condition (Ayling & Ussher, 2008; Sheppard et al., 2008). Further, some women with PVD report that they avoid all affectionate behaviours (e.g., hugging and kissing) because they are scared that such behaviours will lead to painful intercourse (Marriott & Thompson, 2008). Thus, there has been mixed evidence about PVD being associated with difficulties in the overall romantic relationship, but the majority of studies report no differences in relationship satisfaction between those with and without PVD (Desrosiers et al., 2008; Smith & Pukall, 2011; Smith et al., 2013). Smith and Pukall (2011) suggested that the relationship problems that have been identified in some studies might be an artifact of participants considering their sexual relationship when asked about their relational problems. Nonetheless, since PVD has been associated with struggles in the sexual relationship, which inevitably involves a partner, the partners of women with PVD may also be affected by the pain condition.

1.1.3 Dyadic Perspective of PVD

In a qualitative study of partners of women with PVD, many partners discussed mourning the intimacy that they had in their relationships prior to the PVD (Sadownik, Smith, Hui, & Brotto, 2016). It is important to consider partners since they are a witness to the painful experience and its consequences, they trigger the pain in the context of penetration, and they may also experience consequences themselves (Bergeron et al., 2015; Rosen, Rancourt, Corsini-Munt, & Bergeron, 2014). The PVD literature has begun to explore partners' outcomes. There have been mixed findings about depressive symptoms in the partners of women with PVD. Some studies have found that partners reported greater depressive symptoms than partners of women without vulvodynia, while other studies did not find these associations (Nylanderlundqvist & Bergdahl, 2003; Pazmany et al., 2014; Smith & Pukall, 2014). The research shows that partners of women with PVD tend to have lower sexual satisfaction and are more likely to have difficulties with sexual functioning, such as erectile difficulties, compared to partners of women without PVD (Pazmany et al., 2014; Smith & Pukall, 2014). In both a cross-sectional study and a qualitative study, partners reported that PVD negatively impacted their overall relationships (Sadownik et al., 2016; Smith & Pukall, 2014). It is evident from these findings that partners may also be affected by PVD; thus, it is important to examine their outcomes in order to develop interventions that promote the well-being of couples coping with PVD.

1.1.4 Biopsychosocial Etiology of Provoked Vestibulodynia

Another important consideration for including partners in PVD research is that the pain of PVD is typically experienced in an interpersonal context (i.e., during sexual

activity). Examining how the social context maintains pain is consistent with the biopsychosocial model of PVD, which implicates biological, psychological, and social factors in the etiology and maintenance of PVD (Bergeron et al., 2015).

1.1.4.1 Social factors. A social factor that is thought to contribute to the experience of PVD and has been studied the most is how partners respond to women's pain. More specifically, studies have found that negative responses (i.e., expressing hostility and criticism) were associated with women's greater pain intensity, depressive symptoms, and lower relationship satisfaction, as well as poorer sexual functioning and satisfaction for both members of the couple (Rosen, Bergeron, Sadikaj, & Delisle, 2015; Rosen et al., 2013; Rosen, Bergeron, et al., 2014; Rosen, Muise, Bergeron, Delisle, & Baxter, 2015). Similarly, partners' greater solicitous responses to the pain (i.e., expressing sympathy and exaggerated concern about the pain) were linked to the couples' reduced sexual functioning and satisfaction and women's greater pain (Rosen, Bergeron, Glowacka, Delisle, & Baxter, 2012; Rosen, Bergeron, et al., 2015; Rosen et al., 2013; Rosen, Muise, Bergeron, Delisle, et al., 2015). In contrast, partners' greater facilitative responses (i.e., encouraging adaptive coping in response to pain) were associated with women experiencing less pain and greater relationship and sexual satisfaction and better sexual functioning (Rosen et al., 2012; Rosen, Bergeron, et al., 2015; Rosen et al., 2013; Rosen, Muise, Bergeron, Delisle, et al., 2015). In regard to broader communication patterns, when couples with PVD reported more communication about their sexual relationship, they also reported better psychological and sexual well-being for both members of the couple (Rancourt, Rosen, Bergeron, & Nealis, 2016).

There are also some interpersonal factors related to how women approach their romantic relationships that may contribute to poorer well-being among women with PVD. For example, women with dyspareunia are more likely to have insecure romantic attachments than women without pain and this style of attachment has been linked to their poorer well-being (Granot, Zisman-Ilani, Ram, Goldstick, & Yovell, 2010; Leclerc et al., 2015). Further, women's greater avoidance sexual goals (e.g., having sex to avoid conflict) have also been associated with poorer psychological, relational, and sexual well-being, whereas women's greater approach sexual goals (e.g., having sex to maintain intimacy) were linked to women's better relationship and sexual satisfaction (Rosen, Muise, Bergeron, Impett, & Boudreau, 2015). Greater intimacy in the relationship has also been linked to higher sexual satisfaction in women with PVD and their partners (Bois et al., 2016). Thus, several social factors may contribute to the maintenance of PVD and the well-being of affected couples.

1.1.4.2 Biological factors. In regard to biological factors that are thought to contribute to the development and maintenance of PVD, there is mixed evidence for hormonal changes from the use of combined hormonal contraception (Bouchard, Brisson, Fortier, Morin, & Blanchette, 2001; Harlow, Vitonis, & Stewart, 2008; Reed et al., 2013). However, findings from a population-based longitudinal study indicated that combined hormonal contraception had no bearing on the development of vulvodynia (Reed et al., 2013). Similarly, there has been contradictory evidence about whether or not certain neurological changes are associated with vulvodynia (Bohm-Starke, Hilliges, Falconer, & Rylander, 1998; Bornstein, Goldschmid, & Sabo, 2004; Goetsch et al., 2010; Halperin et al., 2005; Tympanidis, Terenghi, & Dowd, 2003). Specifically, there is disagreement in

the literature about whether it is a presence or absence of intraepithelial and dermal nerve fibers that is linked to vulvodynia.

There is evidence that central sensitization is involved in the experience of pain in women with PVD (Basson, 2012). When women encounter pain repeatedly, they are more likely to become sensitized to perceiving future pain. Evidence for central sensitization in women with PVD is rooted in findings that, in comparison to controls, women with PVD report greater pain from a stimulus that provokes pain (punctate hyperalgesia) and a stimulus that does not typically trigger pain (dynamic allodynia), as well as experience more spontaneous pain in general (Basson, 2012). Further, this sensitization could extend to pain in other locations via greater activation of the central nervous system (peripheral sensitization) and a lower nociceptor threshold in the vestibulor mucosa (Basson, 2012; van Lankveld et al., 2010). Indeed, research has found that women with PVD are more like to report other pain conditions, such as interstitial cystitis, irritable bowel syndrome, fibromyalgia, or orofacial pain, compared to women without vulvodynia (Arnold, Bachmann, Kelly, Rosen, & Rhoads, 2006; Bair et al., 2015; Reed et al., 2012).

Pelvic floor dysfunction has also been associated with vulvodynia (Morin, Bergeron, Khalifé, Mayrand, & Binik, 2014; Reissing, Binik, Khalifé, Cohen, & Amsel, 2004). A study of women with PVD found that they had greater resting muscle tone, a decreased ability to voluntarily contract muscles, and problems with voluntary relaxation in comparison to women without PVD (Morin et al., 2014). Finally, vulvodynia may also relate to congenital malformations of the genital tract, various acute and chronic diseases,

decreases in estrogen that occur after menopause, and damage from genital surgeries (Bergeron et al., 2015).

1.1.4.3 Psychological factors. Increasingly, more research has been surfacing about psychological factors that may contribute to the maintenance of vulvodynia in general and PVD more specifically. Two studies found that women who retrospectively reported a history of childhood physical or sexual abuse were more likely to experience pain during intercourse (Harlow & Stewart, 2005; Khandker, Brady, Stewart, & Harlow, 2014). Psychological factors, such as mood and anxiety, may contribute to the maintenance of vulvodynia. Women with vulvodynia are more likely to report the presence of anxiety and/or a mood disorder than women without this pain condition (Khandker et al., 2014; Khandker et al., 2011). There is also support for the relevance of the fear avoidance model in PVD populations (Desrochers, Bergeron, Khalifé, Dupuise, & Jodoin, 2009, 2010; Payne et al., 2005). The fear avoidance model postulates that when an individual interprets pain as something that is threatening and that they cannot cope with (catastrophizing), this leads to greater fear of pain, anxiety, and hypervigilance to pain (Crombez, Eccleston, Damme, Vlaeyen, & Karoly, 2012; Vlaeyen & Linton, 2012). As a result, the individual begins to avoid the situation in which pain is triggered, which exacerbates the interpretation of pain as threatening and reinforces the cycle of fear avoidance. Women with PVD tend to catastrophize about pain, fear the experience of pain, and be more hypervigilant to painful stimuli than women without PVD (Payne et al., 2005). They are also more likely to avoid sexual activity and other affectionate behaviours (Bergeron et al., 2015; Brotto, Yong, Smith, & Sadownik, 2015; Hinchliff, Gott, & Wylie, 2012; Marriott & Thompson, 2008). Further, when women report higher

levels of these factors, they experience a greater intensity of PVD pain (Desrochers et al., 2009). Thus, the presence of fear avoidance factors may contribute to the maintenance of PVD pain.

How women with PVD think about the pain may also have an influence on how they experience the pain. For example, women's lower painful intercourse self-efficacy (i.e., confidence in their ability to manage their pain and engage in sexual activity) was associated with greater pain during intercourse and poorer sexual functioning in women with PVD (Desrochers et al., 2009, 2010). In contrast, one study found that when women had greater pain acceptance (i.e., openness to experiencing pain and not engaging in avoidance), they experienced less pain and better sexual and psychological functioning (Boerner & Rosen, 2015). Further, partners' lower pain catastrophizing and greater acceptance of the pain have been associated with women's lower pain and depressive symptoms, respectively (Boerner & Rosen, 2015; Lemieux, Bergeron, Steben, & Lambert, 2013). The beliefs that women have about the causes of their pain condition may also be an important consideration. In a study of women with dyspareunia, when women attributed their pain to psychological and social factors (e.g., depression, anxiety, relationship difficulties), they reported greater pain and poorer psychological and sexual well-being (Meana, Binik, Khalife, & Cohen, 1999). Thus, various cognitions may be integral to how women with PVD experience pain and the associated consequences.

Considering that psychological factors can often be successfully targeted with therapeutic interventions, including in PVD (Bergeron et al., 2015; Desrochers et al., 2010), it is important to continue to explore potential psychological variables that may contribute to PVD pain and the associated consequences. One such factor that has not

been previously studied in the PVD population is contingent self-worth (CSW). CSW is the pursuit of self-esteem via certain domains in an individual's life, such as their relationship, career, or academic success (Crocker & Wolfe, 2001).

1.2 Contingent Self-Worth

1.2.1 Defining Contingent Self-Worth and its Relevance to PVD

The sexual relationship has a significant impact on an individual's sense of self. As such, individuals who experience sexual dysfunctions are at a higher risk of experiencing negative emotions about themselves and lower self-esteem about their sexuality (Desrochers, Bergeron, Landry, & Jodoin, 2008; Gates & Galask, 2001; O'Leary et al., 2006). Women with PVD tend to report lower sexual self-esteem than women without pain (Gates & Galask, 2001); thus, it may be important to better understand how these women evaluate their self-esteem. Self-esteem refers to individuals' positive and/or negative assessments of themselves. Researchers have suggested that how individuals pursue their self-esteem (i.e., CSW) is more important for predicting their well-being than self-esteem itself (Crocker & Park, 2004). Thus, CSW refers to the parameters by which individuals make self-esteem assessments. Individuals can base their evaluations of themselves on the success or failures in various aspects of their lives. For example, individuals with greater relationship CSW evaluate themselves based on their perception of how well or how poorly their romantic relationship is going (Knee, Canevello, Bush, & Cook, 2008).

1.2.2 Theoretical Model of CSW

According to the theoretical model of CSW (Crocker & Wolfe, 2001), CSW impacts an individual's well-being based on their perceived success or failure in the

contingent domain. On the one hand, when an individual believes that they are successful in the domain based on the occurrence of positive events in that domain, they experience an increase in their self-esteem, which leads to better well-being. On the other hand, if an individual views events in the contingent domain as going poorly, this is linked to poorer psychological and social consequences (Crocker & Park, 2004; Crocker & Wolfe, 2001; Park & Crocker, 2005). For example, domains of CSW that require validation from others (e.g., appearance CSW, friendship CSW) have been associated with adverse outcomes, such as release of stress hormones, excessive alcohol use, disordered eating, and more depressive symptoms (Cambron & Acitelli, 2010; Crocker, 2002a; Crocker & Park, 2004; Park & Crocker, 2005; Sanchez, Moss-Racusin, Phelan, & Crocker, 2011). Researchers have suggested that individuals rely so much on being validated by others, that when they feel invalidated, they experience tremendous stress, which negatively impacts their health and ability to adjust to difficulties (Crocker & Park, 2004). Thus, distress about a contingent domain is thought to account for the links between greater CSW in that domain and poorer well-being (Crocker & Park, 2004).

Prior research has demonstrated that relationship CSW can be associated with positive or negative outcomes depending on the context. Individuals with greater relationship CSW experience favourable outcomes, such as increased happiness and decreased anxiety, when positive events (e.g., marriage) occur in their relationship (Knee et al., 2008). Having greater relationship CSW has been linked to feeling closer to one's partner, being more satisfied with one's own romantic relationship, and being more attentive to a partners' needs (Knee et al., 2008; Park, Sanchez, & Brynildsen, 2011). In dyadic studies, greater relationship CSW in one member of a couple was associated with

their partner's being more committed to the relationship and perceiving their romantic relationship as an extension of their true self (Hadden, Rodriguez, Knee, & Porter, 2015; Knee et al., 2008). At the same time, relationship CSW may become problematic if an individual becomes preoccupied with seeking validation from their partner (Park & Crocker, 2005). Such attitudes toward the relationship may create more stress and conflict in the relationship, even though the central aim is to maintain the relationship (Crocker, 2002b). These unpleasant relationship events may result in reduced self-esteem, which could lead to other psychological consequences (Knee et al., 2008). Further, higher relationship CSW has been associated with more or less sexual satisfaction, depending on whether an individual's sexual motives were based on a desire to pursue intimacy with their partner or to avoid their partner's disapproval, respectively (Sanchez et al., 2011). Pursuing self-esteem via the sexual relationship, specifically, has not been previously examined. This domain of CSW may be particularly relevant to couples coping with PVD since their sexual relationships in particular are often compromised by this pain condition (Meana et al., 1997; Pazmany et al., 2014; Smith et al., 2013).

1.3 Sexual Contingent Self-Worth

1.3.1 Defining Sexual Contingent Self-Worth

Sexual CSW is defined as self-esteem that is dependent on maintaining what one perceives to be a successful sexual relationship. Sexual CSW is different from relationship CSW, despite sexual relationships typically occurring within the context of overall romantic relationships. The sexual relationship is important for maintaining fulfilling, satisfying, and enduring romantic relationships (Byers, 2005; Christopher &

Sprecher, 2000; Henderson-King & Veroff, 1994). Nonetheless, the sexual relationship is distinct from the overall romantic relationship (Byers, 2005; Diamond, 2004; Smith & Pukall, 2011). Sexual desire typically refers to a drive or need to seek out sexual activities, whereas romantic love often involves feelings of emotional infatuation and attachment between partners (Diamond, 2004). Thus, the subjective experiences of sexual and romantic relationships are different despite typically occurring between the same partners. These differences can also be seen in the neurological substrates associated with sexual desire and romantic love. Research has found that the hormones directly involved in sexual desire are gonadal estrogens and androgens (Diamond, 2003). However, these hormones are not involved in the formation of affectionate bonds that occur in romantic love. The neurochemicals thought to contribute to the biological, cognitive, emotional, and behavioural processes associated with the development of affectionate bonds are endogenous opioids, catecholamines, and neuropeptides, such as oxytocin (Carter, 1998). The distinction between the sexual relationship and the romantic relationship in which it occurs may be particularly relevant to couples with sexual dysfunctions. As noted earlier, women with PVD typically report lower sexual satisfaction than women without a sexual dysfunction; however, their relationship satisfaction has often been found to be comparable to that of the general population (Smith & Pukall, 2011). Thus, it may be particularly important to explore the role of sexual CSW in a PVD population.

Sexual CSW has not been defined prior to this dissertation nor was there a validated measure to capture this construct. However, sexual self-esteem, which refers to how an individual evaluates their own ability to engage in sexual behaviours and to experience their own sexuality as satisfying, has been previously examined (Snell, Fisher,

& Walters, 1993). Sexual CSW is *how* an individual pursues their overall self-worth – via the sexual relationship. Sexual self-esteem is *what* assessment an individual makes of their sexuality (Snell et al., 1993). This evaluation of sexual self-esteem may or may not impact that individual's overall sense of self-worth. That would depend on the individual's level of sexual CSW (i.e., how important their sexual relationship is to their sense of self). If the individual has greater sexual CSW, how they evaluate their sexual relationship has a direct impact on their overall self-esteem.

Suffering from sexual difficulties is linked to lower sexual self-esteem in both men and women (Gates & Galask, 2001; O'Leary et al., 2006). This is also true for women with PVD, who tend to report lower sexual self-esteem than women who are pain-free (Gates & Galask, 2001). Lower sexual self-esteem has been associated with feeling undesirable as a romantic partner and feeling worthless in general (Hassouneh-Phillips & McNeff, 2005). These results suggest that the sexual relationship might be an important domain that individuals with sexual dysfunctions such as PVD consider when they are evaluating their self-worth.

1.3.2 Sexual Contingent Self-Worth in Couples Coping with PVD

According to the theoretical model of CSW, for individuals with greater CSW, if they perceive failure in the contingent domain, then they will experience poorer well-being (Crocker & Park, 2004). Thus, greater sexual CSW could be particularly detrimental for individuals who perceive difficulties in their sexual relationship. Individuals with greater sexual CSW may perceive a sexual problem, such as PVD, as a significant failure in their sexual relationship and, in turn, experience poorer psychological and sexual well-being. Further, an individual's level of sexual CSW may

be related to their partner's well-being. Indeed, several studies have found that an individual's experience has been linked to consequences for their partner in couples coping with PVD (Muise, Bergeron, Impett, Delisle, & Rosen, 2018; Pâquet et al., 2018; Rancourt et al., 2016; Rosen, Bergeron, et al., 2014; Rosen, Bois, Mayrand, Vannier, & Bergeron, 2016; Rosen et al., 2018; Rosen, Rancourt, et al., 2014).

In qualitative studies, women with PVD report concerns about their sexual relationship, a sense of losing their sexual identity, lack of confidence in their sexuality, and feelings of shame and inadequacy due to the PVD (Ayling & Ussher, 2008; Marriott & Thompson, 2008; Sheppard et al., 2008). Quantitative studies report that women with PVD have more body concerns and lower sexual self-esteem and sexual functioning than unaffected women (Bergeron et al., 2015; Pazmany, Bergeron, Oudenhove, Verhaeghe, & Enzlin, 2013). In a qualitative study of male partners of women with PVD, partners reported concerns that their sexual relationships were failing and that they may be contributing to these problems (Sadownik et al., 2016). Thus, both women with PVD and their partners appear to view their sexual relationship as being inadequate or problematic. If these couples have greater sexual CSW, they may experience greater distress and subsequently more difficulties in their sexual and psychological functioning.

1.4 Sexual Distress as a Mediator

1.4.1 Outlining the CSW Meditational Model

According to the theoretical model of CSW, perceived failure in a contingent domain, results in the individual experiencing stress and anxiety about that domain (Crocker & Park, 2004). This distress leads to maladaptive coping as well as a tendency to focus on negative details of the contingent domain. As a result, the individual suffers

consequences to their health and well-being (Crocker, 2002b; Crocker & Park, 2004; Lawrence & Williams, 2013; Park & Crocker, 2005; Tomaka, Morales-Monks, & Shamaley, 2012).

Studies in the CSW literature have found support for the theoretical model of CSW. One study found that increased anxiety mediated the associations between academic CSW and lower self-efficacy and academic performance (Lawrence & Williams, 2013), while another found that greater stress explained the associations between general CSW and more alcohol-related problems (Tomaka et al., 2012). For individuals in romantic relationships, greater relationship CSW was linked to experiencing more negative emotions, which in turn was associated with lower self-esteem (Knee et al., 2008). In a study of people in the midst of a romantic breakup, greater emotional distress explained the associations between greater relationship CSW and more stalking and other obsessive behaviours toward their ex-partner (Park et al., 2011). Thus, negative emotions may be the pathway between greater CSW and negative consequences when there is a perceived failure in the contingent domain (Crocker, 2002b).

1.4.2 Explaining Sexual Distress as a Mediator

Following from the CSW theoretical model, one of the pathways between greater sexual CSW and poorer well-being in couples affected by PVD may be sexual distress, which is characterized by feelings of worry and frustration about the sexual relationship (Derogatis, Rosen, Leiblum, Burnett, & Heimand, 2002). Women with PVD tend to report experiencing sexual distress (van Lankveld et al., 2010) and this distress has been linked to greater depressive symptoms, anxiety, and pain, as well as lower sexual satisfaction (Pazmany et al., 2013). Sexual distress has not been explicitly examined in

the partners of women with PVD. However, in one study, almost 75% of partners reported that vulvodynia had negatively impacted their relationship (Smith & Pukall, 2014), suggesting that partners may also be distressed about the sexual relationship. Consistent with the theoretical model of CSW (Crocker & Wolfe, 2001), couples coping with PVD may experience poorer well-being because of the sexual distress that they experience. Therefore, individuals with greater sexual CSW may be more likely to perceive PVD as a failure in the contingent domain (i.e., the sexual relationship) and experience sexual distress. In turn, this distress may be linked to couples being less satisfied with their sexual relationships, having more emotional difficulties, and women experiencing greater pain intensity.

1.5 Outline of Dissertation Papers

The overall objectives of my dissertation were to develop and validate a measure of sexual CSW and to use this measure to evaluate how sexual CSW is related to women's pain and the well-being of couples coping with PVD. First, I developed and validated the Sexual CSW Scale in two separate community samples. Second, I examined the cross-sectional associations between individuals' sexual and relationship CSW and their own and their partners' psychological, relational, and sexual well-being in couples coping with PVD. Finally, I tested whether daily sexual distress explained the associations between couples' sexual CSW and their daily well-being. The manuscript for each of these three studies is included in separate chapters of my dissertation (Chapters 2 to 4). In Chapter 5, I provide a discussion of the overall results, limitations, implications, and future directions of my research.

1.5.1 Aims and Hypotheses of Chapter 2

Since sexual CSW has not been previously examined, I aimed to assess this construct in a community sample in my first study prior to applying it to a clinical population (i.e., couples coping with PVD). My objective was to develop a measure of sexual CSW by adapting a previously validated measure of relationship CSW to a sexual context. I validated this novel measure of sexual CSW in two separate community samples. In the first community sample (Study 1a), I aimed to conduct exploratory factor analysis of the measure and examine the internal consistency of the scale. Since sexual CSW had not been examined previously, I had no hypotheses about the factor structure of the scale. I expected the resulting scale to have good internal consistency.

My objectives for the second community sample (Study 1b) were to conduct confirmatory factor analysis to confirm the factor structure from the first sample and to examine the internal consistency, test-retest reliability, construct validity (convergent, discriminant, and known-groups validity), and incremental validity of the measure. I expected good reliability for the measure (as represented by internal consistency and test-retest reliability over a period of two weeks). I also hypothesized that the Sexual CSW Scale would be associated with related constructs (convergent validity) over and above relationship CSW (incremental validity) and not be associated with unrelated constructs (discriminant validity), and that individuals with sexual problems would report greater sexual CSW than those without sexual problems (known-groups validity).

1.5.2 Aims and Hypotheses of Chapter 3

My second study was the first to examine the construct of sexual CSW in women with PVD and their partners. The objective of the study was to assess the cross-sectional

associations between sexual and relationship CSW and the sexual satisfaction, sexual distress, relationship satisfaction, and depressive symptoms of women with PVD and their partners, as well as women's pain during intercourse. I included relationship CSW in this study because I was interested in the unique contribution of sexual CSW to couples' well-being (i.e., associations with well-being over and above relationship CSW).

In line with theory and prior research, I expected that an individual's greater sexual CSW would be associated with their own and their partner's *poorer* sexual and relationship satisfaction, as well as *greater* sexual distress, and depressive symptoms. In contrast, I hypothesized that an individuals' greater relationship CSW would be linked to their own and their partner's *better* sexual, relational, and psychological well-being. This hypothesis was developed because research shows that although sexual satisfaction is often reduced in couples coping with PVD, relationship satisfaction often remains intact (Smith & Pukall, 2011). This suggests that some couples may have protective resources related to the overall romantic relationship. Finally, since CSW and pain have not been previously examined, the associations between sexual and relationship CSW and women's pain were exploratory; thus, I had no hypotheses related to this outcome.

1.5.3 Aims and Hypotheses of Chapter 4

My final objective was to identify a potential mechanism that explains the pathway between greater sexual CSW and poorer well-being in couples coping with PVD. Since the sexual relationship is dynamic and could be impacted by psychological and relational factors that vary on a daily basis (Davison, Bell, LaChina, Holden, & Davis, 2008; Rosen, Bergeron, et al., 2014), I wanted to assess the daily variability in how couples adjust to the pain, and closer in time to their actual sexual experiences. As such, the aim

of my third study was to examine whether daily sexual distress mediated the associations between greater sexual CSW (at baseline) and daily sexual satisfaction, depressive symptoms, anxiety, and pain (for women) in couples with PVD. I expected that when individuals had greater sexual CSW (compared to lower sexual CSW), they and their partners would report greater daily sexual distress, which in turn would be associated with their own and their partner's daily lower sexual satisfaction and greater anxiety and depressive symptoms, and women's greater pain during intercourse.

CHAPTER 2: DEVELOPMENT AND VALIDATION OF THE SEXUAL CONTINGENT SELF-WORTH SCALE

The manuscript prepared for this study is presented below. Readers are advised that Maria Glowacka, under the supervision of Dr. Natalie Rosen, was responsible for developing the research questions and hypotheses, recruiting study participants, developing the online tools, collecting data (including screening for eligibility, describing the study protocol, and obtaining consent), preparing the datasets for analyses, conducting data analyses, and interpreting the study findings. Maria wrote the initial draft of the manuscript and received and incorporated feedback from her co- authors. The manuscript underwent peer-review, and required two rounds of revisions, to which Maria led the response to, prior to the manuscript's acceptance in *Journal of Sex Research* on May 3, 2016. The full reference for this manuscript is:

Glowacka, M., Rosen, N. O., Vannier, S., & MacLellan, M.C. (2017). Development and validation of the Sexual Contingent Self-Worth Scale. *Journal of Sex Research, 54*, 117-129. doi: 10.1080/00224499.2016.1186587

The scale developed in this manuscript, as well as a summary of the study findings, were accepted as a chapter in the *Handbook of Sexuality-Related Measures, 4th edition,* on December 28, 2017. The full reference for this chapter is:

Glowacka, M., Vannier, S. A., & Rosen, N. O. (*accepted*). Sexual Contingent Self-Worth Scale. In R. R. Milhausen, J. K. Sakaluk, T. D. Fisher, C. M. Davis, & W. L.Yarber (Eds). *Handbook of Sexuality-Related Measures (4th Ed).* New York, Routledge.

2.1 Abstract

Sexual contingent self-worth (CSW) refers to self-worth that is dependent on maintaining a sexual relationship. This novel construct, which has not been studied previously, may have implications for sexual, relationship, and psychological well-being because it could affect the cognitions, affect, and behaviours of individuals in sexual relationships. The purpose of this study was to develop the Sexual CSW Scale and examine its reliability and validity in community samples. Two separate online studies (N = 329 and N = 282) included men and women who were in committed, sexually active relationships. The Sexual CSW Scale was adapted from a validated measure of relationship CSW. In Study 1a, participants completed the Sexual CSW Scale, whereas, in Study 1b, participants also responded to standardized measures of related constructs. Additionally, participants completed the Sexual CSW Scale again two weeks later in Study 1b. Factor analysis yielded two subscales: (1) sexual CSW dependent on positive sexual events in the relationship, and (2) sexual CSW dependent on negative sexual events. Results indicated good internal consistency, test-retest reliability, construct validity, and incremental validity for the Sexual CSW Scale. This research contributes to the fields of both CSW and sexuality by introducing a novel domain of CSW.

2.2 Introduction

The sexual relationship is important for the well-being of a romantic relationship, as well as for the overall psychological health of an individual. Specifically, greater sexual satisfaction and functioning have been associated with greater relationship satisfaction, love, commitment, and relationship stability (Byers, 2005; Sprecher, 2002), whereas experiencing a sexual dysfunction has been linked to increased anxiety, depression, and a poorer quality of life (Althof, 2002; Desrochers et al., 2008). Previous research has also shown that poorer sexual functioning is related to increased negative emotions toward oneself and decreased self-esteem in relation to one's sexuality (Desrochers et al., 2008; Gates & Galask, 2001; O'Leary et al., 2006). Thus, the sexual relationship significantly impacts an individual's sense of self.

Self-esteem is based on an individual's judgment of self as either positive or negative. Similarly, self-worth is the belief in one's own intrinsic value. Thus, self-esteem and self-worth both refer to evaluations of the self and these terms are often used interchangeably in the literature (e.g., Knee, Canevello, Bush, & Cook, 2008). Research has suggested that the *pursuit* of self-esteem is more important for predicting potential consequences than whether self-esteem itself is high or low (Crocker & Park, 2004). Contingent self-worth (CSW) is the pursuit of self-esteem via a particular domain in one's life, such as others' approval (Crocker & Wolfe, 2001). Greater CSW may have positive and negative consequences for well-being based on one's perceived success or failure in these domains. For example, greater relationship CSW, defined as self-worth that is dependent on maintaining a romantic relationship (Knee et al., 2008), has been linked to intrapersonal and interpersonal outcomes (Park & Crocker, 2005). Individuals

with greater relationship CSW experience favourable outcomes (e.g., increased happiness and decreased anxiety) when positive events occur in their relationship (Knee et al., 2008). However, when an individual has greater relationship CSW, the relationship becomes an instrument for validating self-worth (Park & Crocker, 2005), which can lead to more stress and conflict in the relationship (Crocker, 2002b), and reduced self-esteem (Knee et al., 2008). Further, higher relationship CSW has been linked to more or less sexual satisfaction, depending on whether sexual motives were based on a desire to pursue intimacy or to avoid partner disapproval, respectively (Sanchez et al., 2011). The pursuit of self-worth via the sexual relationship, specifically, has not been previously examined.

2.2.1 Sexual Contingent Self-Worth

The sexual relationship may be a domain of CSW that is particularly relevant given that the sexual relationship is a core component to sustaining intimate relationships. Christopher and Sprecher (2000) proposed that individuals attempt to maintain their relationship through their sexual relationship. In fact, greater sexual satisfaction has been associated with several components of marital well-being (Byers, 2005; Henderson-King & Veroff, 1994). Previous research has also found that individuals sometimes agree to unwanted sexual activity to maintain their romantic relationships and to promote intimacy (O'Sullivan & Gaines, 1998; Shotland & Hunter, 1995). Although sexual relationships often occur within the context of romantic relationships, the sexual relationship is distinct from the general intimate relationship (Byers, 2005; Diamond, 2004; Smith & Pukall, 2011). For example, sexual desire and romantic love are associated with different subjective experiences (e.g., wanting to engage in sexual

activity versus emotional feelings of attachment) and neurobiological substrates (Diamond, 2004). Indeed, there is evidence that in people with sexual dysfunction, relationship satisfaction may remain within norms while sexual satisfaction is significantly lower than in individuals without dysfunction (Smith & Pukall, 2011). Thus, the sexual relationship may be another important and distinct domain of CSW.

Sexual CSW, or the pursuit of self-worth via the sexual relationship, has not been previously defined, nor is there a validated scale to measure it. Although sexual CSW is a novel construct, prior research supports a connection between sexual self-esteem and sexual outcomes. Researchers have found that both women and men report lower sexual self-esteem when they suffer from sexual difficulties (Gates & Galask, 2001; O'Leary et al., 2006). Further, lower sexual self-esteem has been linked to feelings of worthlessness and undesirability as a sexual partner (Hassouneh-Phillips & McNeff, 2005). These findings provide evidence that the sexual relationship may be a source of important information for individuals evaluating their self-worth.

The objective of this study was to develop a measure of sexual CSW and to assess the validity and reliability of the Sexual CSW Scale. A well-validated measure of relationship CSW, the Relationship Contingent Self-Esteem Scale (Knee et al., 2008), was adapted for the sexual context to develop the Sexual CSW Scale. In Study 1a we conducted an exploratory factor analysis. In Study 1b we conducted a confirmatory factor analysis, using a separate sample, and examined the reliability and validity of the measure.

2.2.2 Objectives and Hypotheses of Study 1a

The objective of Study 1a was to develop a measure of sexual CSW and explore its factor structure. Since sexual CSW is a novel construct, we had no hypotheses regarding the factor structure of the scale. We hypothesized that the Sexual CSW Scale would have good internal consistency.

2.3 Study 1a Method

2.3.1 Participants

Three hundred and seventy-two American participants were recruited using Amazon Mechanical Turk (Mturk), an online recruitment website. MTurk is an excellent recruitment tool because of the diversity of participants, the quality of responses, and the amount of data that can be collected in a short period of time (Buhrmester, Kwang, & Gosling, 2011). To be eligible for the study, participants had to be English-speaking adults between the ages of 18 and 45 years who had been in a committed relationship with the same person for at least three months, and had engaged in sexual activity (defined as non-genital caressing, kissing, manual/oral stimulation, and/or vaginal/anal intercourse) with that partner at least once in the past four weeks. We aimed to examine sexual CSW in adult, committed sexual relationships because sexuality may differ in adolescent and/or casual sexual relationships (Furman, Brown, & Feiring, 1999; Regan, Levin, Sprecher, Christopher, & Gate, 2000). The age limit of 45 years old was selected because previous research has indicated that sexual functioning begins to decline in middle age (Araujo, Johannes, Feldman, Derby, & McKinlay, 2000; Dennerstein, Dudley, & Burger, 2001). We wanted to ensure that all participants were in a sexually

active relationship so that they would have the opportunity to base their self-worth on this domain of their lives.

Of those who replied to the online recruitment, 30 were ineligible (three because they exceeded the age limit, three because they had not engaged in sexual activity, and 24 who were either single or in a casual dating relationship). We included one attention check asking participants to select a certain response, which was embedded into the Sexual CSW Scale. In line with recommendations for conducting online research (Gosling & Mason, 2015), 13 participants were excluded from the sample because they did not pass the attention check. Those participants who did not pass the attention checks, were more likely to be male, χ^2 [2] = 8.03, $p < 0.05$ and reported lower Sexual CSW Scale total scores, t = -4.52, df = 340, $p < 0.001$, 95% CI = -12.17 to -4.79. However, these group differences may not be valid, given these participants appeared to be responding at random. The final sample size was 329.

2.3.2 Measures

2.3.2.1 Sociodemographics. Participants completed questions about their age, gender, level of education, culture, relationship status, relationship length, as well as the gender of their partner.

2.3.2.2 Sexual Contingent Self-Worth. The Sexual Contingent Self-Worth (CSW) Scale was used to assess level of sexual CSW. We developed this scale by adapting all of the items from the Relationship Contingent Self-Esteem Scale (Knee et al., 2008) to a sexual context. We adhered to the International Test Commission's guidelines for adapting psychometric scales (Hambleton, Merenda, & Spielberger, 2004). An expert in the field of sexual health and additional junior scholars confirmed that all of the items of

the Sexual CSW Scale were appropriate for a sexual context. The original scale contained 11 items that are rated from 1 (*not at all like me*) to 5 (*very much like me*). Higher scores indicate greater sexual CSW. Items can be found in Table 2.2.

2.3.3 Procedure

An advertisement was posted on the MTurk site containing information about the study and a link to the online survey. The advertisement told potential participants that they would be completing a study that was validating a new measure of sexual health and relationship factors. Those who were interested in participating clicked on the link, which directed them to a secure online survey program (Qualtrics Research Suite), where they provided consent. Participants were told that they could withdraw at any time before submitting the survey. Participants who met the eligibility criteria received the study measures described above. Consistent with MTurk standards, participants were compensated $0.25 for completing the survey.

2.4 Study 1a Results

2.4.1 Participant Characteristics

Descriptive statistics for the sample are shown in Table 2.1. Of those in the final sample (N = 329), 45% identified as male and 55% identified as female, and one person chose not to specify his/her gender. The mean age for participants was 30.19 (SD = 7.05) years. The majority of participants were white (75%), in a mixed-gender relationship (92%), and were married or cohabiting (72%). The average length of these relationships was 5 years and 10 months (SD = 5 years, 4 months).

2.4.2 Structure of the Sexual CSW Scale

A principle axis factor (PAF) analysis with an oblique rotation was conducted on the Sexual CSW Scale data from the final sample of 329 participants. An oblique rotation was selected because all of the items on the Sexual CSW Scale were significantly correlated with each other. The sample was deemed adequate for factor analysis because the Kaiser-Meyer-Olkin measure was greater than 0.80 and Bartlett's test of sphericity was significant (Bartlett, 1954; Kaiser, 1974). The factors were extracted based on a parallel analysis, which compared observed eigenvalues to critical mean eigenvalues and 95th percentile eigenvalues, as well as an examination of the scree plot. Both methods of extracting factors suggested the presence of a two-factor solution. The factor loadings along with the Sexual CSW Scale items are displayed in Table 2.2. All of the results reported are the values found after conducting an oblique rotation. The first factor, labeled *positive sexual events*, had an eigenvalue of 5.84 and accounted for 53.07% of the total variance. The second factor, labeled *negative sexual events*, emerged with an eigenvalue of 1.53 accounting for 13.88% of the total variance. Item 3 had factor loadings smaller than 0.5 for both factors and was removed from the scale (i.e., a hyperplane item), while none of the remaining items cross-loaded (greater than 0.32) on the two factors (i.e., no complex loadings; Tabachnick & Fidell, 2007). In each of the identified factors, five items had factor loadings that were greater than 0.5, and the item content was differentiated according to the factor labels. Therefore, we were able to derive two distinct subscales: (1) the items on the *Positive Sexual Events* subscale are focused on the degree to which self-worth is improved based on positive events in the sexual relationship (e.g., "When my sexual relationship is going well, I feel better about

myself overall"), and (2) the *Negative Sexual Events* subscale measures the degree to which an individual's self-worth is decreased by negative sexual events (e.g., "When my partner and I fight about a sexual issue, I feel bad about myself in general"). The two subscales were moderately correlated, $r = 0.59$, $p < .001$. This correlation size suggested the presence of a higher-order common factor. Further, the positive ($r = 0.88$, $p < .001$) and negative ($r = 0.90$, $p < .001$) sexual events subscales were highly correlated with the total score (created by summing the subscales). Previous research has suggested that it is more precise and parsimonious to use a total score in such cases (Reise, Bonifay, & Haviland, 2013). Creating composite scores by summing subscales is consistent with other widely used sexuality measures (e.g., B. L. Andersen & Cyranowski, 1994; Kuile, Brauer, & Laan, 2006; Mazer, Leiblum, & Rosen, 2000; van Lankveld, Geijen, & Sykora, 2008). We ran a second-order exploratory factor analysis and found that the two subscales indeed combined into a single factor. The factor emerged with an eigenvalue of 1.59 accounting for 79.49% of the total variance. This provided further evidence for the use of a total score.

2.4.3 Reliability

2.4.3.1 Internal Consistency. The internal consistency was good for the Sexual CSW Scale total ($\alpha = 0.89$), the Negative Sexual Events subscale ($\alpha = 0.84$), and the Positive Sexual Events subscale ($\alpha = 0.89$).

2.4.4 Summary

The results showed that the Sexual CSW Scale was composed of two distinct factors composed of five items each: self-worth focused on positive events in the sexual relationship (i.e., Positive Sexual Events subscale) and self-worth focused on negative

sexual events (i.e., Negative Sexual Events subscale). There was also evidence for the presence of a higher-order common factor (subscales were correlated with each other and a second-order exploratory factor analysis was conducted), supporting the use of a total score, which combines these two subscales. We found good internal consistency for the Sexual CSW Scale total and subscales.

2.5 Study 1b Objectives

The objective of Study 1b was to confirm the factor structure of the Sexual CSW Scale using Confirmatory Factor Analysis in a separate sample, and to examine the reliability and validity of the measure. The Relationship Contingent Self-Esteem Scale has been associated with several interpersonal and intrapersonal variables (Knee et al., 2008). It was expected that sexual CSW would be associated with comparable measures that are specific to the context of the sexual relationship (described below).

2.5.1 Associations with Sexual CSW

2.5.1.1 Domains of Contingent Self-Worth. Individuals who base the assessment of their self-worth on a particular domain in their life tend to have self-worth contingent on other domains as well (Crocker & Wolfe, 2001; Knee et al., 2008). We anticipated that individuals with higher sexual CSW would also base their self-worth on other domains of CSW that require validation from external sources. As noted, relationship variables are often associated with sexual variables, supporting the expected correlation between sexual CSW and relationship CSW (Byers, 2005; Christopher & Sprecher, 2000). Additionally, sexual outcomes (e.g., less frequent sexual desire and lower arousal) have been linked to both negative evaluations of physical attributes and the tendency to seek approval from romantic partners (Cash, Maikkula, & Yamamiya, 2004; Furnham,

Badmin, & Sneade, 2002; O'Sullivan & Gaines, 1998; Olivardia, Pope, Borowiecki, & Cohane, 2004). Thus, individuals with higher sexual CSW may be more likely to evaluate their self-worth based on perceptions of their own appearance and other's approval.

2.5.1.2 Self Evaluation. Theoretically, individuals with higher sexual CSW engage in self-evaluation based on their perceived success or failure in maintaining the sexual relationship. Similarly, self-consciousness is based on a heightened awareness of one's own thoughts and feelings, as well as others' perceptions of the self (Fenigstein, Scheier, & Buss, 1975), and is associated with greater relationship CSW (Knee et al., 2008). We expected that those with greater sexual CSW would have greater sexual self-consciousness, which is self-awareness of one's own sexuality and sexual functioning (van Lankveld, Hout, & Schouten, 2004).

2.5.1.3 Sexual Approach Styles. We expected that sexual CSW would be associated with particular sexual approach styles (i.e., how an individual approaches and/or perceives the sexual relationship; Snell, 1992). Specifically, we expected that greater sexual CSW would be related to a dependent/possessive sexual approach style given that individuals with this style are preoccupied with the sexual relationship and seek validation from external sources (Snell, 1992). We also expected higher sexual CSW to be associated with a selfless sexual approach style (i.e., individuals neglecting their own needs in an attempt to please their sexual partner; Snell, 1992) because individuals with higher CSW tend to become so determined to be successful in the contingent domain that they sacrifice their own needs (Crocker & Park, 2004). Thus, those with greater sexual CSW may ignore their own needs to satisfy the needs of their sexual partner, demonstrating a selfless sexual approach style.

2.5.1.4 Sexual Problems. When individuals perceive failures in a contingent domain, these failures are viewed as direct attacks on self-esteem and subsequently lead to more negative interpersonal and health outcomes (Crocker & Park, 2004). Thus, individuals with perceived difficulties in a contingent domain may become particularly focused on improving that domain to compensate for their shortcomings. In the context of sexual CSW, individuals with sexual problems may become overly focused on their sexual functioning. Alternatively, those who have higher CSW in a particular domain may be more likely to perceive failures in the contingent domain. For example, greater body weight CSW has been associated with higher subjective ratings of being overweight (Clabaugh, Karpinski, & Griffin, 2008). In the context of sexual problems, men experiencing a sexual dysfunction tend to *underestimate* the quality of their erections on a subjective measure of arousal in comparison to non-sexually dysfunctional men (Barlow, 1986), suggesting that they may be more likely to perceive failures in the domain of sexuality. Thus, individuals with greater sexual CSW may be more likely to perceive and experience sexual problems. Evidence that those who report sexual problems also endorse higher levels of sexual CSW than those without sexual problems would support the construct validity of the Sexual CSW Scale through the known-groups technique.

We expected that the Sexual CSW Scale would be composed of two distinct (although correlated) factors: Positive Sexual Events and Negative Sexual Events. It was hypothesized that scores on the Sexual CSW Scale would remain consistent over a two-week timeframe, demonstrating test-retest reliability. We also hypothesized that the Sexual CSW Scale would have good internal consistency. It was expected that the Sexual

CSW Scale would be related to similar constructs (i.e., other relevant domains of CSW, sexual self-consciousness, and dependent/possessive and selfless sexual approach styles), providing support for good convergent validity. Further, we expected that sexual CSW would be associated with related constructs over and above relationship CSW, demonstrating incremental validity. We hypothesized a lack of association between sexual CSW and unrelated variables (e.g., demographics), which would demonstrate divergent validity. We also hypothesized that those with sexual problems would report higher levels of sexual CSW than those without sexual problems, which would further support the construct validity of the scale by providing evidence for known-groups validity.

2.6 Study 1b Method

2.6.1 Participants

Three-hundred-and-thirty-four participants were recruited using MTurk. Participants were required to meet the same eligibility criteria as described in Study 1a. Of those who replied to the online recruitment, 12 were ineligible (two because they exceeded the age limit, two because they had not engaged in sexual activity, and eight who were either single or in a casual dating relationship). We included two attention checks, which were questions embedded into the questionnaires and asked participants to select a certain response. Only two participants did not pass the attention checks and their data were removed. As a result of the small number of participants who appeared to be responding at random, we were unable to make comparisons between those who did and did not pass attention checks. Participants were instructed to close their browser if they wished to withdraw from the study. Data was removed for those who withdrew before

completing the survey (n = 38 participants). This resulted in a final sample size of 282. Sixty-two percent (n = 175) of the participants completed the second phase of the study aimed at determining test-retest reliability.

2.6.2 Measures

2.6.2.1 Sociodemographics. The same sociodemographic questions were used as in Study 1a.

2.6.2.2 Sexual Contingent Self-Worth. The Sexual Contingent Self-Worth (CSW) Scale that was developed in Study 1a was used to assess level of sexual CSW (i.e., one item was removed from the original measure). The scale contains 10 items that are rated from 1 (*not at all like me*) to 5 (*very much like me*). Higher scores indicate greater sexual CSW. Items can be found in Table 2.2.

2.6.2.3 Relationship Contingent Self-Worth. Relationship CSW was assessed using the Relationship Contingent Self-Esteem Scale (RCSES; Knee et al., 2008). It consists of 11 items rated from 1 (*not at all like me*) to 5 (*very much like me*). Higher scores reflect greater relationship CSW. The RCSES has shown good internal consistency, test-retest reliability, and convergent and discriminant validity (Knee et al., 2008). The Cronbach's alpha for the current study was 0.93.

2.6.2.4 Other Domains of Contingent Self-Worth. The Contingencies of Self-Worth Scale (CSWS; Crocker, Luhtanen, Cooper, & Bouvrette, 2003) measures seven domains of CSW: family support (gaining love and support from one's family), competition (performing better than others in competition), appearance (feeling physically attractive), god's love (perception of having god's love), academic competence (performing well in academics), virtue (following one's own morals), and

approval from others (perceived acceptance from others). The CSWS consists of 35 items rated from 1 (*strongly disagree*) to 7 (*strongly agree*). A separate score is determined for each of the subscales. Higher scores on a particular subscale indicate greater CSW in that domain. Previous research has found good test-retest reliability, internal consistency, and construct validity for each of the subscales (Crocker, Luhtanen, et al., 2003). For the current sample, the Cronbach's alpha for each of the subscales ranged from 0.85 to 0.97.

2.6.2.5 Self Evaluation. The Sexual Self-Consciousness Scale (SSCS; van Lankveld et al., 2008) measures the thoughts and concerns one has regarding his or her role in a sexual context, as well as worries regarding other's evaluations of oneself in sexual situations. The scale includes two subscales and contains 12 items, which are rated from 0 (*strongly disagree*) to 4 (*strongly agree*). The sexual embarrassment subscale measures how uncomfortable an individual is with how they present themselves in a sexual situation. The sexual self-focus subscale measures hyperawareness of one's own sexual thoughts, feelings, and actions. Higher scores reflect higher sexual self-consciousness. The SSCS has good internal consistency, satisfactory test-retest reliability, and good construct validity (van Lankveld et al., 2008). In the present study, Cronbach's alpha was 0.85 for the embarrassment subscale and 0.69 for the self-focus subscale.

2.6.2.6 Sexual Approach Styles. The Multidimensional Sexual Approach Questionnaire (MSAQ; Snell, 1992) measures how an individual approaches their sexual relationship. We selected six subscales from this questionnaire (passionate, game playing, dependent/possessive, practical, companionate, and selfless/altruistic) that are relevant to the current study goals. Participants rated 42 items from -2 (*strongly agree with the statement*) to 2 (*strongly disagree with the statement*). Higher scores on a given subscale

reflect using that particular sexual approach style to a greater degree. The MSAQ has demonstrated high internal reliability and good convergent validity (Snell, 1992). Cronbach's alpha for the subscales ranged from 0.67 to 0.89.

2.6.2.7 Sexual Problems. To assess whether participants suffered from sexual problems, the Sexual Functioning Questionnaire (SFQ; Renaud & Byers, 2001) was used. The SFQ lists nine common sexual problems (inability to relax during intercourse, a lack of interest, feeling turned off, problems with arousal, problems with maintaining excitement, prolonged and/or quick climax, inability to climax, and pain during intercourse) and participants are asked to rate the frequency of these problems from 0 (*never*) to 4 (*always*). Participants are also asked to select which concern is the most upsetting and to rate their level of distress about that sexual concern from 1 (*no distress*) to 4 (*a great deal of distress*). We created a dichotomous variable to indicate whether or not a participant was experiencing a sexual problem. Participants who reported experiencing at least one sexual problem "sometimes", "often" or "always" and who indicated that they were distressed by it, were considered to have a sexual problem.

2.6.3 Procedure

The same advertisement as in Study 1a was posted to the MTurk site, along with a link to the online survey. The link directed participants to the secure online survey where they provided their consent to participate. Participants who met the eligibility criteria received all of the study measures described above. Consistent with Mturk standards, participants were compensated $1.00 for completing the survey. Participants were informed that this was a two-phase study and were asked to enter their email addresses in the first survey if they consented to being contacting for the second phase. Those who

consented were emailed the second survey, which contained the Sexual CSW Scale, two weeks after completing the initial survey. Participants were asked to complete the second survey within one week of receiving it; they were sent email reminders two days and six days after the initial email. Following the final questionnaire, they read a written debriefing and received an additional compensation of $0.25.

2.7 Study 1b Results

2.7.1 Participant Characteristics

Descriptive statistics for the sample are shown in Table 2.3. Of those in the final sample (N = 282), 149 identified as male and 133 identified as female. The mean age for participants was 30.72 (SD = 6.74) years. Consistent with Study 1a, the majority of participants were white (77%), in a mixed-gender relationship (95%), and were married or cohabiting (71%). On average, participants reported being in their relationship for 6 years and 0.17 months (SD = 5 years, 8 months). Participants who completed both phases of the study (n = 175) did not differ from those who completed only the first phase (n = 107) with respect to any sociodemographics or the Sexual CSW total or subscales scores (all $p > .05$).

2.7.2 Structure of the Sexual CSW Scale

Confirmatory factor analysis using AMOS V.22 (Arbuckle, 2006) was conducted to verify the factor structure of the Sexual CSW Scale that emerged from the PAF in Study 1a. Analyses were based on the covariance matrix. The complete covariance matrix is available from the author upon request. The Maximum Likelihood (ML) estimation method was used following the recommendations of Tabachnick and Fidell (2007). Additionally, the data for the overall scale were normally distributed, with skewness of -

0.63 and kurtosis of 0.32 (*SE* = 0.29). Model fit was evaluated using multiple fit indices: Chi-square (χ^2), Normed Fit Index (NFI), Comparative Fit Index (CFI), and Root Mean Square Error of Approximation (RMSEA). Good fit was indicated by a non-significant χ^2, NFI and CFI values above 0.95, and an RMSEA value below 0.10 (Kline, 2005).

Model 1 was based on the two-factor solution found in the Exploratory Factor Analysis in Study 1a (see Table 2.2). Overall, Model 1 had poor fit χ^2 (34) = 213.25, p < .001, NFI = 0.89, CFI = 0.91, RMSEA = 0.14. Examination of modification indices suggested including error covariances between items 8 and 11 and items 4 and 5. Inclusion of these pathways still resulted in poor model fit, χ^2 (32) = 134.10, p < .001, NFI = 0.93, CFI = 0.95, RMSEA = 0.11. There were no more significant modification indices that would suggest the addition of pathways to improve model fit. Examination of the residuals and parameter weights suggested the removal of two items: 4 ("My feelings of self-worth are based on how well things are going in my sexual relationship.") and 11 ("When my partner criticizes me or seems disappointed in me for something about our sexual relationship, it makes me feel really bad."). Model fit improved, but was not ideal, χ^2 (19) = 81.43, p < .001, NFI = 0.95, CFI = 0.96, RMSEA = 0.11. Examination of significant modification indices suggested the addition of an error covariance pathway between Item 2 ("I feel better about myself when it seems like my partner and I are sexually connected") and Item 5 ("When my sexual relationship is going well, I feel better about myself overall"). The shared variance between these two items may be a result of semantic similarities (i.e., "*feel better about myself"*).

The modified model (i.e., after removing items 4 and 11, and including a pathway between the error variance for items 2 and 5) had good fit, χ^2 (18) = 63.34, p < .001, NFI

= 0.96, CFI = 0.97, RMSEA = 0.09. Good fit was suggested by all of the fit indices, with the exception of χ^2. However, this is common for χ^2 when conducting CFA because χ^2 is sensitive to large sample sizes, which are required for CFA (Byrne, 1994). Figure 2.1 reports the factor loadings of the updated Sexual CSW Scale. Additionally, the two subscales (i.e., Positive Sexual Events and Negative Sexual Events) were moderately correlated with each other ($r = 0.56$, $p < .001$), indicating that they are part of the same construct, but distinct. Further, the Positive ($r = 0.87$, $p < .001$) and Negative ($r = 0.90$, $p < .001$) Sexual Events subscales were highly correlated with the total score (sum of the subscales), which suggests that the total score may be more precise (Reise et al., 2013). We were unable to conduct a hierarchical confirmatory factor analysis because that requires at least three first-order factors to ensure that the model is not under-identified (Kline, 2011). Nonetheless, the correlations provided above justify the use of a total score. The means for the updated Sexual CSW Scale are shown in Table 2.4.

To examine possible gender differences in factor loadings, the model was estimated with all loadings constrained to be equal for male and female participants. The constrained model demonstrated equally good fit as the unconstrained model, $\chi 2\ \Delta(6) = 4.55$, p = .60, CFIΔ = .001. Additionally, results of an independent sample t-test showed that there was no significant difference between men ($M = 29.43$, $SD = 6.62$, $n = 149$) and women ($M = 28.89$, $SD = 7.53$, $n = 133$) on levels of sexual CSW, $t = 6.48$, $df = 280$, $p = 0.52$, *95% CI* = -1.12 to 2.22). We also found no gender differences for the Positive Sexual Events subscale, $t = 1.28$, $df = 280$, $p = 0.20$, *95% CI* = -0.31 to 1.46, or for the Negative Sexual Events subscale, $t = -0.05$, $df = 280$, $p = 0.96$, *95% CI* = -1.02 to 0.97.

2.7.3 Reliability

2.7.3.1 Test-Retest Reliability. Test-retest reliability was examined using the intraclass correlation coefficient (ICC) over an interval of two weeks. In support of our hypothesis, the Sexual CSW Scale had good test-retest reliability for the total score (ICC = 0.78, 95% CI 0.72 to 0.84), Positive Sexual Events subscale (ICC = 0.73, 95% CI 0.65 to 0.79), and Negative Sexual Events subscale (ICC = 0.71, 95% CI 0.63 to 0.78). These results provide evidence of test-retest reliability for both the Sexual CSW Scale total and its subscale scores.

2.7.3.2 Internal Consistency. The total score for the Sexual CSW Scale showed good to excellent internal consistency for both the first phase of the study ($\alpha = 0.90$) and two weeks later ($\alpha = 0.89$). Similarly, internal consistency was excellent for the Positive Sexual Events subscale at time 1 ($\alpha = 0.92$) and time 2 ($\alpha = 0.94$). Finally, results showed that the Negative Sexual Events subscale had good internal consistency at time 1 ($\alpha = 0.86$) and time 2 ($\alpha = 0.84$).

2.7.4 Construct validity

2.7.4.1 Convergent Validity. Convergent validity was determined by associations with conceptually-related constructs resulting in correlation coefficients greater than 0.30 and less than 0.60 (i.e., a moderate association; Cohen, 1988). The Pearson *r* correlation coefficients for this analysis are displayed in Table 2.4. The Sexual CSW Scale was strongly positively correlated with relationship CSW. Greater sexual CSW was moderately correlated with higher levels of CSW in other domains, including family support, competition, appearance, approval from others, and academic competence. The domains that were most strongly correlated with sexual CSW were

family support ($r = 0.48$, $p < .001$), appearance ($r = 0.48$, $p < .001$), and others' approval ($r = 0.41$, $p < .001$). However, the difference between these domains (family support, appearance and other's approval) and competition ($Z = 1.35$, $p = .12$; $Z = 1.40$, $p = .16$; $Z = 0.38$, $p = .70$, respectively) and academic competence ($Z = 1.79$, $p = .07$; $Z = 1.84$, $p = .07$; $Z = 0.82$, $p = 42$, respectively) was not statistically significant. Sexual CSW was moderately positively associated with the self-focus aspect of sexual self-consciousness; however, the correlation with the sexual embarrassment subscale was lower than 0.3. The difference between these correlations was significant ($Z = 2.37$, $p = .02$). Finally, greater sexual CSW was moderately and positively correlated with dependent and selfless sexual approach styles. Greater dependent sexual approach style was more strongly correlated with greater sexual CSW than was greater selfless sexual approach style ($Z = 3.10$, $p = .002$). The findings were consistent for both the Positive and Negative Sexual Events subscales (see Table 2.5). These associations provide support for the convergent validity of the Sexual CSW Scale.

2.7.4.2 Discriminant Validity. Examining correlations lower than 0.3 and eta squared lower than 0.05 (i.e., small effect sizes; Cohen, 1988) between sexual CSW and unrelated constructs was used to assess discriminant validity (refer to Tables 2.3 and 2.4 for correlation coefficients). The correlations between sexual CSW and passionate, game-playing, companionate, and practical sexual approach styles were well below 0.3. Additionally, there were no significant associations between sexual CSW and demographic variables (i.e., age, gender, current partner's gender, education, and culture) or relationship length. There was a statistically significant difference between relationship status groups as determined by a one-way ANOVA ($F(2, 279) = 4.04$, $p <$

0.05). A Tukey post hoc test revealed that couples who were married (30.48 ± 5.97) had significantly greater sexual CSW scores than couples who were living apart (27.59 ± 7.05, $p = 0.01$). However, the effect of relationship status on level of sexual CSW was very small ($\eta^2 = 0.03$), providing further support for the discriminant validity of the Sexual CSW Scale.

2.7.4.3 Known-Groups Validity. To further assess the construct validity of the Sexual CSW Scale, we used the known-groups technique to determine whether groups expected to differ in level of sexual CSW (i.e., those reporting sexual problems vs. not reporting problems) were in fact significantly different. Results of an independent sample t-test showed that those without sexual problems ($M = 28.11$, $SD = 7.89$, $n = 103$) reported lower sexual CSW than those with sexual problems ($M = 29.79$, $SD = 6.47$, $n = 179$, $t = -1.94$, $df = 280$, $p < 0.05$, *95% CI* = -3.39 to 0.02), providing support for the known-groups validity of the Sexual CSW Scale. The results were the same for both the positive and negative sexual events subscales (not shown).

2.7.5 Incremental Validity

Hierarchical multiple regression analyses were used to examine whether sexual CSW predicted related outcomes over and above relationship CSW, which would confirm that sexual CSW was indeed distinct from relationship CSW. Thus, three regression analyses were conducted with sexual self-focus, dependent sexual approach style, and selfless sexual approach style as outcomes. Greater relationship CSW and sexual CSW accounted for 10% of the variance in the self-focus aspect of sexual self-consciousness, $F(2, 279) = 15.90$, $p < 0.001$. Consistent with the hypotheses, sexual CSW was an independent predictor of self-focus sexual self-consciousness ($\beta = 0.30$, $p =$

0.001), whereas relationship CSW was not (β = 0.03, p = 0.72). Similarly, greater relationship CSW and sexual CSW accounted for 37% and 20% of the variance in dependent, $F(2, 279) = 80.82$, $p < 0.001$, and selfless, $F(2, 279) = 35.04$, $p < 0.001$, sexual approach styles. Both sexual CSW (β = 0.27, $p < 0.001$) and relationship CSW (β = 0.37, $p < 0.001$) were independent predictors of a dependent sexual approach style. However, only relationship CSW was an independent predictor of a selfless sexual approach style (β = 0.37, $p < 0.001$), whereas sexual CSW was not (β = 0.10, p = 0.24).

2.7.6 Summary

Consistent with Study 1a results, we found that the Sexual CSW Scale was composed of two distinct factors: Positive Sexual Events and Negative Sexual Events. Again, we found evidence supporting the use of a total score (moderate correlations between subscales and high correlation between subscales and total score), as well as two separate subscale scores. Inconsistent with our expectations, the results of the CFA suggested the removal of two items from the Sexual CSW Scale (one from the Positive Sexual Events subscale and one from the Negative Sexual Events subscale). We used this final scale for the subsequent analyses. The total scale and the subscales had good test-retest reliability over a period of two weeks. At each of the time points, the total scale and subscales showed good to excellent internal consistency. The findings of the current study indicated good construct validity for the Sexual CSW Scale as demonstrated by tests of convergent, discriminant, and known-groups validity. Further, there was some support for the incremental validity of the Sexual CSW Scale (i.e., sexual CSW predicted sexual self-focus and dependent sexual approach style over and above relationship CSW).

All of the analyses were repeated with the positive and negative sexual events subscales and the findings were the same as for the total sexual CSW score.

2.8 General Discussion

The purpose of this study was to examine the reliability and validity of a novel measure of sexual contingent self-worth (CSW), which is the pursuit of self-esteem via the sexual relationship. Using two separate samples, we determined that the measure was composed of two distinct but related factors, which we called positive sexual events and negative sexual events. We found support for the test-retest reliability, internal consistency, construct validity (convergent, discriminant, and known-groups validity), and incremental validity of the Sexual CSW Scale total and subscale scores.

Consistent with the Relationship Contingent Self-Esteem Scale (Knee et al., 2008) from which the measure of sexual CSW was adapted, one might expect that the Sexual CSW Scale items would load onto a single factor at the lower-order level. However, we found that the Sexual CSW Scale was comprised of two distinct factors reflecting unique elements of sexual CSW: positive and negative sexual events. The sexual relationship is a specific component of the overall romantic relationship. Since general relationship events (e.g., expressing intimate emotions to your partner) may occur more frequently than sexual relationship events (e.g., engaging in sexual activity), sexual relationship events may be more salient. Thus, it is possible that individuals might be more likely to notice positive and negative sexual events, whereas they might have an overall impression of the romantic relationship that is not focused on particular negative or positive events.

The two-factor solution suggests the possible use of two subscales of sexual CSW, depending on one's research question (e.g., positive versus negative

consequences). Individuals with higher scores on the Positive Sexual Events subscale may base their evaluations of self-worth on positive events in the sexual relationship. They might be more likely to experience boosts to their self-esteem as a result of favourable circumstances in their sexual relationships (e.g., positive feedback from their partners after sexual activity). Alternatively, individuals with higher scores on the Negative Sexual Events subscale may base their self-worth more heavily on negative sexual events, such as being criticized by one's sexual partner. They might be more likely to experience declines in their self-esteem when they perceive problems in their sexual relationship. It is important to note that these subscales were not mutually exclusive and, in fact, were moderately positively correlated. Thus, individuals may form their evaluations of self-esteem based on both positive and negative events in their sexual relationships.

We found this two-factor solution in both the exploratory and confirmatory factor analyses, yet it is possible that the factors may be a result of the positive and negative valence of the items. The results for convergent and discriminant validity were the same for each of the subscales. However, it was expected that these variables would be related to basing self-worth on the sexual relationship regardless of whether there was an emphasis on positive or negative events in the relationship. Future studies should examine whether the positive and negative subscales predict different outcomes, to confirm that basing self-worth on negative events versus positive events in the sexual relationship is indeed distinct.

As expected, sexual CSW (total and subscales) was significantly associated with related constructs (i.e., other domains of CSW, sexual self-consciousness self-focus, and

dependent and selfless sexual approach styles) and was not associated with unrelated constructs (i.e., other sexual approach styles and sociodemographic variables), which provided support for the convergent and discriminant validity of the scale. Although the large majority of the results were consistent with our hypotheses as outlined in the objectives, there were some unanticipated findings.

Sexual CSW was more highly correlated with relationship CSW than expected. We had expected the constructs to be moderately related because the Sexual CSW Scale was adapted from a measure of relationship CSW, and the sexual relationship typically occurs within the context of a romantic relationship (Christopher & Sprecher, 2000). But despite their strong overlap, we found support for the incremental validity of the Sexual CSW Scale, such that sexual CSW was associated with related outcomes over-and-above the contribution of relationship CSW to these outcomes. In particular, sexual CSW was an independent predictor of sexual self-consciousness self-focus and a dependent sexual approach style. These findings suggest that sexual CSW is a novel construct that is distinguishable from relationship CSW. This is consistent with research showing that the sexual relationship is distinct from the general romantic relationship (Byers, 2005; Diamond, 2004; Smith & Pukall, 2011). However, it should be noted that, unexpectedly, only relationship CSW was an independent predictor of a selfless sexual approach style. A selfless sexual approach style is when an individual is willing to ignore their own needs to satisfy their partner's needs. Individuals with high CSW have a tendency to sacrifice their own needs to improve the contingent domain (Crocker & Park, 2004); however, we found this tendency to be related to higher relationship CSW rather than sexual CSW. Perhaps giving up your own sexual needs for your partner is more about

preserving or improving the overall intimate relationship rather than the sexual relationship specifically. This is consistent with previous research finding that individuals in romantic relationships sometimes agree to unwanted sexual activity to improve the overall relationship (O'Sullivan & Gaines, 1998; Shotland & Hunter, 1995).

As previously mentioned, we found evidence for the convergent validity of the Sexual CSW Scale (i.e., sexual CSW was correlated with other CSW domains, dependent sexual approach styles, and sexual self-focus). We expected that greater sexual CSW would be related to both facets of sexual self-consciousness. Although sexual CSW was associated with the self-focus aspect of sexual self-consciousness, it was not related to the embarrassment aspect as was predicted. Sexual self-focus is defined as being hyperaware of one's own sexual thoughts, feelings, and actions, whereas sexual embarrassment involves discomfort about being sexually vulnerable in front of another person (van Lankveld et al., 2008). Although individuals with greater sexual CSW may be more attentive to their emotions within the context of the sexual relationship, our results suggest that this does not extend to feeling embarrassed during sexual activity.

With regard to individuals experiencing sexual problems, the results indicated that those who reported sexual problems reported greater sexual CSW (for the total and subscale scores) compared to those without sexual problems. These findings provide support for the construct (known-groups) validity of the Sexual CSW Scale (i.e., that the measure differentiated between groups that were expected to vary on sexual CSW). Thus, the impact of sexual CSW might be particularly relevant for individuals who report sexual problems. Perceived failures in contingent domains might result in negative psychological, relational, and physical health outcomes (Crocker & Park, 2004). For

example, for individuals high in sexual CSW, experiencing a sexual dysfunction could lead to greater sexual and psychological distress because this difficulty is perceived to be a threat to their self-esteem. Individuals struggling with sexual dysfunction are known to report higher rates of sexual distress, anxiety, and depression (Desrochers et al., 2008; Heiman, 2002; McCabe & Althof, 2014; van Lankveld et al., 2010), and sexual CSW could be a risk factor and a potential treatment target. Clinicians could assist individuals struggling with sexual problems and who base their self-worth on their sexual relationships to a larger extent, to focus on a broader range of CSW domains. Clinicians might also help people with greater sexual CSW to reformulate their sexual experiences so that a problem is not seen as a "failure" per say, such that they are still able to engage in a positive and satisfying sexual relationship. Indeed, focusing on abilities as malleable rather than fixed helps buffer the consequences of perceived failures in a CSW domain (Niiya, Crocker, & Bartmess, 2004). Therefore, future studies should examine the psychological and sexual repercussions of greater sexual CSW in populations struggling with sexual dysfunction.

We found support for the reliability of the Sexual CSW Scale through tests of internal consistency and test-retest reliability indicating that the items on the Sexual CSW Scale were measuring the same construct and that level of sexual CSW was relatively stable over a two-week period of time. Future studies should examine whether sexual CSW remains relatively stable over longer intervals of time. Furthermore, Kernis (2003) has suggested that while self-esteem is relatively stable, CSW requires continual validation and may therefore fluctuate based on changes in levels of perceived validation. The sexual relationship is dynamic and could be impacted by relational and psychological

factors that vary on a daily basis (e.g., sexual thoughts, mood, relational conflict; Davison et al., 2008), with corresponding state changes in an individual's level of sexual CSW. Future studies might examine the role of sexual CSW in psychological, sexual, and relational well-being using daily experience methodology in order to better capture these effects. Further, given that the sexual relationship is necessarily interpersonal, future research should examine the dyadic influence of sexual CSW by including both members of a couple.

This study had some limitations. One of the shortcomings of this study was the reliance on self-report; however, these constructs are difficult to measure objectively and are based on an individual's subjective experience. The current study was cross-sectional and as a result we were not able to draw causal conclusions about the associations between sexual CSW and related constructs. However, there was also a longitudinal component of this study (i.e., test-retest reliability of the Sexual CSW Scale was measured over an interval of two weeks). Future studies could employ experimental, longitudinal, and daily experience designs to explore the causal impact of sexual CSW on relational, sexual, and psychological well-being. Finally, the measure was developed primarily with participants who were white Americans in mixed-gender committed relationships, limiting the generalizability of the findings. As a result, the Sexual CSW Scale may or may not have any applicability among individuals who identify as ethnicities other than white, or are transgendered, queer, gender non-conforming, etc., and/or among those in same-gender relationships. Findings may also vary for individuals in casual dating relationships. Future studies should explore the structure and impact of

sexual CSW in a variety of diverse populations and relationships, including those in same-gender relationships.

Subsequent research might also examine predictors of greater sexual CSW from a developmental perspective and using longitudinal study designs. For example, a history of conditional acceptance in sexual relationships could lead to evaluations of self-worth based on the success or failure of sexual relationships. Prior studies have suggested that CSW develops in a particular domain when a caregiver communicates that being successful in that domain deserves awards and acceptance (i.e., feedback on abilities rather than efforts), whereas failure is punishable (Crocker & Knight, 2005; Kamins & Dweck, 1999). Thus, it may be that strong positive and negative feedback from early and important sexual partners, as well as individual perceptions of prior sexual experiences, could lead to relying on sexual relationships for self-validation.

2.8.1 Conclusions

Sexual CSW refers to the degree to which individuals base their self-worth on maintaining a successful sexual relationship. We developed an eight-item self-report measure of sexual CSW composed of two related, but distinct factors – self-worth based on positive events in the sexual relationship and self-worth based on negative sexual events. Our findings indicated that the Sexual CSW Scale has good test-retest reliability, internal consistency, construct validity (convergent, discriminant, and known-groups validity), and incremental validity. The results of the current study suggest that this construct may be particularly relevant for individuals who experience sexual problems. Future research should examine the predictors and outcomes of greater sexual CSW in

order to establish the specific role of sexual CSW in individuals' psychological, relational, and sexual well-being.

Table 2.1

Study 1a Descriptive Statistics and Correlations with Sexual CSW Scale.

Characteristic or Measure	*M* (range) or *N*	*SD* or %
Age (years; *n* = 329)	30.19 (18-45)	7.05
Gender (*n* = 329)		
Male	147	44.68%
Female	181	55.02%
Not specified	1	0.30%
Current partner's gender (*n* = 327)		
Mixed Gender	301	92.05%
Same Gender	26	7.95%
Education level (years; *n* = 326)	15.31 (6-30)	2.63
[1]Culture (*n* = 329)		
White American	248	75.38%
Asian	21	6.38%
Black American	29	8.81%
European	4	1.22%
Latin American/South American	15	4.56%

[1] The cultures that are reported are those that participants selected; however, the following options were also provided: First Nations, African, Australian/Oceanian, and Middle Eastern.

Characteristic or Measure	*M* (range) or *N*	*SD* or %
Caribbean	4	1.22%
Multicultural	4	1.22%
Unknown	4	1.22%
Relationship status (*n* = 329)		
In a committed relationship; not cohabiting	93	28.27%
In a committed relationship; cohabiting	115	34.95%
Married	121	36.78%
Relationship length (months; *n* = 329)	70.10 (3-300)	63.95
Sexual Contingent Self-Worth (*n* = 329)		
Total	37.09 (10-50)	8.30
Positive Sexual Events subscale	20.07 (5-25)	4.39
Negative Sexual Events subscale	17.02 (5-25)	4.91

Note. *M* = mean of sample; *N* = total number of observations; *SD* = standard deviation; % = percentage of sample. Means for the Sexual CSW Scale are based on the version following PAF (i.e., item 3 was removed).

Table 2.2

Items on the Sexual Contingent Self-Worth Scale and Study 1a Exploratory Factor Analysis Loadings

Items	Factor 1: Positive Sexual Events	Factor 2: Negative Sexual Events	*M*	*SD*
I feel better about myself when it seems like my partner and I are sexually connected. (Item 2)	0.98	-0.11	4.33	0.93
I feel better about myself when it seems like my partner and I are getting along sexually. (Item 1)	0.96	-0.07	4.30	0.95
When my sexual relationship is going well, I feel better about myself overall. (Item 5)	0.80	0.10	4.13	1.03
I feel better about myself when I feel that my partner and I have a good sexual relationship. (Item 10)	0.80	0.08	4.21	1.00
My feelings of self-worth are based on how well things are going in my sexual relationship. (Item 4^{+})	0.50	0.26	3.10	1.32
My self-worth is unaffected when things go wrong in my sexual relationship. (Item 7 [r])	-0.05	0.83	3.42	1.24

Items	Factor 1: Positive Sexual Events	Factor 2: Negative Sexual Events	*M*	*SD*
When my sexual relationship is going bad, my feelings of self-worth remain unaffected. (Item 9 [r])	-0.07	0.82	3.31	1.20
If my sexual relationship were to end tomorrow, I would not let it affect how I feel about myself. (Item 6 [r])	-0.04	0.72	3.46	1.32
When my partner and I fight about a sexual issue, I feel bad about myself in general. (Item 8)	-0.02	0.65	3.24	1.27
When my partner criticizes me or seems disappointed in me for something about our sexual relationship, it makes me feel really bad. (Item 11[+)]	0.09	0.56	3.59	1.27
An important measure of my self-worth is how successful my sex life is with my partner. (Item 3[+])	0.34	0.47	3.37	1.27

Note. Items are rated on a scale of 1 (*not at all like me*) to 5 (*very much like me*).

[r] = reverse-scored item.

[+] Items that are not included in the final measure from Study 1b.

Table 2.3

Study 1b Sociodemographic Information and Correlations with the Sexual CSW Scale.

Characteristic or Measure	*M* (range) or *N*	*SD* or %	*r*
Age (years; *n* = 282)	30.72 (18-45)	6.74	0.08
Gender (*n* = 282)			-0.06
Male	149	52.84%	
Female	133	47.16%	
Current partner's gender (*n* = 282)			-0.09
Mixed Gender	269	95.39%	
Same Gender	13	4.61%	
Education level (years; *n* = 282)	15.46 (11-25)	2.30	-0.10
[2]Culture (*n* = 282)			-0.04
White American	217	76.95%	
Asian	20	7.09%	
Black American	17	6.03%	
European	8	2.84%	
Latin American/South American	8	2.84%	
Caribbean	2	0.71%	

[2] The cultures that are reported are those that participants selected; however, the following options were also provided: First Nations, Australian/Oceanian, and Middle Eastern.

Characteristic or Measure	*M* (range) or *N*	*SD* or %	*r*
African	1	0.35%	
Multicultural	6	2.13%	
Unknown	3	1.06%	
Relationship status (*n* = 282)			
In a committed relationship; not cohabiting	83	29.43%	
In a committed relationship; cohabiting	91	32.27%	
Married	108	38.30%	
Relationship length (months; *n* = 282)	72.17 (3-300)	68.48	0.04

Note. *M* = mean of sample; *N* = total number of observations; *SD* = standard deviation; % = percentage of sample; *r* = correlation coefficient for association with Sexual CSW Scale.

Table 2.4

Study 1b Descriptive Statistics and Correlations with Sexual CSW Scale.

Measure	*M* (range) or *N*	*SD*	*r*
Sexual Contingent Self-Worth: Time 1 (*n* = 282)			
Total	29.18 (8-40)	7.06	
Positive Sexual Events subscale	16.15 (4-20)	3.77	
Negative Sexual Events subscale	13.02 (4-20)	4.23	
Sexual Contingent Self-Worth: Time 2 (*n* = 175)			
Total	30.28 (8-40)	6.11	
Positive Sexual Events subscale	16.70 (4-20)	3.24	
Negative Sexual Events subscale	13.58 (4-20)	3.77	
Relationship Contingent Self-Worth (*n* = 282)	42.05 (11-55)	9.04	0.77***
Other Contingent Self-Worth Scale (*n* = 282)			
Family support	21.13 (4.20-29.40)	4.66	0.48***
Competition	21.36 (7.20-29.40)	4.70	0.39***
Appearance	21.33 (4.20-29.40)	4.45	0.48***
God's love	14.06 (4.20-29.40)	8.77	- 0.03
Academic competence	20.67 (4.20-29.40)	5.18	0.35***
Virtue	21.25 (4.20-29.40)	4.41	0.26***
Approval from others	16.04 (4.20-29.40)	5.69	0.41***
Sexual Self-Consciousness (*n* = 282)			
Embarrassment subscale	8.59 (0-24)	5.92	0.13*
Self-Focus subscale	13.54 (0-24)	4.60	0.32***

Measure	*M* (range) or *N*	*SD*	*r*
Sexual Approach Styles (*n* = 282)			
Passionate/Romantic subscale	4.85 (-14-14)	6.82	0.16*
Game-Playing subscale	-5.23 (-14-14)	5.10	-0.14
Companionate/Friendship subscale	1.64 (-14-14)	6.81	0.06
Practical/Logical subscale	-3.44 (-14-13)	6.26	0.09*
Dependent/Possessive subscale	-0.47 (-13-14)	5.59	0.58***
Altruistic/Selfless subscale	4.94 (-12-14)	5.58	0.38***

Note. *M* = mean of sample; *N* = total number of observations; *SD* = standard deviation; *r* = correlation coefficient for association with Sexual CSW Scale (final version). *$p < .05$. **$p < .01$. ***$p < .001$.

Table 2.5

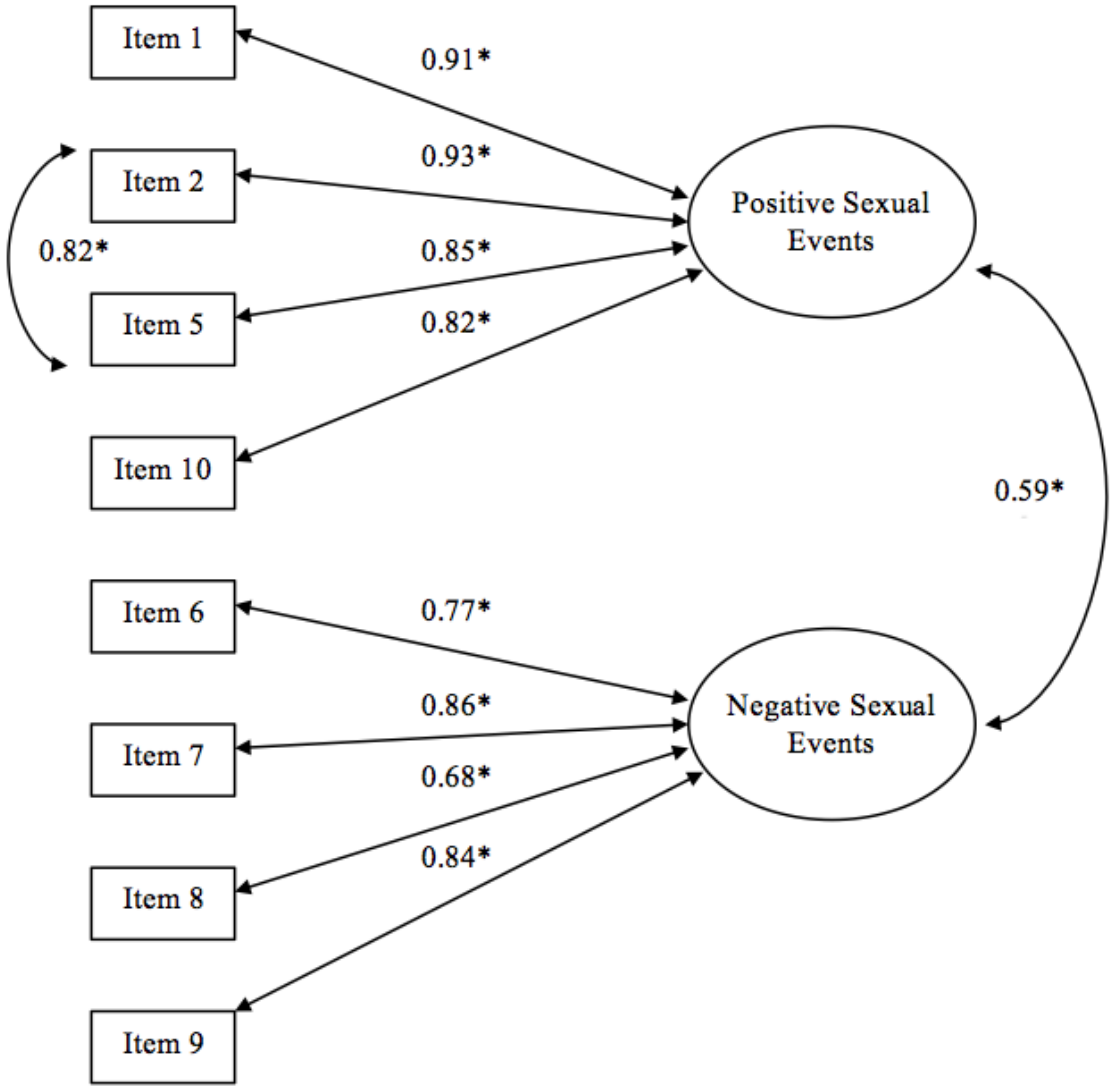
Study 1b Correlations between the Positive and Negative Sexual Events Subscales of Sexual CSW Scale and Other Factors.

Measure	Correlation Coefficients	
	Positive Sexual Events	*Negative Sexual Events*
Relationship Contingent Self-Worth	0.64***	0.72***
Other Contingent Self-Worth Scale		
Family support	0.42***	0.42***
Competition	0.43***	0.37***
Appearance	0.45***	0.41***
God's love	0.01	- 0.05
Academic competence	0.38***	0.25***
Virtue	0.24***	0.22***
Approval from others	0.34***	0.48***
Sexual Self-Consciousness		
Embarrassment subscale	0.13*	0.16**
Self-Focus subscale	0.38***	0.29***
Sexual Approach Styles		
Passionate/Romantic subscale	0.20**	0.11*
Game-Playing subscale	-0.11*	-0.14*
Companionate/Friendship subscale	0.05	0.06
Practical/Logical subscale	0.08	0.08
Dependent/Possessive subscale	0.47***	0.55***

Measure	Correlation Coefficients	
	Positive Sexual Events	*Negative Sexual Events*
Altruistic/Selfless subscale	0.40***	0.28***

Note.

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



Final Model. χ^2 (19) = 67.17, $p < .001$, CFI = 0.97, NFI = 0.96, RMSEA = 0.09.

Figure 2.1. Factor loadings for Study 1b confirmatory factor analysis.

*$p < .05$.

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2.10 Transition to Study 2

In study 1a, we developed a novel measure of sexual CSW, the Sexual CSW Scale, using two separate community samples. A standardized measure of relationship CSW was adapted for the sexual context to develop the initial version of the measure of sexual CSW. Findings from an exploratory factor analysis indicated that one item needed to be removed and the 10-item Sexual CSW Scale was composed of two factors, self-worth based on positive events occurring in the sexual relationship and self-worth based on negative sexual events. The two factors were significantly correlated with each other and loaded onto a single second-order factor, supporting the use of a total score. This factor structure was replicated using confirmatory factor analysis with a separate community sample. However, the results suggested the removal of another two items. We found that the final 8-item Sexual CSW Scale was positively associated with related constructs (convergent validity) over-and-above relationship CSW (incremental validity) and was not correlated with unrelated constructs (discriminant validity). The total score and subscale scores had good test-retest reliability over a period of two weeks and excellent internal consistency. Individuals who reported distressing sexual problems had greater sexual CSW than those without problems, which suggested that this construct might be particularly relevant to those suffering from sexual problems.

A prevalent sexual problem in women is pain during intercourse (also known as dyspareunia). A common cause of such pain is provoked vestibulodynia (PVD), which is characterized by recurring vulvovaginal pain that is triggered by pressure on the vulvar vestibule. PVD affects approximately 7-8% of women (Bornstein et al., 2016; Harlow et al., 2014). Women with PVD and their partners report negative consequences to their

psychological and sexual well-being (Bergeron et al., 2015; Rosen, Rancourt, et al., 2014).

Further, in qualitative studies, couples affected by PVD tend to report viewing themselves as failing in the sexual relationship, illustrating the potential relevance of sexual CSW in this population (Ayling & Ussher, 2008; Marriott & Thompson, 2008; Sadownik et al., 2016; Sheppard et al., 2008). According to the theoretical model of CSW, when an individual perceives failures in a contingent domain, they are more likely to experience consequences to their well-being (Cambron & Acitelli, 2010; Crocker, 2002a; Crocker & Park, 2004; Crocker & Wolfe, 2001; Park & Crocker, 2005). Thus, greater sexual CSW in couples affected by PVD may be associated with disruptions to their well-being. More specifically, when couples coping with PVD have greater sexual CSW, problems in their sexual relationship, such as women's PVD pain, may become more salient, which could be associated with sexual, psychological, and relational consequences. However, although couples affected by PVD report lower sexual satisfaction, their relationship satisfaction tends to be comparable to the general population (Smith & Pukall, 2011). This suggests that couples may have protective resources related to their overall romantic relationship. As such, greater relationship CSW may buffer against negative consequences to well-being for couples coping with PVD. The objective of study 2 was to examine the cross-sectional associations between sexual and relationship CSW and the sexual satisfaction, sexual distress, relationship satisfaction, and depressive symptoms of women with PVD and their partners, as well as women's pain during intercourse.

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CHAPTER 3: WHEN SELF-WORTH IS TIED TO ONE'S SEXUAL AND ROMANTIC RELATIONSHIP: ASSOCIATIONS WITH WELL-BEING IN COUPLES COPING WITH GENITO-PELVIC PAIN

The manuscript prepared for this study is presented below. Readers are advised that Maria Glowacka, under the supervision of Dr. Natalie Rosen, was responsible for developing the research questions and hypotheses, recruiting study participants, collecting data (meeting with Halifax participants to describe the study protocol and obtain consent), preparing the datasets for analyses, conducting data analyses, and interpreting the study findings. Maria wrote the initial draft of the manuscript and received and incorporated feedback from her co-authors. The manuscript underwent peer-review, and required one revision, to which Maria led the response, prior to the manuscript's acceptance in *Archives of Sexual Behavior* on November 28, 2017. The full reference for this manuscript is:

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3.1 Abstract

Contingent self-worth (CSW; the pursuit of self-esteem via a particular domain in one's life) impacts well-being based on one's perceived success or failure in the contingent domain. In a community sample, individuals with sexual problems reported greater sexual CSW – self-worth dependent on maintaining a sexual relationship – than those without problems. Couples coping with provoked vestibulodynia (PVD), a genito-pelvic pain condition, perceive failures in their sexual relationship, which could be associated with more pain and poorer well-being. In contrast, relationship CSW – self-worth dependent on the overall romantic relationship – may act as a buffer against adverse outcomes. Eighty-two women with PVD and their partners completed online standardized measures of sexual and relationship CSW, sexual distress and satisfaction, relationship satisfaction, depressive symptoms, and women reported their pain intensity. Analyses were based on the Actor Partner Interdependence Model. Women with PVD who reported greater sexual CSW experienced more sexual distress and pain. Additionally, when partners reported greater sexual CSW, they were less sexually and relationally satisfied and more sexually distressed, and women had greater depressive symptoms and lower relationship satisfaction. In contrast, when partners reported higher relationship CSW, they were more sexually and relationally satisfied and less sexually distressed, and women reported lower depressive symptoms and greater relationship satisfaction. Results suggest that couples' (particularly partners') greater sexual CSW is linked to poorer sexual, relational, and psychological well-being in couples affected by PVD, whereas partners' greater relationship CSW is associated with better well-being.

Thus, sexual and relationship CSW may be important treatment targets for interventions aimed at improving how couples adjust to PVD.

Key words: sexual contingent self-worth; relationship contingent self-worth; provoked vestibulodynia; couples; genito-pelvic pain

3.2 Introduction

Provoked vestibulodynia (PVD), which is characterized by pain when pressure is placed on the vulvar vestibule or during vaginal penetration, is a common type of recurrent genito-pelvic pain (Bornstein et al., 2016). PVD affects approximately 7 to 8% of the general female population (Harlow et al., 2014). The etiology of PVD is multifactorial; thus, various biological, psychological, and social factors contribute to the development and maintenance of this pain condition (Pukall et al., 2016). Women with PVD and their romantic partners report reduced sexual satisfaction, greater sexual distress and depression, and some studies indicate lower relationship satisfaction, compared to unaffected individuals (for review see Bergeron et al., 2015). Additionally, although couples affected by PVD report negative impacts to their self-worth as a sexual and romantic partner related to their struggle with this condition (Ayling & Ussher, 2008; Sadownik et al., 2016), whether this experience is associated with women's pain and couples' well-being is unknown.

Both women and men report lower self-esteem (i.e., a global evaluation of one's worth and abilities) when they suffer from sexual dysfunctions, including PVD, compared to those without sexual difficulties (Blascovich & Tomaka, 1991; Cappelleri et al., 2004; Gates & Galask, 2001). Crocker and Park (2004) proposed that the *pursuit* of self-esteem is more important to an individual's well-being than his or her overall level of self-esteem. Contingent self-worth (CSW) is the pursuit of self-esteem via a particular domain in one's life, such as one's relationship or career (Crocker & Wolfe, 2001). In other words, CSW represents the parameters by which individuals evaluate themselves. When positive events occur in the contingent domain, individuals experience a boost to

their self-esteem, whereas negative events in the contingent domain lead to decreased self-esteem (Crocker & Wolfe, 2001). These changes in self-esteem can result in consequences for the individual, such as higher or lower relationship satisfaction, depression, or pain (e.g., Cambron & Acitelli, 2010; Crocker, 2002a; Crocker & Park, 2004; Park & Crocker, 2005). Since couples affected by PVD report negative repercussions to their sexual relationships, while often maintaining their relationship satisfaction (Smith & Pukall, 2011), understanding the impacts of basing their self-worth on the success or failure of these life domains may shed light on their adjustment to this condition. The current study aimed to examine the associations between sexual and relationship CSW and sexual distress and satisfaction, relationship satisfaction, depressive symptoms, and pain in women with PVD and their partners.

3.2.1 Sexual Contingent Self-Worth

Sexual CSW is self-esteem that is dependent on maintaining what one perceives to be a successful sexual relationship (Study 1, Chapter 2). It is distinct from sexual self-esteem, which is one's evaluation of being able to engage in sexual behaviours and to experience one's sexuality as satisfying (Study 1, Chapter 2; Snell et al., 1993). Thus, sexual self-esteem represents an assessment of oneself as a sexual being, whereas sexual CSW reflects the pursuit of self-esteem via the sexual relationship. The assessment of sexual self-esteem may or may not impact an individual's overall sense of self-worth. However, for an individual with greater sexual CSW, their overall self-esteem is impacted by how they evaluate their sexual relationship.

In a community sample of men and women, sexual CSW was higher in those reporting distressing sexual problems compared to those without sexual problems (Study

1, Chapter 2). Individuals with greater sexual CSW may perceive a sexual problem, such as PVD, as a failure in the contingent domain, which could be associated with disruptions to their sexual, psychological, and relational well-being. Thus, in the same way that an individual with high academic CSW might be more psychologically distressed after failing an exam, an individual with greater sexual CSW may experience more negative outcomes when faced with a sexual problem. Indeed, prior research indicates that perceived failures in other contingent domains, such as academic competence and appearance, are viewed as direct attacks to one's self-esteem and are related to more negative interpersonal and health outcomes, such as an increased release of stress hormones, engaging in high-risk health behaviours (e.g., excessive alcohol use), more disordered eating, increased risk of heart disease, greater depressive symptoms, and difficulties maintaining supportive relationships (Cambron & Acitelli, 2010; Crocker, 2002a; Crocker & Park, 2004; Park & Crocker, 2005). Crocker and Park (2004) suggested that individuals with greater CSW work so hard to validate their sense of self-worth, that any perceived rejection or failure results in substantial stress for the individual, which negatively impacts their health and well-being.

In the case of PVD, qualitative studies have found that women report feelings of shame and inadequacy as sexual partners, concerns that they are failing in their relationships because they are unable to engage in sexual intercourse, as well as a sense of losing their femininity, sexual identity, and sexual confidence because of PVD (Ayling & Ussher, 2008; Marriott & Thompson, 2008; Sheppard et al., 2008). Further, women experiencing pain during intercourse report more distress about their body image and a more negative genital image than women without pain, which suggests that they may

view themselves as less physically attractive sexual partners (Pazmany et al., 2013). Similarly, sexual CSW appears to be relevant for the partners of women with PVD. In a qualitative study of long-term male partners of women with PVD, men reported a sense of mourning the loss of previously enjoyable sexual relationships, feelings of failure in their current sexual relationship, as well as concerns that they may be contributing to an unsatisfactory sexual relationship (Sadownik et al., 2016). Taken together, these findings suggest that women with PVD and their partners may perceive themselves as inadequate in the sexual relationship, which could become problematic for their adjustment to this pain condition when they have greater sexual CSW.

When women with PVD or their partners have greater sexual CSW, problems in the sexual relationship (e.g., pain) may become more salient. In particular, greater sexual CSW may further increase attention to the pain (i.e., the primary failure in the sexual relationship), which has been associated with greater genital pain intensity (Pukall et al., 2016). CSW has also been linked to more depressive symptoms via rumination about failures and sexual CSW specifically has been linked to being hyperaware and uneasy about one's own sexuality (Study 1, Chapter 2; Cambron & Acitelli, 2010). Thus, couples affected by PVD who have higher sexual CSW are more likely to focus on their perceived inadequacy as sexual partners, which could be associated with more depressive symptoms and sexual distress. The consequences of greater sexual CSW may be linked not only to one's own well-being but also to a partners'. Indeed, several prior studies have shown that the appraisals of one member of the couple affected by PVD are linked to their partner's sexual, relational, and psychological adjustment to PVD (e.g., Rancourt et al., 2016; Rosen et al., 2016). For example, a person who is highly invested in the

sexual relationship as an avenue for validating the self and perceives a failure in the sexual relationship may be more likely to respond to the PVD and to their partner in a hostile or avoidant manner (compared to someone with lower sexual CSW), resulting in their partner being less satisfied with the sexual and overall relationship. Thus, we expected that greater sexual CSW in either member of the couple would be associated with lower sexual satisfaction and relationship satisfaction and greater sexual distress and depressive symptoms, in both members of the couple, and may be linked to more pain intensity for women with PVD.

3.2.2 Relationship Contingent Self-Worth

Although we expected sexual CSW to be associated with more negative consequences for affected women and their partners, basing self-worth on the overall relationship rather than the sexual relationship, specifically, may be beneficial. Sexual relationships typically occur within the context of romantic relationships; however, the sexual relationship is distinct from the general intimate relationship (Diamond, 2004; Smith & Pukall, 2011). These two constructs are associated with different evolutionary origins, subjective experiences, and brain activation patterns (Diamond, 2004). In couples coping with PVD, sexual satisfaction is often reduced but, on average, couples report being just as satisfied with their overall relationship as those who are not affected by this pain (Smith & Pukall, 2011). Such findings suggest that some couples with PVD may have protective resources that allow them to maintain relationship satisfaction despite the pain that the women experience and its interference with their sex lives. Relationship CSW, which is the pursuit of self-esteem via the romantic relationship (Knee et al., 2008), may serve this protective function for couples with PVD.

Prior research has found that relationship CSW was associated with feeling closer to one's partner and more satisfied with the relationship (Knee et al., 2008). Higher relationship CSW has also been linked to greater sexual satisfaction when people pursue sex out of a desire for intimacy in the relationship (Sanchez et al., 2011). Further, an individual's greater relationship CSW was significantly related to their partner's greater commitment to the relationship and viewing the relationship as an extension of their true self, indicating that partners of people with greater relationship CSW may benefit as well (Hadden et al., 2015; Knee et al., 2008). A focus on the benefits and rewards of an intimate relationship may buffer against the distress associated with the interference of PVD to their lives, resulting in fewer sexual and relational impairments. Although relationship CSW has not been examined in couples affected by PVD, the above-mentioned previous findings suggest that relationship CSW may be associated with greater sexual, relational, and psychological outcomes for both women with PVD and their partners.

3.2.3 Objectives and Hypotheses

The objective of the current study was to examine the cross-sectional associations between sexual and relationship CSW and the sexual satisfaction, sexual distress, relationship satisfaction, and depressive symptoms of women with PVD and their partners, as well as women's pain during intercourse. We expected that an individuals' greater sexual CSW would be associated with their own and their partner's poorer sexual and relationship satisfaction, as well as greater sexual distress, and depressive symptoms. In contrast, we hypothesized that an individuals' greater relationship CSW would be linked to their own and their partner's better sexual, relational, and psychological well-

being. Given a lack of prior evidence we examined the associations between relationship and sexual CSW and pain in an exploratory manner.

3.3 Method

3.3.1 Participants

Couples were recruited using print and online advertisements, by contacting past participants of other studies in our laboratory, and via referrals from local health care providers in two major Canadian cities (81 from Halifax, Nova Scotia and 145 from Montréal, Québec). Couples ($N = 226$) were screened via telephone and women met with a study gynecologist to confirm a diagnosis of PVD. The eligibility criteria were as follows: (1) women experienced vulvo-vaginal pain during intercourse on at least 80% of vaginal intercourse attempts for at least six months, (2) women's pain was provoked by pressure placed on the vulvar vestibule (3) women received a diagnosis of PVD from a standardized gynecological examination that consisted of a cotton-swab test (randomized palpation to the vulvar vestibule at 3, 6, and 9 o'clock and women self-reported a minimum average pain rating of 4/10), (4) women were between the ages of 18 and 45 and partners were at least 18 years old, (5) in a committed relationship with each other for at least three months, (6) had in-person contact at least four times per week, (7) engaged in sexual activity (defined as vaginal penetration or oral or manual stimulation) at least once per month for three months, and (8) both members of the couple were willing to participate and could read and write in English and/or French. Exclusion criteria included: (1) presence of a major medical and/or psychiatric illness, (2) dermatological problems or active vaginal infection, (3) pregnancy or within one year postpartum, (4) and currently engaging in treatment for their PVD. Of the 226 couples,

144 were deemed ineligible for the following reasons: 51 (35%) did not meet pain criteria (e.g., location, duration, frequency), 21 (15%) did not meet the relationship or sexual activity criteria, 22 (15%) partners declined participation, 14 (10%) women were currently pursuing PVD treatment, 12 (8%) women did not receive a diagnosis of PVD from the study gynecologist, and 24 (17%) for other reasons (e.g., pregnancy, age, language barrier). The final sample size was therefore 82 couples (33 from Halifax and 49 from Montréal).

3.3.2 Measures

3.3.2.1 Sociodemographics. Both members of the couple completed questions about their age, level of education, culture, relationship status, and relationship length. Partners indicated their gender and women reported painful intercourse duration.

3.3.2.2 Sexual contingent self-worth. Sexual CSW was measured with the Sexual Contingent Self-Worth (CSW) Scale (Study 1, Chapter 2). The Sexual CSW Scale consists of eight items, which measure the extent to which an individual's self-worth is based on positive and negative events in one's sexual relationship (e.g., *I feel better about myself when it seems like my partner and I are getting along sexually* and *My self-worth is unaffected when things go wrong in my sexual relationship*). The Sexual CSW Scale was adapted from the items in the Relationship Contingent Self-Esteem Scale, which is described below. Items are rated on a five-point Likert-type scale ranging from 1 (*Not at all like me*) to 5 (*Very much like me*). Higher scores reflect greater sexual CSW. The scale has good reliability and validity (Study 1, Chapter 2). In the current sample, Cronbach's alphas were .80 and .81 for women and partners, respectively.

3.3.2.3 Relationship contingent self-worth. The Relationship Contingent Self-Esteem Scale (Knee et al., 2008) was used to assess the extent to which self-worth is based on events in the individual's overall romantic relationship. The scale consists of 11 items rated on a five-point Likert-type scale ranging from 1 (*Not at all like me*) to 5 (*Very much like me*) and includes items such as: *An important measure of my self-worth is how successful my relationship is*. Higher scores indicate a greater level of relationship CSW. The scale has been shown to have good convergent, discriminant, incremental, and predictive validity (Knee et al., 2008). In the current sample, reliability was .85 for women and .85 for partners.

3.3.2.4 Sexual satisfaction. Sexual satisfaction was measured using the Global Measure of Sexual Satisfaction (GMSEX; Lawrance & Byers, 1995). On a scale from 1 to 7, participants rate the overall quality of their sexual relationship on five bipolar scales (e.g., *Valuable* vs. *Worthless*). Higher scores indicate greater sexual satisfaction. The GMSEX has excellent reliability and validity (Byers & MacNeil, 2006). Cronbach's alphas for the current sample were .88 for women and .92 for partners.

3.3.2.5 Sexual distress. Sexual distress was measured using the 13-item Female Sexual Distress Scale – Revised (FSDS - R; DeRogatis, Clayton, Lewis-D'Agostino, Wunderlich, & Fu, 2008). On a 5-point Likert-type scale, participants rate how frequently (e.g., 1 = *Never* to 5 = *Always*) they experience sexually related distress (e.g., feelings of frustration, worry, guilt). Higher scores indicate higher levels of sexual distress. The FSDS-R has been shown to have high test-retest reliability and good discriminant validity (DeRogatis et al., 2008). Although originally developed and validated with women, the items on the measure are gender neutral. Further, the FSDS-R

has shown good test-retest reliability and content, construct, and criterion validity in samples of men with and without sexual dysfunctions (Santos-Iglesias, Mohamed, Danko, & Walker, 2018). Cronbach's alphas in the current sample were .95 and .93 for women and partners, respectively.

3.3.2.6 Relationship satisfaction. Relationship satisfaction was measured with the Couples Satisfaction Index (CSI), a 32-item scale developed by Funk and Rogge (2007). Using Likert-type scales, participants rate the quality of their relationship across several factors. For example, participants indicate how happy they are with their relationship, how frequently they disagree with their partner, and whether they feel a strong connection with their partner. Higher scores on the CSI indicate greater relationship satisfaction. The CSI has been shown to have strong convergent and construct validity (Funk & Rogge, 2007). Reliability for the current sample was .96 for women and .97 for partners.

3.3.2.7 Depressive symptoms. The presence and severity of depressive symptoms was assessed using the Beck Depression Inventory II (BDI-II; A. T. Beck, Steer, & Brown, 1996). The BDI-II consists of 21 items on which participants select how they have been feeling over the past two weeks. The authors of the BDI-II have provided scoring guidelines indicating minimal (scores of 0-13), mild (14-19), moderate (20-28), and severe depressive symptoms (29-63). The BDI-II has demonstrated high internal consistency and good discriminant validity (A. T. Beck et al., 1996). It has been validated for use in chronic pain populations (C. A. Harris & Joyce, 2008). For the current sample, Cronbach's alphas were .93 for women and .92 for partners.

3.3.2.8 Women's genital pain intensity. Genito-pelvic pain in women was measured using the Short-Form McGill Pain Questionnaire (SF-MPQ; Melzack, 1987). Women were asked to complete this measure in reference to their vulvo-vaginal pain. The SF-MPQ is comprised of 15 pain-adjectives that are rated on a 4-point intensity scale ranging from 0 (*None*) to 3 (*Severe*) and tap into both sensory and affective aspects of the pain. The total score was used in the analyses for this study such that higher scores reflect more intense pain. The SF-MPQ was found to be a highly reliable and valid measure of pain (Burckhardt & Jones, 2003; Grafton, Foster, & Wright, 2005). Cronbach's alpha for the current sample of women was .76.

3.3.3 Procedure

Data from this sample have been published previously focusing on other aspects of couples' psychosocial and interpersonal functioning (i.e., not sexual or relationship CSW; Rosen, Dewitte, Merwin, & Bergeron, 2016; Rosen, Muise, Bergeron, Impett, & Boudreau, 2015). Couples participated in a structured telephone interview with a research assistant over the telephone to determine eligibility. If eligible based on the screening interview, then women made an appointment with the study gynecologist to confirm a diagnosis for PVD. Couples that were deemed eligible after both levels of screening met with a research assistant at the laboratory, provided informed consent, and completed online questionnaires of the study measures independently from one another. Participants were compensated for their time and travel with $20 for the laboratory session and women with PVD received an additional $20 for attending the gynaecologist appointment. Our institutions' ethical review boards approved the study procedure.

3.3.4 Data Analysis

Data were analyzed using multilevel modeling in SPSS 20.0. First, we examined the bivariate correlations between sociodemographic characteristics of the sample, relationship and sexual CSW, and the study outcomes. Subsequent analyses were guided by the Actor–Partner Interdependence Model (APIM) to account for the non-independence between romantic partners (Kenny, Kashy, & Cook, 2006). A two-level cross model with random intercepts where persons were nested within dyads was used. All APIM models included women's and partners' sexual CSW and relationship CSW together as independent variables. A separate APIM model was conducted for each of the dependent variables (i.e., sexual satisfaction, sexual distress, relationship satisfaction, and depressive symptoms). Thus, we examined the associations between an individual's sexual satisfaction, sexual distress, relationship satisfaction, and depressive symptoms and their own level of sexual and relationship CSW (i.e., actor effects), as well as their partner's level of sexual and relationship CSW (i.e., partner effects). We used hierarchical regression to determine the associations between women's and partners' sexual and relationship CSW and women's pain intensity since this outcome only pertained to women with PVD.

3.4 Results

3.4.1 Participant Characteristics and Correlations

Eighty-two women with PVD and their partners (i.e., 164 individuals) participated in the study. Descriptive statistics for the sample are shown in Table 3.1. Women and partners' mean scores for the study measures are provided in Table 3.2. Women reported an average pain intensity score of 19.93 with a range of 4 to 40, which

suggests that they had a moderate intensity of pain, on average. Table 3.3 reports the correlation coefficients between sexual and relationship CSW and all outcome measures. We examined correlations between sociodemographic participant characteristics and all study outcomes to determine whether covariates were required in subsequent analyses. Relationship length was negatively correlated with women's (r = -.26, p = .02, df = 80) and partners' sexual satisfaction (r = -.43, p < .001, df = 80). Women's age was also negatively correlated with their partners' sexual satisfaction (r = -.35, p = .001, df = 80). Partners' age was negatively associated with their own sexual satisfaction (r = -.46, p < .001, df = 80). As such, relationship length and age were included as covariates in analyses with sexual satisfaction. There were no significant differences between the two recruitment sites on participants' sociodemographic or study measures, with the exception of the women's pain intensity measure. Results of an independent sample t-test showed that women from Montréal (M = 21.27, SD = 6.34, n = 49) reported greater vulvo-vaginal pain than women from Halifax (M = 17.81, SD = 8.04, n = 31, t = 2.14, df = 78, p = .04, 95% CI = .34 to 6.67). As such, we controlled for study site in the analyses with women's genital pain intensity.

3.4.2 Associations Between Women's and Partners' Sexual and Relationship CSW and Outcomes

Although sexual and relationship CSW were entered together in the APIMs for each of the outcomes, we report the results for sexual CSW and relationship CSW sequentially for ease of comprehension. The results for each outcome are reported in Table 3.4. After accounting for relationship length and age, when partners had greater sexual CSW they reported poorer sexual satisfaction, but partners' level of sexual CSW

was not related to women's sexual satisfaction. When women and partners reported greater sexual CSW, they were also more sexually distressed, but each person's sexual CSW was not associated with their partner's sexual distress. When partners had greater sexual CSW, they and the women with PVD reported lower relationship satisfaction. Partners' greater sexual CSW was also associated with women's greater depressive symptoms, but not with their own depressive symptoms. Women's sexual CSW was not related to their own or their partners' sexual satisfaction, relationship satisfaction, or depressive symptoms. In sum, when partners derived more self-worth from the sexual relationship, they were less sexually and relationally satisfied and more sexually distressed, and women with PVD were less relationally satisfied and reported more depressive symptoms. When women with PVD derived more self-worth from the sexual relationship, they were more sexually distressed.

When partners had greater relationship CSW, they reported greater sexual satisfaction (accounting for relationship length and age) and lower sexual distress, but there was no association between partners' relationship CSW and the sexual satisfaction or distress of women with PVD. Women's relationship CSW was not associated with their own or their partners' sexual satisfaction or distress. When partners had greater relationship CSW, they and the women with PVD reported greater relationship satisfaction. Women's greater relationship CSW was related to their own *greater* depressive symptoms but not their partners' depressive symptoms, whereas partners' greater relationship CSW was associated with women's *lower* depressive symptoms but not their own symptoms. In sum, when partners derived more self-worth from the overall romantic relationship, they were more sexually and relationally satisfied and less sexually

distressed and women with PVD were more relationally satisfied and reported less depressive symptoms. However, when women with PVD derived more self-worth from the romantic relationship, they reported *more* depressive symptoms.

According to a hierarchical multiple regression analysis, after controlling for study site, women's and partners' sexual CSW and relationship CSW accounted for 14% of the variance in women's genital pain intensity, $F(5, 74) = 2.35$, $p = .05$. Study site ($\beta = .22$, $p = .05$) and women's sexual CSW ($\beta = .28$, $p = .03$) were unique predictors of pain intensity, whereas women's relationship CSW ($\beta = .01$, $p = .97$), partners' sexual CSW ($\beta = .06$, $p = .42$), and partners' relationship CSW ($\beta = -.06$, $p = .71$) were not. Therefore, women's greater sexual CSW was associated with their own greater genital pain intensity.

3.5 Discussion

We aimed to determine the associations between sexual and relationship CSW and sexual distress and satisfaction, relationship satisfaction, depressive symptoms, and pain intensity in couples affected by PVD. The study sample consisted of couples in committed relationships and the majority were in mixed-gender relationships. Results indicated that when women with PVD had greater sexual CSW, they experienced more sexual distress and greater genital pain intensity. Partners' greater sexual CSW was linked to their own lower sexual and relationship satisfaction and greater sexual distress, as well as women's lower relationship satisfaction and more depressive symptoms. However, when partners reported greater relationship CSW, they reported better sexual and relationship satisfaction and less depressive symptoms, and women had greater relationship satisfaction and fewer depressive symptoms. Finally, when women with

PVD had greater relationship CSW, they reported *more* depressive symptoms. Thus, with the exception of this last finding, sexual CSW, especially the partners', was associated with couples' poorer psychosexual and relational well-being and women's greater pain, whereas partners' relationship CSW was linked to better sexual, relational, and psychological well-being in couples suffering from PVD. This study extends the general CSW literature to examine how sexual and relational CSW domains relate to couples struggling with a common sexual problem, specifically PVD. This study also contributes to the PVD literature by establishing that, although past work has shown the importance of sexual self-esteem for individuals (Ménard & Offman, 2009; Stewart & Szymanski, 2012; Taleporos & McCabe, 2002), the method by which couples, particularly partners, pursue self-esteem (i.e., via the overall relationship or sexual relationship specifically) is also important for their well-being. Further, this study involved both members of the couple unlike past research on sexual self-esteem and self-worth, which was not dyadic.

Consistent with our expectations, for both women with PVD and their partners, greater sexual CSW was linked to their own greater sexual distress (i.e., their feelings of anxiety, frustration or concern about the sexual relationship). Findings are consistent with the CSW literature, which has shown that perceived failure in a contingent domain is associated with increased stress and anxiety (Crocker, 2002a; Park & Crocker, 2005). When couples affected by PVD base their self-worth on maintaining a successful sexual relationship, problems in this aspect of their relationship, such as pain during intercourse, may become more salient. In a community sample of men and women, greater sexual CSW was associated with feeling more self-conscious and hyper-aware of one's own sexuality (Study 1, Chapter 2). In addition to hypervigilance to pain (Desrochers et al.,

2008), women with PVD tend to report body image and genital image concerns, and a loss of sexual confidence (Marriott & Thompson, 2008; Pazmany et al., 2013). Thus, for both women with PVD and their partners, those with greater sexual CSW may be sensitive to their sexual difficulties, which they also view as significant failures in the contingent domain (i.e., the sexual relationship), and these qualities are experienced alongside more sexual distress.

Additionally, women's greater sexual CSW was associated with their greater pain intensity during intercourse. Several studies have shown that individuals with chronic pain exhibit an attentional bias toward their pain, resulting in greater pain (Pincus & Morley, 2001; Roelofs, Peters, Zeegersb, & Vlaeyena, 2002; Schotha, Nunesb, & Liossi, 2012). Moreover, women with PVD who report increased levels of hypervigilance to pain, pain catastrophizing, and fear of pain (i.e., fear-avoidance) also report greater pain intensity (Desrochers et al., 2008; Payne et al., 2005). Greater sexual CSW could further increase attention to the pain because it is considered the primary cause of failure in the sexual relationship. When women with PVD have greater sexual CSW, they may become more hypervigilant to their pain and spend substantial time focusing on and worrying about their pain, which in turn, could be associated with greater pain than for women with PVD who have lower levels of sexual CSW. The mediating role of fear-avoidance should be examined in future studies. It is also possible that the experience of greater pain may lead an individual to base their self-worth on the sexual relationship to a greater degree. Longitudinal studies are required to determine the temporal order of these associations.

The partners of women with PVD also reported negative correlates of sexual CSW: partners' greater sexual CSW was associated with their own lower sexual and relationship satisfaction. In a recent qualitative study, partners of women with PVD expressed concerns that this condition decreased the quantity and quality of their sexual interactions, and disrupted their relational intimacy beyond difficulties with penetrative intercourse (Sadownik et al., 2016). Women with PVD have reported avoiding engaging in intimate and affectionate behaviours (e.g., hugging, kissing) because of worry that such behaviours might lead to painful intercourse (Marriott & Thompson, 2008). However, relationship intimacy and affectionate behaviours outside of a sexual context have been linked to greater sexual and relationship satisfaction in couples affected by PVD (Bois, Bergeron, Rosen, McDuff, & Grégoire, 2013; Vannier, Rosen, Mackinnon, & Bergeron, 2016). Since individuals with greater sexual CSW are more focused on the success or failure of the sexual relationship, it is possible that partners with greater sexual CSW might be vigilant and sensitive to lower levels of affection and intimacy, which might explain the associations with lower sexual and relationship satisfaction. Future studies should examine the mechanisms of these associations.

Partners' sexual CSW also related to women's relational and psychological well-being. When partners reported greater sexual CSW, women with PVD were less satisfied with the overall relationship and reported more depressive symptoms. External domains of CSW (e.g., appearance), that is, basing one's self-worth on sources that require validation from others, are associated with increased hostility toward others, particularly when the person does not feel validated (Crocker, 2002b). In a recent qualitative study of a small sample of partners of women with PVD, some partners reported feeling frustrated

because they believed they were working hard to accommodate the pain and they perceived this effort as underappreciated at times (Sadownik et al., 2016). It is possible that partners with greater sexual CSW may be more likely to communicate their frustrations about the pain condition in a less adaptive way, which could be associated with women being less satisfied with the overall relationship. Further, when partners emphasize the sexual relationship and perceive it as failing to a greater extent, women with PVD might be more likely to internalize the blame for problems in the sexual relationship, which could be associated with experiencing guilt and hopelessness, and ultimately more depressive symptoms.

Although couples with PVD tend to perceive failures in their sexual relationship, this may not extend to perceptions of deficiencies in their overall romantic relationship. We found that when partners reported greater relationship CSW, they were also more sexually and relationally satisfied and less sexually distressed, and women were more satisfied with the relationship and reported less depressive symptoms. Thus, partners' relationship CSW may help to protect the well-being of couples with PVD. Indeed, prior research in community samples has found that when individuals pursue self-worth via their overall relationships, they feel closer to their partner and their partners report being more committed to the relationship (Hadden et al., 2015; Knee et al., 2008). When partners rely on their overall romantic relationships to pursue and maintain their self-esteem, they may be more focused on the benefits and rewards of this relationship, which might buffer against the negative consequences from the interference of PVD to their sex lives. Further, partners may be more motivated to improve broader relationship factors, such as intimacy, which extend the benefits to greater sexual satisfaction for partners.

Consistent with this reasoning, higher relationship CSW has been associated with greater sexual satisfaction in community samples, when sexual motives were based on a desire to pursue intimacy (Sanchez et al., 2011).

Moreover, previous research has found that individuals who are higher in relationship CSW, are especially attentive to the needs of their partners (Park et al., 2011). Thus, as partners' relationship CSW increases, they may be more attentive to the needs of women with PVD such that they are more willing to adapt their sexual behaviours to include those that are less painful and more pleasurable for the woman, which relates to both partners and women feeling more satisfied with the relationship, and partners feeling more sexually satisfied. A recent study of couples affected by PVD found that when partners were more motivated to meet the sexual needs of women with PVD, both partners and the women were more relationally and sexually satisfied (Muise, Bergeron, Impett, & Rosen, 2017). When partners have greater relationship CSW, they may focus more on the benefits of the relationship to improve their self-esteem, which might reduce some of the feelings of inadequacy, shame, and failure that women with PVD often experience (Ayling & Ussher, 2008; Marriott & Thompson, 2008), and could be linked to women's fewer depressive symptoms.

Although the observed associations in this study generally showed positive associations between partners' relationship CSW and couples' well-being, when women with PVD had greater relationship CSW, they reported *more* depressive symptoms. Qualitative studies have found that women with PVD are concerned with not meeting societal expectations of what it means to be a good romantic partner (Ayling & Ussher, 2008; Marriott & Thompson, 2008). In such a context, when women with PVD view the

romantic relationship as important for their sense of self-worth, they may be more likely to experience feelings of worthlessness and hopelessness, which are common depressive symptoms. Additionally, they may be more inclined to confirm a negative view of themselves via feedback from their partners. For example, one study found that those with greater friendship CSW engaged in rumination and negative feedback-seeking from friends, which in turn, maintained depressive symptoms (Cambron & Acitelli, 2010). It is also possible that women with PVD who have greater depressive symptoms tend to base their self-worth on their romantic relationship. Indeed, individuals suffering from depression are more likely to exhibit preoccupied attachment in their relationships compared to those with few depressive symptoms (Carnelley, Pietromonaco, & Jaffe, 1994). Although relationship CSW in women with PVD was linked to their own greater depressive symptoms, their partners' greater relationship CSW was associated with women's lower depressive symptoms. Since the role of women's and partners' relationship CSW appears to differ for women with PVD, more research is needed to understand whether it is adaptive to have higher relationship CSW.

Another unexpected finding in this study was that most of the significant associations related to the partner's (and not the woman with PVD's) level of sexual and relationship CSW. In other chronic pain populations, partners' experiences, such as their physical and mental health, were directly associated with their own and their partners' psychological and relational well-being (Pakenham & Samios, 2013; Segrin & Badger, 2014; Zhou et al., 2011). The PVD literature stresses the importance of how partners respond to the pain condition for their own and for women's adjustment (e.g., Rosen et al., 2012; Rosen et al., 2013). The current findings suggest that partners' levels of both

sexual and relationship CSW in the context of PVD seem to be more important for couples' adjustment compared to women's CSW, further underscoring the importance of including the partner in research and treatment. How couples adjust to sexual difficulties is critical because the consequences associated with sexual problems such as PVD cause a great deal of suffering and are commonly the trigger for seeking treatment and key targets of intervention, beyond the pain itself.

There were some limitations to this study. The research design was cross-sectional; thus, we could not draw causal conclusions or confirm the direction of the associations that we observed. Our interpretation of the findings was based on theoretical models of CSW and prior research; however, it is possible that some of the associations also operate in the opposite direction. For example, when couples affected by PVD have greater sexual distress, perceived failures in the sexual relationship may become more salient and influence their pursuit of self-worth via the sexual relationship. Further, the relationships between sexual and relationship CSW and outcomes may be bi-directional and cyclical. For example, those with greater sexual CSW may have greater sexual distress and as their sexual distress increases, they may rely even more on the sexual relationship to validate their self-worth. Future studies should employ longitudinal, experimental, and daily experience study designs to determine the temporal order of these relationships. Another limitation of this study was that the sample was primarily Caucasian North Americans in mixed-gender committed relationships, which limits the generalizability of our findings. The average duration of pain for women in this study was longer than the average relationship duration of the couples that participated in this study. The findings may therefore be more representative of couples where the PVD pre-dated the relationship,

rather than couples in which the woman developed PVD after being in the relationship for some time. Future research should seek a more heterogeneous sample. Further research is also needed to determine whether these findings might generalize to other sexual difficulties.

3.5.1 Conclusions

This study examined the associations between sexual CSW (i.e., self-worth dependent on perceived success or failure of the sexual relationship) and relationship CSW (i.e., self-worth dependent on the perceived success or failure of the overall romantic relationship) and the psychological, relational, and sexual well-being of couples affected by PVD and women's pain. Although the current study was cross-sectional, the overall pattern of results showed that greater sexual CSW (especially from the perspective of the partner) was linked to poorer relational and psychosexual well-being for both women and partners and greater women's pain, whereas partner's greater relationship CSW was associated with better well-being. Findings suggest that sexual and relationship CSW may be important targets for interventions aimed at improving the well-being of couples with PVD. Such interventions may involve a cognitive behavioural therapy approach in which perceptions of inadequacy/failure are challenged. Indeed, one study found that priming high academic achievement CSW individuals with a more flexible view of learning from setbacks reduced the association between failures in the CSW domain and negative outcomes, such as negative affect (Niiya et al., 2004). The results of the present study highlight the importance of including partners—as well as the dynamic between members of the couple—in treatment for PVD. Couples, and particularly partners of women with PVD, could be encouraged to focus on broader

aspects of the overall relationship for their self-worth. Reduced sexual CSW in couples and greater relationship CSW in partners could help people affected by PVD adjust to this pain condition and subsequently improve their psychological, relational, and sexual well-being, as well as women's pain.

Table 3.1

Sociodemographic characteristics for the sample (N = 82 couples)

Variable	*M* (range) or *N*	*SD* (or %)
Age (years)		
Women	25.95 (17-45)	5.80
Partners	27.22 (18-50)	6.82
Partners' gender		
Mixed-gender	80	(97.56)
Same-gender	2	(2.44)
Education (years)		
Women	15.95 (11-25)	2.61
Partners	15.05 (9-21)	2.75
Culture		
Women		
Canadian/American	68	(82.92)
European	5	(6.11)
Other	9	(10.97)
Partners		
Canadian/American	63	(76.83)
European	9	(10.98)
Other	10	(12.19)
Relationship status		
Married	16	(19.51)

Variable	*M* (range) or *N*	*SD* (or %)
Cohabitating	40	(48.78)
Living apart	26	(31.71)
Relationship length (months)	53.57 (4-204)	43.71
Women's pain duration (months)	66.01 (1-264)	58.48

Note. *M* = mean of sample; *N* = total number of observations; *SD* = standard deviation; % = percentage of sample.

Table 3.2

Scores on study measures for women with PVD and partners (N = 82 couples)

Variable	*M* (range)	*SD*
Sexual CSW		
Women	30.45 (18-40)	5.29
Partners	29.10 (16-37)	5.13
Relationship CSW		
Women	41.37 (24-55)	7.3
Partners	40.23 (22-55)	6.93
Sexual satisfaction		
Women	22.87 (8-35)	6.35
Partners	25.21 (7-35)	6.42
Relationship satisfaction		
Women	123.38 (51-154)	24.14
Partners	124.49 (59-159)	24.45
Sexual distress		
Women	30.99 (0-52)	12.24
Partners	16.49 (0-46)	10.43
Depressive symptoms		
Women	13.39 (0-46)	9.88
Partners	9.1 (0-42)	8.29
Women's pain intensity	19.93 (4-40)	7.2

Note. *M* = mean of sample; *SD* = standard deviation.

Sexual CSW was measured using the Sexual CSW Scale; Relationship CSW was measured using the Relationship Contingent Self-Esteem Scale; Sexual satisfaction was measured using the GMSEX; Relationship satisfaction was measured with the CSI; Sexual distress was measured using the FSDS – R; Depression was measured with the BDI-II; Women's pain intensity was measured using the SF-MPQ.

Table 3.3

Bivariate correlations between sexual and relationship CSW and outcome variables in women (W) with PVD and partners (P)

Scale	Source	SCSW	RCSES		GMSEX		CSI		FSDS-R		BDI-II		SF-MPQ
		P	W	P	W	P	W	P	W	P	W	P	W
SCSW	W	-.04	**.46*** **	-.03	-.09	.12	.09	.09	**.38*** **	.05	.14	-.07	**.29***
	P	—	.03	**.67*** **	-.09	.05	-.11	-.04	.04	.17	.19	.08	.02
RCSES	W	—	—	.05	-.001	-.12	-.12	-.05	.16	.11	**.27***	.10	.10
	P	—	—	—	.01	**.27***	.15	**.25***	-.06	-.05	-.06	.01	-.05
GMSEX	W	—	—	—	—	**.38****	**.29****	.16	**-.67*** **	**-.35****	-.21	-.03	**-.34****
	P	—	—	—	—	—	**.34****	**.53****	**-.28***	**-.61*** **	-.14	**-.25***	-.08
CSI	W	—	—	—	—	—	—	**.58*** **	-.10	**-.30****	**-.41*** **	**-.34****	-.11

Scale	Source	SCSW	RCSES		GMSEX		CSI		FSDS-R		BDI-II		SF-MPQ
		P	W	P	W	P	W	P	W	P	W	P	W
CSI	P	—	—	—	—	—	—	—	-.11	**-.48***	**-.26***	**-.46***	.02
FSDS-R	W	—	—	—	—	—	—	—	—	**.34****	**.32****	.04	**.46****
	P	—	—	—	—	—	—	—	—	—	.20	**.48***	.05
BDI-II	W	—	—	—	—	—	—	—	—	—	—	**.31****	**.34****
	P	—	—	—	—	—	—	—	—	—	—	—	-.18

Note. W = women with PVD; *P* = partners. Bolded values represent significant between-partner correlations. Bivariate correlations in the ranges of .10, .30, and .50 indicate small, medium, and large effects sizes, respectively. *p<.05; **p<.01; ***p<.001

SCSW Sexual Contingent Self-Worth Scale, *RCSES* Relationship Contingent Self-Esteem Scale, *GMSEX* Global Measure of Sexual Satisfaction, *CSI* Couples Satisfaction Inventory, *FSDS-R* Female Sexual Distress Scale – Revised, *BDI-II* Beck Depression Inventory II, *SF-MPQ* McGill Pain Questionnaire.

Table 3.4

Actor-partner interdependence model with sexual contingent self-worth and relationship contingent self-worth as independent variables and sexual distress, sexual satisfaction, relationship satisfaction, and depressive symptoms as dependent variables

	Predictor Variables									
	Sexual Contingent Self-Worth					*Relationship Contingent Self-Worth*				
	b	*SE*	*df*	*t*	*p*	*b*	*SE*	*df*	*t*	*p*
Model 1: Sexual Satisfaction										
Actor Effects										
Women	-.25	.15	76.45	-1.69	.10	.09	.11	74.98	.83	.41
Partners	**-.32**	**.16**	**75.05**	**-2.08**	**.04**	**.43**	**.12**	**75.66**	**3.73**	**.000**
Partner Effects										
Women	-.23	.18	74.70	-1.25	.21	.13	.14	75.34	.99	.33
Partners	.13	.13	76.75	1.03	.31	-.14	.09	75.89	-1.49	.14
Model 2: Sexual Distress										
Actor Effects										

	Predictor Variables									
Model 2: Sexual Distress	*Sexual Contingent Self-Worth*					*Relationship Contingent Self-Worth*				
Actor Effects	*b*	*SE*	*df*	*t*	*p*	*b*	*SE*	*df*	*t*	*p*
Women	**.90**	**.27**	**77**	**3.32**	**.001**	-.03	.20	77	-.15	.88
Partners	**.77**	**.30**	**77**	**2.61**	**.01**	**-.47**	**.22**	**77**	**-2.15**	**.04**
Partner Effects										
Women	.39	.33	77	1.16	.25	-.27	.25	77	-1.09	.28
Partners	-.001	.24	77	-.01	.99	.17	.18	77	.95	.35
Model 3: Relationship Satisfaction										
Actor Effects										
Women	.81	.55	77	.1.50	.14	-.65	.40	77	-1.65	.10
Partners	**-1.78**	**.67**	**77**	**-2.66**	**.01**	**1.81**	**.49**	**77**	**3.66**	**.000**
Partner Effects										
Women	**-1.76**	**.67**	**77**	**-2.63**	**.01**	**1.43**	**.50**	**77**	**2.88**	**.01**
Partners	.73	.54	77	1. 34	.19	-.48	.39	77	-1.21	.23

	Predictor Variables									
	Sexual Contingent Self-Worth					*Relationship Contingent Self-Worth*				
	b	*SE*	*df*	*t*	*p*	*b*	*SE*	*df*	*t*	*p*
Model 4: Depressive Symptoms										
Actor Effects										
Women	.02	.22	77	.11	.91	**.37**	**.16**	**77**	**2.34**	**.02**
Partners	.21	.24	77	.88	.38	-.11	.18	77	-.59	.56
Partner Effects										
Women	**.80**	**.27**	**77**	**3.00**	**.004**	**-.51**	**.20**	**77**	**-2.55**	**.01**
Partners	-.22	.20	77	-1.11	.27	.19	.14	77	1.29	.20

Note. Actor effects refer to the association between women's or partners' sexual/relationship CSW and their own outcomes, whereas partner effects refer to the association between women's or partners' sexual/relationship CSW and their partners outcomes. Significant effects are bolded.

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3.7 Transition to Study 3

Study 2 examined the cross-sectional associations between sexual CSW, relationship CSW, and the psychological, relational, and sexual well-being of couples coping with PVD. We found that when women with PVD had greater sexual CSW, they reported greater sexual distress and pain intensity during intercourse. When the partners of women with PVD reported greater sexual CSW, they had lower sexual and relationship satisfaction and greater sexual distress and women reported lower relationship satisfaction and greater depressive symptoms. However, when partners had greater relationship CSW, they reported greater sexual satisfaction and both they and women with PVD had greater relationship satisfaction and fewer depressive symptoms. An unexpected finding was that women's greater relationship CSW was linked to their own greater depressive symptoms. However, the results generally indicated that greater sexual CSW was associated with poorer psychological, relational, and sexual well-being in couples coping with PVD and with women's greater pain, whereas partners' greater relationship CSW was linked to couples' better well-being.

Although prior research shows that various psychological factors are associated with poorer well-being in couples coping with PVD, few studies have examined the mechanisms of these associations (Boerner & Rosen, 2015; Desrochers et al., 2009; Harlow & Stewart, 2005; Khandker et al., 2014; Lemieux et al., 2013; Payne et al., 2005). According to the theoretical model of CSW, if an individual with greater CSW perceives a failure in the contingent domain, they will experience significant distress about the domain, which results in poorer physical and psychological well-being (Crocker & Park, 2004; Crocker & Wolfe, 2001; Park & Crocker, 2005). Thus, the suggested mechanism explaining the associations between greater CSW and poorer well-

being is greater distress about the contingent domain, which for couples with PVD would be represented by sexual distress. Thus, in Study 3, we aimed to test whether sexual distress mediated the associations between greater sexual CSW and poorer well-being in couples affected by PVD. Further, we were interested in capturing the daily variability in couples' well-being using a daily experience design since the sexual relationship is dynamic and could be impacted by factors that vary daily, such as thoughts and mood (Davison et al., 2008; Rosen, Bergeron, et al., 2015; Rosen, Bergeron, et al., 2014).

In Study 3, we also added anxiety as a relevant outcome variable in couples coping with PVD. Several studies have found that women with PVD report greater anxiety than women without this pain condition (Bergeron et al., 2015; Granot & Lavee, 2005; Khandker et al., 2014; Khandker et al., 2011; Nylanderlundqvist & Bergdahl, 2003; Payne et al., 2005). In Study 3, we also decided to remove relationship satisfaction as a dependent variable for both methodological and theoretical reasons. Although couples coping with PVD often suffer repercussions to their sexual relationship, their overall romantic relationship typically remains at comparable levels to couples unaffected by this pain (Smith & Pukall, 2011). Such findings suggest that there are perhaps fewer consequences to the overall relationship due to PVD, compared to sexual and psychological consequences. Thus, although we originally included relationship satisfaction in Study 2 because relationship CSW was one of my predictors of interest and we expected the two to be correlated, it seemed less relevant to include this outcome in Study 3, which focused on sexual CSW (relationship CSW was only a covariate). In addition, removing relationship satisfaction reduced some participant burden and issues related to making multiple comparisons (Curran-Everett, 2000). In sum, the objective of Study 3 was to examine whether daily sexual distress mediated the associations between

greater sexual CSW and daily sexual satisfaction, depressive symptoms, anxiety, and pain (for women) in couples affected by PVD.

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CHAPTER 4: SEXUAL DISTRESS MEDIATES THE ASSOCIATIONS BETWEEN SEXUAL CONTINGENT SELF-WORTH AND WELL-BEING IN WOMEN WITH GENITO-PELVIC PAIN: A DYADIC DAILY EXPERIENCE STUDY

The manuscript prepared for this study is presented below. Readers are advised that Maria Glowacka, under the supervision of Dr. Natalie Rosen, was responsible for developing the research questions and hypotheses, recruiting study participants, collecting data (meeting with Halifax participants to describe the study protocol and obtain consent), preparing the datasets for analyses, conducting data analyses, and interpreting the study findings. Maria wrote the initial draft of the manuscript, and she received and incorporated feedback from her co-authors. Maria submitted the manuscript for peer review on January 31, 2018 and on March 18, 2018 was asked to revise and submit the manuscript. The revisions were incorporated into the manuscript below and were submitted for peer review on May 2018. The current reference for this manuscript is:

Glowacka, M., Bergeron, S., Delisle, I., & Rosen, N. O. (*revise and resubmit*). Sexual distress mediates the associations between sexual contingent self-worth and well-being in women with genito-pelvic pain: A dyadic daily experience study.

4.1 Abstract

Provoked vestibulodynia (PVD), a common cause of women's genito-pelvic pain, is associated with poorer psychological and sexual well-being in affected couples. Greater sexual contingent self-worth (CSW) – defined as self-worth that is dependent on maintaining a successful sexual relationship – has been linked to poorer well-being in a cross-sectional study of couples coping with PVD. This study aimed to examine whether daily sexual distress mediated the associations between greater sexual CSW and lower sexual satisfaction and greater anxiety, depressive symptoms, and women's pain in affected couples. Women (N = 125) diagnosed with PVD and their partners completed a measure of sexual CSW (Study 1, Chapter 2), and then online daily surveys for eight weeks measuring sexual distress, sexual satisfaction, anxiety, depressive symptoms, and women's pain during intercourse. Multilevel analyses were based on the Actor-Partner Interdependence Model. For women who had higher sexual CSW (compared to lower sexual CSW), on sexual activity days when their sexual distress was higher, they reported lower sexual satisfaction and greater anxiety, depressive symptoms, and pain (compared to their average level across all sexual activity days). Findings suggest that daily sexual distress may be one pathway between greater sexual CSW and poorer day-to-day well-being in women with PVD.

4.2 Introduction

Sexual dysfunctions impact many aspects of an individual's life and are associated with lower self-esteem (Basson, 2005; Desrochers et al., 2008). One prevalent sexual dysfunction in women is genito-pelvic pain/penetration disorder (GPPPD), which is characterized by recurring genital or pelvic pain during intercourse or attempted penetration, significant fear or anxiety about pain or penetration, and/or tensing of the pelvic floor muscles during attempted penetration (American Psychiatric Association, 2013). A common cause of GPPPD is provoked vestibulodynia (PVD), which is genital pain that is triggered when pressure is applied to the vulvar vestibule (the tissue around the vaginal entrance and urethra); thus, the pain is most often experienced during vaginal intercourse (Bornstein et al., 2016; Harlow et al., 2001). The most recent lifetime prevalence estimates suggest that PVD affects 7% to 8% of women in the general population under the age of 40 (Harlow et al., 2014).

Previous research has found that the impact of PVD extends to both members of a couple (Rosen, Rancourt, et al., 2014 for review). Women with PVD and their partners report being less satisfied with, and more distressed about their sexual relationship, and affected women report greater anxiety and depressive symptoms than women unaffected by PVD (for review, see Bergeron et al., 2015). Some studies have found that partners of women with PVD experience more depressive symptoms, while other studies do not support these findings (Nylanderlundqvist & Bergdahl, 2003; Pazmany et al., 2014; Smith & Pukall, 2014). The cause of PVD is thought to be multifactorial and psychological factors (namely anxiety and depression) have been identified as potential contributors to both the etiology and maintenance of PVD (Pukall et al., 2016). Relationship factors, such as partner responses to the pain, attributions for the pain, and

sexual communication, among others, are associated with women's pain and couples' adjustment to PVD (Jodoin et al., 2008; Rancourt et al., 2016; Rosen et al., 2012; Rosen et al., 2016). In uncontrolled quantitative and qualitative cross-sectional studies, women with PVD reported low self-esteem, and both they and their partners reported a negative impact to their sense of self as a result of the PVD (Ayling & Ussher, 2008; Dalton, Haefner, Reed, Senapati, & Cook, 2002; De Jong, Lumen, Robertson, Stam, & Lammes, 1995; Sadownik et al., 2016). There is limited knowledge of how these experiences of low self-esteem relate to couples' sexual and psychological functioning. One novel variable that may influence the pain and couples' well-being is sexual contingent self-worth (sexual CSW).

4.2.1 Sexual CSW in Couples Coping with PVD

Sexual CSW refers to self-esteem that is dependent on the perceived success or failure of a sexual relationship (Study 1, Chapter 2). The theoretical model of CSW states that basing one's self-worth on a particular area in their life affects a person's functioning based on the individual's perception of success or failure in the contingent domain (Crocker & Wolfe, 2001). Thus, when an individual believes that events in the contingent domain are going well, they experience better psychological and physical well-being. However, when an individual evaluates events in the contingent domain as negative, this is linked to their poorer well-being, such as greater depressive symptoms and interpersonal difficulties in their relationships (Crocker & Park, 2004; Crocker & Wolfe, 2001; Park & Crocker, 2005). In support of this theory, greater CSW in a particular domain (e.g., appearance CSW and friendship CSW) has been linked to relevant negative consequences, such as a greater release of stress hormones, excessive alcohol use,

disordered eating, and more depressive symptoms (Cambron & Acitelli, 2010; Crocker, 2002a; Crocker & Park, 2004; Park & Crocker, 2005; Sanchez et al., 2011).

Sexual CSW may be particularly relevant for couples affected by PVD because qualitative studies have found that both affected women and their partners report feelings of failure in the sexual relationship (Ayling & Ussher, 2008; Sadownik et al., 2016). Only one prior study to our knowledge has examined sexual CSW in couples coping with PVD. The researchers found that when women with PVD had greater sexual CSW, they experienced more sexual distress and greater pain intensity during intercourse. Similarly, when their partners had greater sexual CSW, partners reported lower sexual satisfaction and greater sexual distress, and women with PVD experienced greater depressive symptoms (Study 2, Chapter 3). Thus, findings indicated that greater sexual CSW was linked to couples' poorer psychological and sexual well-being. The authors suggested that increased worry about problems in the sexual relationship might have explained these associations; however, they did not test this hypothesis. Examining the mediating role of sexual distress is important because it may clarify a pathway that links sexual CSW to adverse outcomes in this population, which could inform treatments to improve the well-being of couples with PVD.

4.2.2 The Mediating Role of Sexual Distress

According to the theoretical model of CSW, when individuals have greater CSW they work so hard to validate their sense of self-worth, that any perceived rejection or failure results in substantial stress for the individual in the contingent domain (Crocker & Park, 2004). In turn, this increased distress negatively impacts their health and well-being because individuals are more likely to emphasize negative aspects of the contingent domain, and use more maladaptive coping strategies when they are distressed (Crocker,

2002b; Crocker & Park, 2004; Lawrence & Williams, 2013; Park & Crocker, 2005; Tomaka et al., 2012). For example, a study of individuals who recently experienced a romantic breakup found that when individuals had greater relationship CSW, they were more likely to experience emotional distress and, in turn, engage in more stalking behaviours toward their ex-partners (Park et al., 2011). Similarly, when people perceived failure in their romantic relationship, those with greater relationship CSW experienced more negative emotions, which subsequently was associated with decreased self-esteem (Knee et al., 2008).

In line with CSW theory (Crocker & Wolfe, 2001), poorer well-being might occur because of the sexual distress (i.e., feelings of worry and frustration about the sexual relationship) that couples coping with PVD experience as a result of feeling that they have failed in the contingent domain on days of sexual activity (Ayling & Ussher, 2008; Donaldson & Meana, 2011; Sadownik et al., 2016). Thus, individuals with greater sexual CSW are likely to perceive PVD as a failure in the contingent domain (i.e., the sexual relationship), and experience more distress about the sexual relationship, and in turn, this distress may be linked to greater daily depressive symptoms, anxiety, and lower sexual satisfaction for both members of the couple, as well as greater pain during intercourse for the woman with PVD.

The individual links between the specific components of the proposed mediational model in the current study (i.e., sexual CSW, sexual distress, psychological and sexual well-being, pain) have been examined in previous studies of couples coping with PVD. In women with PVD, greater sexual distress has been linked to greater depressive symptoms, anxiety, pain, and lower sexual satisfaction (Pazmany et al., 2013). In the cross-sectional study of sexual CSW in couples coping with PVD, women's greater

sexual CSW was associated with their own greater sexual distress, and women's and partners' greater sexual distress was correlated with their own greater depressive symptoms and their own and their partners' lower sexual satisfaction (Study 2, Chapter 3). The previously-established associations between sexual CSW, sexual distress, and the well-being of couples coping with PVD, together with the theoretical model of CSW, suggests that greater sexual CSW in couples affected by PVD may be linked to poorer psychological and sexual well-being via enhanced sexual distress.

Further, the sexual relationship is an interpersonal experience and one partner's levels of sexual CSW and sexual distress could be associated with the other person's outcomes. Indeed, several studies of couples coping with PVD have documented this pattern (e.g., Rancourt et al., 2016; Rosen et al., 2016). When an individual has greater sexual CSW, their daily sexual distress could lead them to respond to their partner in a manner that impacts their partner's psychological well-being and sexual satisfaction (e.g., be more hostile toward the partner or avoidant of sexual activity). Greater sexual CSW in the partners of women with PVD was linked to women's greater depressive symptoms and lower relationship satisfaction (Study 2, Chapter 3). It is important to note that this study used single-occasion measures and a cross-sectional design, which did not capture day-to-day variations in couples' well-being.

Daily diary measures are important to examine daily variability in how couples coping with PVD adjust to the pain, and closer in time to their actual sexual experiences. Indeed, the sexual relationship is dynamic and could be impacted by relational and psychological factors that vary on a daily basis or across sexual interactions (Davison et al., 2008; Rosen, Bergeron, et al., 2014). Research supports that pain intensity, sexual satisfaction and distress, anxiety, and depressive symptoms vary daily in those struggling

with PVD (Muise et al., 2018; Rosen, Bergeron, et al., 2015; Rosen, Bergeron, et al., 2014; Rosen, Muise, Bergeron, Delisle, et al., 2015). Although indices of pain and adjustment in PVD show daily variability, CSW is generally considered to be a trait (Crocker, Luhtanen, et al., 2003; Knee et al., 2008) and sexual CSW, specifically, has been found to remain relatively stable over a two-week timeframe (Study 1, Chapter 2). There is evidence that trait domains of CSW are associated with daily outcomes (e.g., depressive symptoms, emotional distress) because the actual perceived failures and successes in a contingent domain vary day-to-day (Crocker, Karpinski, Quinn, & Chase, 2003; Pachankis & Hatzenbuehler, 2013). Thus, in the case of PVD, individuals are likely to have a relatively stable level of sexual CSW, but how it relates to women's pain and couples' well-being may vary across days and sexual interactions due to the specific thoughts, feelings, and behaviours of the day. Evaluating the associations between sexual CSW and the daily well-being of couples coping with PVD could provide insight into whether basing self-worth on the sexual relationship is linked to how couples manage the daily issues that arise due to PVD.

4.2.3 Objective and Hypotheses

The objective of the current study was to examine whether greater sexual distress on days that couples engaged in sexual activity mediated the associations between greater sexual CSW (at baseline) and daily sexual satisfaction, depressive symptoms, anxiety, and pain (for women) in couples with PVD. We expected that when individuals had greater sexual CSW (compared to lower sexual CSW), they and their partners would report greater sexual distress on sexual activity days, which in turn would be associated with their own and their partner's daily lower sexual satisfaction and greater anxiety and depressive symptoms, and women's greater pain during intercourse. Figure 4.1 depicts a

theoretical figure of the proposed meditational model. Since sexual CSW is closely related to relationship CSW (basing self-esteem on the overall romantic relationship), we controlled for relationship CSW in all of our analyses to ensure that the observed effects of sexual CSW went above and beyond any effects of relationship CSW (Study 1, Chapter 2; Study 2, Chapter 3). Further, a subset of the sample also completed measures of other domains of CSW to further confirm the unique impact of sexual CSW.

4.3 Method

4.3.1 Participants

Participants were recruited in two Canadian cities (Halifax and Montréal) via print and online advertisements, referrals from local health professionals, and by contacting couples that participated in past research in our laboratory. Couples were eligible for the study if (1) they were in a committed relationship for three months or more because sexual relationships may differ in casual dating relationships (Regan et al., 2000), (2) had face-to-face contact with each other at least four times per week to ensure opportunities for sexual activity, (3) engaged in sexual activity (i.e., vaginal penetration or oral or manual stimulation of the genitals) at least once per month in the last three months because our primary outcomes were only assessed on sexual activity days, (4) women were 18 to 45 years old to ensure that they were pre-menopausal because pain post-menopause has varied causes (Freedman, 2002; Nappi & Palacios, 2014) and partners were at least 18 years old, (5) women had genital pain on at least 80% of vaginal intercourse attempts, (6) the pain was triggered by pressure applied to the vulvar vestibule, (7) the pain was present for at least six months, and (8) women received a diagnosis of PVD from one of the study gynaecologists. During the gynaecological examination women underwent a cotton-swab test, which consisted of randomized

palpations to the vulvar vestibule at 3, 6, and 9 o'clock. Women had to self-report a minimum average pain rating of 4 on a scale of 0 (*no pain*) to 10 (*worst pain ever*) during the cotton-swab test for a diagnosis of PVD. Couples were not eligible for the study if the woman was diagnosed with dermatological problems or an active vaginal infection during the gynaecological examination since these factors could impact genital pain (although women could defer participation if the infection could be treated), was pregnant or within one year postpartum because genito-pelvic pain is common during these times and could be due to other factors (Glowacka, Rosen, Chorney, Snelgrove−Clarke, & George, 2014), or if she was currently engaged in any treatment that targeted PVD pain since treatment may affect study variables (e.g., pain) over the course of the daily surveys.

One hundred ninety-eight couples from Halifax and 304 from Montréal were recruited and screened for eligibility via telephone by a research assistant. Of these couples, 229 (45.62%) were ineligible due to the following reasons: 91 did not meet pain criteria during screening, 16 did not meet diagnostic criteria for PVD during the gynecological examination, 15 were currently pursuing treatment for PVD, 68 did not meet the relationship eligibility criteria, seven couples were not sexually active in the past three months, and 32 for other reasons (e.g., did not meet age criteria, woman was pregnant). Of the couples who were deemed initially eligible at screening, 146 decided that they were no longer interested in participating in the study or did not respond to subsequent contacts from the research team; thus, it was impossible to know if they would have been eligible following the gynaecological examination. This rate of attrition is consistent with other studies of couples coping with PVD and with the generally avoidant pattern of this population (Bergeron et al., 2015; Bois et al., 2016; Marriott &

Thompson, 2008; Pazmany, Bergeron, Verhaeghe, Oudenhove, & Enzlin, 2015; Rancourt et al., 2016). Two couples were removed from the dataset after completing the study because they did not engage in sexual activity over the course of diary participation. The final sample size was 125 couples (40 from Halifax and 85 from Montréal; 250 individuals in total).

4.3.2 Measures

Baseline measures

4.3.2.1 Sociodemographics. Participants reported their age, gender, and country of origin. Women indicated how long they had experienced genital pain, as well as the couple's relationship status and length. Sexual frequency was calculated by summing the occurrences of sexual activity that the couples engaged in over the course of the eight weeks that they participated in the study (as reported by women with PVD).

4.3.2.2 Sexual contingent self-worth. The Sexual Contingent Self-Worth Scale (Study 1, Chapter 2) was used to measure the extent to which individuals base their self-worth on the perceived success or failure of the sexual relationship. The scale consists of eight items rated on a five-point Likert-type scale ranging from 1 (*Not at all like me*) to 5 (*Very much like me*) and includes items such as "I feel better about myself when it seems like my partner and I are getting along sexually". The potential range of scores is 8 to 40 and higher scores indicate greater sexual CSW. The scale has good internal consistency, test-retest reliability, and convergent, discriminant, incremental, and known-groups validity (Study 1, Chapter 2). Cronbach's alphas for the current sample were 0.87 and 0.82 for women and partners, respectively.

4.3.2.3 Relationship contingent self-worth. The extent to which self-worth is based on events in the individual's overall romantic relationship was measured using the

Relationship Contingent Self-Esteem Scale (Knee et al., 2008). On a five-point Likert-type scale ranging from 1 (*Not at all like me*) to 5 (*Very much like me*) participants rated 11 items, such as "An important measure of my self-worth is how successful my relationship is". The range of possible scores is 11 to 55 and higher scores indicate greater relationship CSW. The scale has been shown to have good internal consistency and convergent, discriminant, incremental, and predictive validity (Knee et al., 2008). In the current sample, Cronbach's alphas were 0.87 for women and 0.87 for partners.

4.3.2.4 Other Domains of Contingent Self-Worth. A subset of the sample (69 out of 125 couples) completed the Contingent Self-Worth Scale (Crocker, Luhtanen, et al., 2003) during baseline. This 35-item scale measures seven domains of CSW: family support (gaining love and support from one's family), competition (performing better than others in competition), appearance (feeling physically attractive), god's love (perception of having god's love), academic competence (performing well in academics), virtue (following one's own morals), and approval from others (perceived acceptance from others). Items are rated from 1 (*strongly disagree*) to 7 (*strongly agree*) and higher scores on a particular subscale indicate greater CSW in that domain. Previous research has found good test-retest reliability, internal consistency, and construct validity for each of the subscales (Crocker, Luhtanen, et al., 2003). For the current sample, the Cronbach's alpha for each of the subscales ranged from 0.85 to 0.97.

Daily measures

4.3.2.4 Sexual distress. Three items from the Female Sexual Distress Scale – Revised (FSDS-R; DeRogatis et al., 2008) were used as a measure of daily sexual distress. To reduce participant burden, as is common in diary studies (Iida, Shrout, Laurenceau, & Bolger, 2012; Laurenceau & Bolger, 2005), three items from the original

13-item measure were selected based on high face validity and high factor loadings on a single factor in the original measure. Participants rated how often they felt distressed about their sex lives, inferior because of sexual problems, and worried about sex since they last completed a daily survey on a scale from 0 (*Never*) to 4 (*Always*). The potential range of scores was 0 to 12 with higher scores indicating greater sexual distress. The FSDS-R has good test-retest reliability, internal consistency, and discriminant validity (DeRogatis et al., 2008). Despite being developed and originally validated with women, a recent study of men both with and without sexual dysfunctions examined the psychometric properties of the scale and found support for the factor structure, test-retest reliability, and content, construct, and criterion validity for this measure (Santos-Iglesias et al., 2018). Cronbach's alphas in the current sample were 0.89 for women and 0.87 for partners.

4.3.2.5 Sexual satisfaction. The Global Measure of Sexual Satisfaction (GMSEX; Lawrance & Byers, 1995) was used to measure participants' overall evaluation of the positive and negative aspects of their sexual relationship, adapted previously for the daily context (i.e., in reference to the time since they completed their last daily survey; Rosen, Muise, Bergeron, Delisle, et al., 2015). The scale consists of five items rated on a scale from 1 to 7 and scores range from 5 to 35. Each item consists of a bipolar scale on which the participants rate the quality of their sexual relationship (e.g., *Valuable* vs. *Worthless*). Higher scores indicate a greater level of sexual satisfaction. The GMSEX has excellent test-retest reliability, internal consistency, and construct validity (Byers & MacNeil, 2006; Fisher, Davis, & Yarber, 2010). For the current sample, Cronbach's alphas were 0.94 and 0.95 for women and partners, respectively.

4.3.2.6 Anxiety and depressive symptoms. Anxiety and depressive symptoms were measured using items from the anxiety and depression subscales of the Short Form of the Profile of Mood States (POMS-SF; Shacham, 1983). Four items were selected from each of the subscales based on face validity to reduce participant burden (Iida et al., 2012; Laurenceau & Bolger, 2005). These same items were used in two previous daily experience studies of couples coping with PVD (Rosen, Bergeron, et al., 2015; Rosen, Bergeron, et al., 2014). On the anxiety subscale, participants rated four items in reference to the extent to which they felt on edge, uneasy, anxious, and nervous. For the depression subscale, participants reported the extent to which they felt sad, discouraged, hopeless, and worthless. All of the items are rated on a scale 0 (*Not at all*) to 4 (*Extremely*) and the instructions were previously adapted to be in reference to the time since they completed their last daily survey (Rosen, Bergeron, et al., 2015). Scores range from 0 to 16 on each of the subscales, with higher scores indicating greater anxiety or depressive symptoms. The POMS-SF is widely used and has shown good internal consistency, face validity, and construct validity (S. L. Curran, Andrykowski, & Studts, 1995; Shacham, 1983). In the current sample, the reliability for the anxiety subscale was 0.83 for women and 0.86 for partners, and 0.84 for women and 0.87 for partners for the depressive symptoms subscale.

4.3.2.7 Women's pain intensity. Women rated the average intensity of their genital pain during intercourse on a visual analogue scale ranging from 0 (*No pain*) to 10 (*Worst pain ever*). This type of scale is recommended for the assessment of pain intensity (Hjermstad et al., 2011) and this particular scale is commonly used and recommended as a measure of genital pain intensity in women with PVD (Pukall, Bergeron, Brown, Bachmann, & Wesselmann, 2017). There is also evidence that this scale has good convergent validity with other pain measures in PVD (Desrochers et al., 2009).

4.3.3 Procedure

The current study was part of a larger study. Three prior cross-sectional studies have been published (Study 2, Chapter 3; Pâquet et al., 2016; Rosen, Muise, Bergeron, Impett, et al., 2015). One of these studies also used the sexual and relationship CSW measures as in the current study, but only examined associations with concurrent reports of pain and well-being, rather than daily experiences (Study 2, Chapter 3). Further, the mediational role of sexual distress was not tested in the previous study of CSW, which is an important theoretical advancement of the current study. Four diary studies have been published from this sample that did not examine CSW (Muise et al., 2018; Muise et al., 2017; Pâquet et al., 2018; Rosen et al., 2018).

Couples who were interested in participating completed a structured interview with a research assistant over the telephone to determine if they were eligible for the study. If they were eligible, then women met with the study gynaecologist to confirm a PVD diagnosis (if they were not referred directly to the study following a diagnostic gynaecological exam). Eligible couples then met with a research assistant at the laboratory, provided informed consent, and completed a series of online questionnaires, which included sexual and relationship CSW. The research assistant also provided the couples with instructions on how to complete the daily surveys. Participants received the brief daily measures starting the following day and every day for eight consecutive weeks via links to a secure survey site that were emailed to each member of the couple daily at 5:00pm. The daily surveys expired at 2:00am such that participants could no longer access that day's survey. Participants completed measures of anxiety and depressive symptoms every day, whereas they completed the measures of sexual distress and sexual satisfaction only on days that they reported engaging in sexual activity with their partner

(defined as caressing, foreplay, mutual masturbation, or vaginal intercourse), and pain (for women with PVD) only on days that they reported engaging in vaginal intercourse. Couple members were instructed to complete all surveys independently of one another.

To promote diary completion, potential barriers to completing surveys were problem-solved during the laboratory session, couples were provided with a reminder card that they were asked to place in their homes, and a research assistant called couples twice per week, asking to speak to each person at least once a week. The daily surveys were completed at a rate of 83.23% (11,652 surveys of a possible 14,000). Thus, participants on average filled out 47 out of 56 possible daily surveys. Since we utilized dyadic data analyses for this study, we only included days when both members of a couple completed a daily survey. On average, couples engaged in sexual activity 9.28 times over the course of the study (SD = 6.13, Range 1– 32) and 69.29% of these days included vaginal intercourse (M = 6.72, SD = 5.03, Range 0 – 23; nine couples did not engage in vaginal intercourse).

Compensation was $20 for attending the laboratory session, $20 for women attending the gynaecologist appointment, and compensation for the daily surveys was prorated based on how many surveys couples completed, with a maximum of $96 (i.e., $12 per week) each for completing at least 85% of their diaries. Couples also received resources about PVD and references to local health professionals who specialize in PVD after they completed the study. Our institutions' ethical review boards approved the study procedure.

4.3.4 Data Analyses

Data were analyzed using SPSS 20.0. Bivariate correlations were used to examine the associations between the sociodemographic characteristics of participants and the

study measures (as aggregates across all days). Multilevel modeling based on the Actor–Partner Interdependence Model (APIM) was used for the subsequent analyses. This approach accounted for the fact that data from romantic partners are not independent of each other (Kenny et al., 2006). Further, to account for both members of a couple completing the surveys on the same day, each APIM model utilized a two-level cross model with random intercepts where persons are nested within dyads, and person and days are crossed. Each dependent variable was analyzed in a separate APIM model, but all models included both sexual and relationship CSW. APIM models with anxiety or depressive symptoms as the dependent variable consisted of data from all diary days, the model with sexual satisfaction as the dependent variable only included days when couples engaged in sexual activity, and the model with women's pain intensity as the dependent variable only included days when couples reported engaging in vaginal intercourse. Since there were nine couples that did not engage in vaginal intercourse, they were not included in the pain analyses.

First, we examined the associations between an individual's level of sexual CSW at baseline and their own (i.e., actor effects) and their partner's (i.e., partner effects) daily sexual satisfaction, anxiety, depressive symptoms, and pain (for women), while controlling for the individual's and partner's level of relationship CSW at baseline. The coefficients are unstandardized betas, which are interpreted as the effect size. These coefficients represent the change in the outcome variable for every one-unit increase in sexual or relationship CSW.

Second, we examined sexual distress as a mediator of the associations between sexual CSW and couples' psychological and sexual well-being and women's pain using methods that were developed for the analysis of multilevel data (Zhang, Zyphur, &

Preacher, 2009). We controlled for level of relationship CSW in these analyses. To examine the significance of the indirect effects, we used the Monte Carlo Method for Assessing Mediation with 20,000 resamples and 95% confidence intervals (Selig & Preacher, 2008). If the confidence interval did not cross zero, then this was indicative of significant mediation. Since sexual distress was a daily-level predictor, it was person mean-centered (i.e., to reflect deviations from a person's own mean score) to avoid confounding within- and between-person effects. This technique accounts for between-person differences in sexual CSW while assessing whether day-to-day changes from a person's own mean level of sexual distress were associated with daily changes in that person's and/or their partner's outcome. Given that sexual distress was only assessed when sexual activity occurred, the mediation analyses only included sexual activity days for all outcomes.

Results of an independent sample t-test showed that partners from Montréal (M = 29.27, SD = 5.46) reported greater sexual CSW than partners from Halifax (M = 28.65, SD = 4.86; t = 4.42, df = 6476, $p < .001$, 95% CI = .34 to .89), although no such differences were found for women. As such, we conducted a separate set of analyses controlling for study site, and we report any changes to the pattern of results.

4.4 Results

4.4.1 Exploratory Factor analysis

We conducted an exploratory factor analysis of the Sexual CSW Scale since it had not been previously used in a sample of couples coping with PVD. Using a principle axis factor analysis with an oblique rotation, we replicated the factor structure reported in the development of the Sexual CSW Scale and which supported the use of a total score (Study 1, Chapter 2). More specifically, when data for everyone in the sample (women

with PVD and their partners) was entered together in the EFA, the two-factor structure found in Study 1 was confirmed and the subscales were correlated with each other (r = 0.53, $p < 0.001$ for women with PVD; $r = 0.49$, $p < 0.001$ for partners), which supported the use of a total score. The same pattern emerged when we conducted the EFA for women with PVD only. For partners only, the factor structure of the Sexual CSW Scale was consistent with the exception of one item, which did not load onto the negative sexual events subscale as expected (factor loading = 0.20), although it still correlated with this subscale. Further, a test of coefficients of congruence showed that the factor loadings for women's and partners' positive sexual events ($r = 0.99$, $p < .01$) and negative sexual events subscale scores ($r = 0.90$, $p < .05$) were significantly correlated with each other.

4.4.2 Participant Characteristics and Correlations

Table 4.1 reports the descriptive statistics of the sample and participants' mean and standard deviations for all study measures. The aggregate correlations between all study variables are provided in Table 4.2. Age, relationship duration, sexual frequency, and pain duration were not significantly correlated with the study outcomes above r = 0.30, thus we did not report them in tables, control for them as covariates, or consider them in further analyses (Frigon & Laurencelle, 1993).

4.4.3 Associations Between Sexual and Relationship CSW, Women's Pain and Couples' Well-being

The results for each outcome are reported in Table 4.3. For both women and partners, there were no significant direct associations between sexual and relationship CSW and sexual satisfaction, depressive symptoms, or women's pain intensity. When women had greater relationship CSW (compared to women with lower relationship

CSW), they reported greater daily anxiety compared to their average level of anxiety across all days. When partners had greater relationship CSW, women reported lower daily anxiety. In contrast, partners' greater sexual CSW was associated with women's greater daily anxiety. Women's sexual CSW was not associated with their own or their partners' anxiety. When we controlled for study site, one effect became only marginally significant; women's greater relationship CSW was no longer associated with their own greater anxiety ($b = 0.05$, $SE = 0.03$, $t(124.13) = 1.94$, $p = .06$).

4.4.4 Mediating role of sexual distress

Only women's greater sexual CSW was significantly associated with their own greater sexual distress (see Table 4.4). As such, only women's sexual distress was examined as a mediator between women's sexual CSW and their own outcomes (see Table 4.5). We continued to control for relationship CSW. There was a significant indirect effect of women's greater sexual CSW on their own lower daily sexual satisfaction (indirect effect: 95% CI = [.01, .04]) and higher daily depressive symptoms (indirect effect: 95% CI = [.01, .05]), anxiety (indirect effect: 95% CI = [.01, .04]), and pain intensity during intercourse (indirect effect: 95% CI = [.01, .06]) through women's daily sexual distress. Thus, for women who had higher sexual CSW at baseline (compared to women with lower sexual CSW), on sexual activity days when their sexual distress was higher, they in turn reported lower sexual satisfaction and greater anxiety, depressive symptoms, and pain during intercourse (compared to their average levels across all sexual activity days). All effects remained significant when we controlled for study site.

A subset of the sample in Study 3 (69 out of 125 couples) completed the Contingent Self-Worth Scale (Crocker, Luhtanen, et al., 2003). When each of these

subscales was controlled for in the meditation analyses, the majority of the results remained significant with two exceptions: the meditational model for sexual satisfaction was no longer significant when controlling for god's love CSW (indirect effect: 95% CI = [-.19, .01]), whereas the model for anxiety was no longer significant when virtue CSW (indirect effect: 95% CI = [-.01, .05]) or others' approval CSW (indirect effect: 95% CI = [-.01, .05]) were controlled for in the models.

4.5 Discussion

This study aimed to examine daily sexual distress as a mediator of the associations between sexual CSW (at baseline) and daily sexual satisfaction, depressive symptoms, anxiety and women's pain intensity in couples coping with PVD. Results indicated that, on days that women engaged in sexual activity, women who had greater sexual CSW were more likely to report greater sexual distress compared to women with lower sexual CSW. In turn, on sexual activity days when their distress about the sexual relationship was higher (compared to their average level across all sexual activity days), women were less satisfied with their sexual relationship, experienced greater anxiety and depressive symptoms, and indicated a greater intensity of pain when they engaged in vaginal intercourse. These results contribute to the CSW and PVD literatures by identifying a pathway by which greater sexual CSW is linked to poorer psychological and sexual well-being on days that women with PVD engage in sexual activity. The findings are also consistent with the theoretical model of CSW, which states that perceived failures in a contingent domain result in an individual experiencing increased stress and, subsequently, poorer well-being (Crocker, 2002b; Crocker & Park, 2004; Lawrence & Williams, 2013; Park & Crocker, 2005; Tomaka et al., 2012). Domains of CSW that rely on validation from others (e.g., romantic partners), are thought to be particularly

associated with poorer outcomes as a result of the emotional stress that individuals feel when they perceive rejection (Crocker, 2002).

In line with our hypotheses, for those women who relied more heavily on their sexual relationship to validate their sense of self-worth, on days when they engaged in sexual activity and reported greater sexual distress, they in turn also reported lower sexual satisfaction. These findings are consistent with results in the single-occasion, cross-sectional study of couples affected by PVD, which found that women's greater sexual CSW was associated with their own greater sexual distress, and lower sexual satisfaction (Study 2, Chapter 3). Problems or "costs" in the sexual relationship (e.g., pain or other negative aspects of the sexual encounter) might become more salient when women have greater sexual CSW. Indeed, in a community sample of men and women, sexual CSW was linked to being hyperaware of one's own sexual thoughts, feelings, and behaviours (Study 2, Chapter 3). Cognitive distraction about sexual performance and bodily appearance during sexual activity has been associated with lower sexual satisfaction in women (Dove & Wiederman, 2000). Further, the Interpersonal Exchange Model of Sexual Satisfaction (IEMSS) suggests that an individual's sexual satisfaction depends on their evaluation of sexual rewards (pleasurable experiences) and costs (experiences that demand physical or mental effort or cause pain, anxiety, or embarrassment), as well as how the sexual relationship fits with their expectations (Lawrance & Byers, 1995). Women with PVD who base their self-worth on their sexual relationship and view that relationship as failing, may be more likely to experience heightened sexual distress and in turn evaluate the sexual costs (e.g., pain) as outweighing the sexual rewards and judge their sexual relationship as below their expectations. In research with other types of CSW, those who are higher in CSW are

more sensitive to perceiving failures in the contingent domain, and perceived successes in the domain are usually short-lived, while disappointments are longstanding (Crocker, 2002b; Crocker & Park, 2004). Thus, for women higher in sexual CSW, they might be more sexually distressed and subsequently sexual costs may overshadow potential sexual rewards on days that they engage in sexual activity, resulting in less sexual satisfaction.

Our results also showed that there was a significant indirect effect of greater sexual CSW on women's pain through greater sexual distress: when women with PVD had greater sexual CSW, they reported greater sexual distress on sexual activity days and in turn, more pain when they engaged in vaginal intercourse. These findings are consistent with the biopsychosocial model of pain and PVD, which implicates psychological factors as one of the mechanisms that contribute to the maintenance of pain (Bergeron et al., 2015; Lumley et al., 2011). Recommendations for pain management have emphasized the importance of addressing both physical and psychological factors when treating pain conditions (Simonelli et al., 2010). Moreover, there is evidence that central sensitization plays a role in the experience of pain in women with PVD (Basson, 2012). That is, when women are faced with pain repeatedly, they may become increasingly sensitized to pain perceptions. Such changes within the central nervous system can be triggered by unpleasant emotions, such as sexual distress, as they occur in similar areas of the brain (Basson, 2012; Lumley et al., 2011). Further, chronic stressors could contribute to a change from processing pain in sensory areas of the brain to those areas of the brain that are associated with emotion (Basson, 2012). Thus, on days of greater sexual distress, women with PVD may experience more intense pain during intercourse because the distress activates the brain regions involved in pain processing.

Consistent with our expectations, we found that when women with greater sexual CSW experienced more sexual distress on days that they engaged in sexual activity, they were in turn, more anxious and depressed, in general on that day. In a previous cross-sectional study, distress about the sexual relationship was linked to greater anxiety and depressive symptoms in women with PVD (Pazmany et al., 2013). This finding is also consistent with the general CSW literature which has shown that perceived failure in a contingent domain is linked to stress about not performing well in that domain and generalizes to increased anxiety and stress overall (Crocker, 2002a; Crocker & Park, 2004; Crocker & Wolfe, 2001; Park & Crocker, 2005). People with greater CSW are also more vulnerable to depression since their self-esteem is negatively impacted by any perceived failures in the contingent domain (Crocker, 2002b). For women who have greater sexual CSW, they may be even more likely to ruminate about failures in the sexual relationship and perceive themselves as an inadequate sexual partner on days that they have greater sexual distress, and in turn experience greater feelings of worthlessness and hopelessness. One study found that individuals with greater friendship CSW ruminated about negative events in their friendship and searched for cues of negative feedback from their friends, which were qualities that maintained their depressive symptoms (Cambron & Acitelli, 2010). Thus, for women with greater sexual CSW, they may experience greater sexual distress on days that they are involved in sexual activity and be more attentive to feedback that confirms their beliefs of failure and inadequacy, which in turn could be associated with them being more anxious overall and experiencing increased depressive symptoms.

A subset of the sample received measures of other domains of CSW. It is possible that an individual who has greater sexual CSW may also have greater CSW in other

domains. This tendency to base their self-worth on many domains in their lives, may act as a buffer from potential negative consequences associated with sexual CSW. In other words, if individuals fail in one domain, such as sexual CSW, they may compensate by basing their self-worth on a different domain to a greater degree. The majority of the results remained significant when each of the CSW domains was controlled for in the test of indirect effects. However, when controlling for god's love CSW, the indirect effect on sexual satisfaction was no longer significant. In addition, the test of indirect effects on anxiety was no longer significant when virtue CSW or others' approval CSW were controlled for in the models. These findings suggest that basing one's self-worth on god's love may buffer against poorer sexual satisfaction when an individual has greater sexual CSW and distress, while greater virtue or others' approval CSW may be protective factors against experiencing anxiety. However, these results need to be replicated before speculating on why these types of self-worth may have this buffering effect.

An unexpected finding in the current study was that greater sexual CSW in partners of women with PVD was not associated with their own greater sexual distress on days that they engaged in sexual activity, despite these variables being significantly positively correlated in a prior cross-sectional study of couples with PVD (Study 2, Chapter 3). It is possible that sexual CSW in partners may be associated with general feelings of sexual distress, but that their experiences on days of sexual activity show a different pattern. Women with PVD tend to engage in sexual activity less frequently than women without pain and avoid other affectionate behaviours because of fear that such intimacy will lead to painful intercourse (Bergeron et al., 2015; Marriott & Thompson, 2008). In a qualitative study, partners of women with PVD reported that they mourned the intimacy in their relationship that had decreased due to the interference of PVD to

their sex lives (Sadownik et al., 2016). Considering that partners may be eagerly awaiting sexual activity and the associated feelings of closeness with their partner, they may have greater sexual distress on days without sex, and less sexual distress on days that they do engage in sexual activity. Since the current study only measured sexual distress on days of sexual activity, which is an important limitation, we may not have adequately captured the links between partners' sexual CSW and sexual distress. Future research should examine whether the findings would differ for partners on days where no sexual activity occurred.

We also planned to test whether sexual distress was a mechanism that explained associations between an individual's greater sexual CSW and their partner's poorer well-being. We were unable to examine these models because women's and partners' sexual CSW were not significantly correlated with the other person's sexual distress on days that the couple engaged in sexual activity. In qualitative studies, both women with PVD and their partners have reported concerns that they are inadequate sexual partners and that they are themselves the root cause of problems in their sexual relationship (Ayling & Ussher, 2008; Marriott & Thompson, 2008; Sadownik et al., 2016). At the same time, greater CSW has been associated with a greater tendency to internalize problems (Ghoul, Niwa, & Boxer, 2013). Thus, individuals coping with PVD and greater sexual CSW may be more likely to blame themselves for a less than ideal sexual relationship, which could be linked to their own greater sexual distress, but not their partners' level of distress. Further research is needed to understand why we did not find a link between an individual's sexual CSW and their partners' daily sexual distress.

The current study had important strengths. To our knowledge, it was the first to examine the mechanism that links greater sexual CSW to poorer well-being in couples

coping with PVD, while accounting for the interdependence of couples and controlling any effects of relationship CSW. Further, the daily experience design of this study captured how women who base their self-worth on the sexual relationship to varying degrees experience different consequences of PVD in the natural context of their day-to-day lives. This greater ecological validity of the daily experience design reduces the recall bias associated with self-report measures. There were also some limitations to the current study. Although the effect sizes that we observed were small (Kenny et al., 2006), such effects could have practical implications and may be cumulative, producing large effects over time (Prentice & Miller, 1992). The results are correlational, so we could not determine causality or directionality. However, we interpreted the findings based on the theoretical model of CSW and previous research, which supported the directions of the associations that we reported. To empirically confirm the directionality of the associations, future research should use longitudinal and experimental study designs. Participants in the current study were compensated financially; however, the compensation was for the amount of time participants spent completing surveys and was unlikely to incentivize participation (Singer & Couper, 2008). Another potential concern is that the daily experience design may be burdensome for participants. A final limitation was that our sample consisted of pre-menopausal women and couples who were primarily Canadian and in mixed-gender, committed, and cohabiting relationships. Further, since only two same-gender couples participated in our study, we could not determine whether these relationships differed from the mixed-gender couples that participated. However, we conducted a separate set of analyses where we excluded same-gender couples, and all analyses remained significant. Consistent with guidelines for being more inclusive of diverse populations in research, we decided to include these couples in the study (J. P.

Andersen & Zou, 2015; Egleston, Dunbrack Jr, & Hall, 2010). We did not measure sexual orientation and consequently could not examine how this factor may relate to our results. Thus, our findings may not generalize to other types of couples, such as those in casual or same-gender dating relationships, or women who are post-menopausal or from other countries of origin.

4.5.1 Conclusions

The current study examined sexual distress as an explanatory mechanism of the associations between greater sexual CSW and poorer sexual and psychological well-being on days that couples coping with PVD engaged in sexual activity. Among women with greater sexual CSW, on days that they engaged in sexual activity and experienced greater sexual distress (compared to their average across all sexual activity days), they also reported lower sexual satisfaction and greater anxiety, depressive symptoms, and pain during intercourse. These results suggest that it may be important to target sexual CSW and sexual distress in treatments that are aimed at reducing the pain that women with PVD experience, along with the psychological and sexual consequences that are often associated with PVD. Potential interventions may include challenging or reducing perceptions of inadequacy as a sexual partner (e.g., through cognitive behavioural or acceptance-based methods) in order to enhance sexually satisfying interactions despite pain (Niiya et al., 2004). Treatment may also involve cultivating self-compassion, which entails treating oneself kindly even in the face of perceived failures, to improve how women emotionally cope with PVD and the associated consequences (Albertson, Neff, & Dill-Shackleford, 2015). Indeed, greater self-compassion has been linked to lower sexual distress, anxiety, and depressive symptoms in women with PVD (Santerre-Baillargeon et

al., 2017). Reduced sexual CSW and sexual distress may reduce pain and psychological and sexual impairment in women with PVD.

Table 4.1

Sociodemographic characteristics for the sample (N = 125 couples)

Variable	*M* (range) or *n*	*SD* (or %)
Age (years)		
Women	26.27 (18-45)	6.27
Partners	27.22 (18-55)	7.33
Partners' gender		
Male	123	(98.40)
Female	2	(1.60)
Country of origin		
Women		
Canadian	111	(88.80)
European	7	(5.60)
Other*	7	(5.60)
Partners		
Canadian	105	(84.00)
European	11	(8.80)
Other**	9	(7.20)
Relationship status		
Married	23	(18.40)
Cohabitating	65	(52.00)
Living apart	37	(29.60)
Relationship length (months)	52.55 (4-204)	44.63

Variable	*M* (range) or *n*	*SD* (or %)
Women's pain duration (months)	69.45 (6-264)	65.28
Women's pain intensity	3.80 (0-10)	2.5
Sexual CSW		
Women	30.08 (8-40)	6.06
Partners	29.10 (15-37)	5.27
Relationship CSW		
Women	41.06 (21-55)	7.51
Partners	40.09 (13-55)	7.71
Sexual distress		
Women	4.28 (0-12)	3.24
Partners	2.54 (0-12)	2.52
Sexual satisfaction		
Women	27.09 (5-35)	1.38
Partners	28.72 (5-35)	1.26
Anxiety		
Women	2.65 (0-16)	3.17
Partners	2.08 (0-16)	3.06
Depressive symptoms		
Women	2.01 (0-16)	2.94
Partners	1.49 (0-16)	2.76

Note. *M* = mean of sample; *SD* = standard deviation; % = percentage of sample.

* 2 women with PVD were from Africa, 2 from the Middle East, 1 from the Caribbean, and 2 did not report their country of origin.

** 3 partners were from Africa, 1 from the Middle East, 1 from the Caribbean, 1 from Asia, 1 from Australia, and 2 did not report their country of origin.

Table 4.2

Aggregate correlations between study variables in women (W) with PVD and partners (P)

Scale		SCSW	RCSES		GMSEX		FSDS-R		POMS-SF Anxiety		POMS-SF Depression		Pain VAS
		P	W	P	W	P	W	P	W	P	W	P	W
SCSW	W	**.04****	**.60*****	.01	-.04	.05	**.23*****	.06	**.12*****	**.13*****	**.10*****	**.13*****	**.14*****
	P	—	.02	**.67*****	**-.10****	-.01	.04	**.11*****	**.10*****	-.01	**.03***	**-.07*****	.06
RCSES	W	—	—	**.03***	.01	-.03	**.21*****	.02	**.15*****	**.12*****	**.11*****	**.09*****	.05
	P	—	—	—	**-.10****	.04	.02	**.13*****	-.01	**-.06*****	-.02	**.12*****	.06
GMSEX	W	—	—	—	—	**.30*****	**-.33*****	**-.15*****	**-.18*****	**-.09***	**-.21*****	**-.16*****	**-.26*****
	P	—	—	—	—	—	**-.13*****	**-.16*****	-.05	-.04	-.06	**-.07***	**-.14*****
FSDS-R	W	—	—	—	—	—	—	**.17*****	**.12*****	**.10****	**.21*****	**.14*****	**.31*****

Scale		SCSW	RCSES		GMSEX		FSDS-R		POMS-SF Anxiety		POMS-SF Depression		Pain VAS
		P	W	P	W	P	W	P	W	P	W	P	W
FSDS-R	P	—	—	—	—	—	—	—	.06	**.14*** **	**.08***	**.21*** **	.05
POMS	W	—	—	—	—	—	—	—	—	**.10*** **	**.55*** **	**.11*** **	.06
Anxiety	P	—	—	—	—	—	—	—	—	—	**.08*** **	**.56*** **	-.01
POMS	W	—	—	—	—	—	—	—	—	—	—	**.16*** **	**.09***
Depression	P	—	—	—	—	—	—	—	—	—	—	—	.01

Note. W = women with PVD; *P* = partners. Bolded values represent significant between-partner correlations. Bivariate correlations in the ranges of .10, .30, and .50 indicate small, medium, and large effects sizes, respectively.

SCSW Sexual Contingent Self-Worth, *RCSES* Relationship Contingent Self-Esteem Scale, *GMSEX* Global Measure of Sexual Satisfaction, *FSDS-R* Female Sexual Distress Scale – Revised, *POMS-SF Anxiety* Short Form of the Profile of Mood States Anxiety

subscale, *POMS-SF Depression* Short Form of the Profile of Mood States Depression subscale, *Pain VAS* Genital Pain Intensity Visual Analogue Scale.

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

Table 4.3

Associations between Sexual and Relationship Contingent Self-Worth and Daily Sexual Satisfaction, Anxiety, Depressive Symptoms, and Pain

	Sexual Contingent Self-Worth			*Relationship Contingent Self-Worth*		
	b	*SE*	*t*	*b*	*SE*	*t*
Model 1: Daily Sexual Satisfaction						
Actor Effects						
Women	-.02	.02	-1.29	.01	.01	.99
Partners	-.02	.02	-.94	.02	.01	1.19
Partner Effects						
Women	-.02	.02	-1.13	-.002	.01	-.17
Partners	.01	.02	.71	-.005	.01	-.39
Model 2: Daily Anxiety						
Actor Effects						
Women	.01	.03	.25	**.05**	**.03**	**2.02***
Partners	.02	.04	.40	-.03	.03	-1.16
Partner Effects						
Women	**.10**	**.04**	**2.57****	**-.06**	**.03**	**-2.10***
Partners	.03	.03	.80	.03	.03	1.20
Model 3: Daily Depressive Symptoms						
Actor Effects						
Women	.02	.03	.59	.04	.03	1.42
Partners	.004	.04	.11	-.04	.03	-1.67

	Sexual Contingent Self-Worth			*Relationship Contingent Self-Worth*		
	b	*SE*	*t*	*b*	*SE*	*t*
Model 3: Daily Depressive Symptoms						
Partner Effects						
Women	.04	.04	1.14	-.03	.03	-1.31
Partners	.04	.03	1.39	.01	.03	.43
Model 4: Daily Women's Pain						
Actor Effects						
Women	.05	.04	1.31	-.01	.03	-.17
Partner Effects						
Women	.03	.05	.80	-.01	.03	-.26

Note. Actor effects refer to the association between women's or partners' baseline sexual/relationship CSW and their own daily outcomes, whereas partner effects refer to the association between women's or partners' baseline sexual/relationship CSW and their partners' daily outcomes. Significant effects are bolded; *b* values are unstandardized coefficients. Degrees of values ranged from 121.37 to 146.44.

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

Table 4.4

Associations between Sexual and Relationship Contingent Self-Worth and Daily Sexual Distress

Daily Sexual Distress	*Sexual Contingent Self-Worth*			*Relationship Contingent Self-Worth*		
	b	*SE*	*t*	*b*	*SE*	*t*
Actor Effects						
Women	**.12**	**.04**	**2.91****	.02	.03	.53
Partners	.001	.05	.003	.01	.03	.41
Partner Effects						
Women	.03	.05	.56	-.05	.04	-1.40
Partners	.06	.04	1.43	-.03	.03	-1.02

Note. Actor effects refer to the association between women's or partners' baseline sexual/relationship CSW and their own daily sexual distress, whereas partner effects refer to the association between women's or partners' baseline sexual/relationship CSW and their partners' daily sexual distress. Significant effects are bolded; *b* values are unstandardized coefficients. Degrees of values ranged from 114.54 to 154.61.

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

Table 4.5

Indirect Effect of Women's Sexual Contingent Self-Worth on Women's Daily Sexual Satisfaction, Anxiety, Depressive Symptoms, and Pain

	ab	*95% CI*
Women's Daily Sexual Satisfaction	-.02	.01, .04
Women's Daily Anxiety	.02	.01, .04
Women's Daily Depressive Symptoms	.03	.01, .05
Women's Daily Pain	.03	.01, .06

Note. ab = indirect effect, 95% CI = 95% confidence intervals

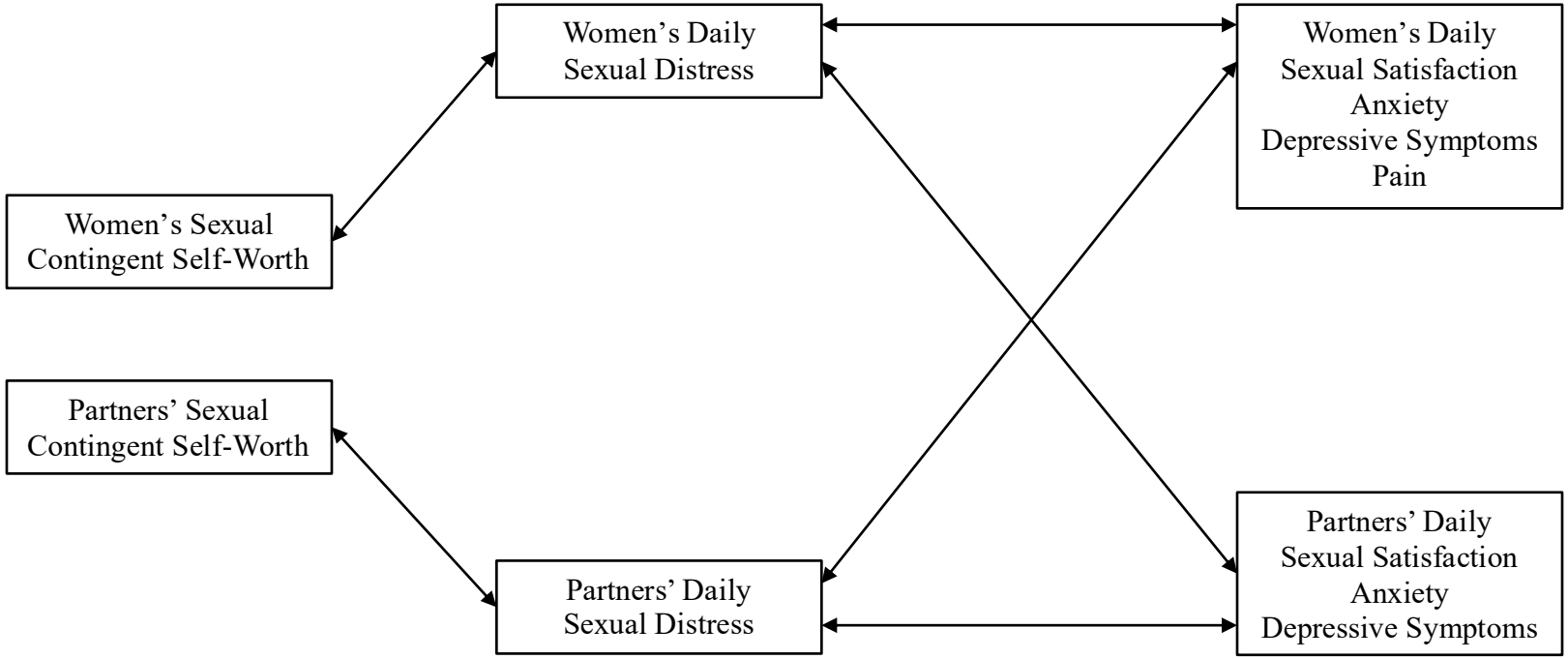

Figure 4.1. Theoretical figure of proposed mediational model.

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CHAPTER 5: DISCUSSION

The overarching goals of this dissertation included developing a measure of sexual contingent self-worth (CSW) and validating it in a community sample, and then examining the associations between sexual CSW and pain, psychological, and sexual well-being in couples coping with provoked vestibulodynia (PVD).

Study 1 utilized two separate community samples to examine the validity and reliability of a novel measure of sexual CSW. I adapted the Sexual CSW Scale from a standardized measure of relationship CSW. In the first community sample (Study 1a), I conducted exploratory factor analysis (EFA) and found that, after removing one item, the Sexual CSW Scale was composed of two factors – the positive sexual event subscale (self-worth based on positive events occurring in the sexual relationship) and the negative sexual events subscale (self-worth focused on the occurrence of negative events in the sexual relationship). I also found support for the use of a total score combining the two subscales (moderate correlation between subscales, high correlations between subscales and total score, and results of a second-order exploratory factor analysis). I conducted confirmatory factor analysis with the second community sample (Study 1b) and found evidence for the factor structure identified with the EFA, after removing one item from each of the subscales. The Sexual CSW Scale had good test-retest reliability over a period of two weeks and the subscales had excellent internal consistency. The findings indicated good convergent validity (i.e., sexual CSW was associated with related constructs) and discriminant validity (i.e., sexual CSW was not linked to unrelated constructs) of the resultant 8-item scale. Sexual CSW was associated with related outcomes over-and-above relationship CSW (incremental validity), which suggests that

these are two distinct constructs. Individuals who reported sexual problems had greater sexual CSW than those without sexual problems, providing support for known-groups validity. Next, I was interested in understanding what greater sexual CSW meant for the well-being of individuals with sexual problems and, more specifically, PVD. Since there were no differences between the subscales of the Sexual CSW Scale on their associations to related outcomes and it remained unclear whether the two-factor solution was a result of the positive and negative valence of the items, analyses in my subsequent studies utilized the total score of the measure.

Studies 2 and 3 examined sexual CSW in couples that were in committed, sexually active relationships and a woman in the couple had a diagnosis of PVD. The objective of Study 2 was to assess the cross-sectional associations between sexual CSW, relationship CSW, and the psychological, relational, and sexual well-being of couples. Results showed that women's greater sexual CSW was associated with their own greater sexual distress and pain intensity during intercourse. When the partners of women with PVD had greater sexual CSW, they had lower sexual and relationship satisfaction and greater sexual distress and women reported lower relationship satisfaction and greater depressive symptoms. In contrast, partners' greater relationship CSW was associated with their greater sexual satisfaction and their own and women's greater relationship satisfaction and fewer depressive symptoms. An unexpected finding was that women's greater relationship CSW was linked to their own *greater* depressive symptoms. Therefore, with the exception of this last finding, the results indicated that greater sexual CSW was associated with poorer psychological, relational, and sexual well-being in couples coping with PVD and with women's greater pain, whereas partners' greater

relationship CSW was linked to couples' better well-being. Next, I was curious *why* greater sexual CSW was associated with poorer well-being in these couples and this question lead me to my final study.

Study 3 aimed to examine whether daily sexual distress was a potential pathway that explained the links between greater sexual CSW and poorer daily psychological and sexual well-being and women's pain in couples coping with PVD. Results indicated that only women's greater sexual CSW was significantly associated with their own greater sexual distress. As such, I could only examine sexual distress as a mediator of the associations between women's sexual CSW and their own well-being. I found that women with greater sexual CSW were more likely to experience greater daily sexual distress than women with lower sexual CSW. On days that women with greater sexual CSW were more sexually distressed (compared to their average level of sexual distress), they in turn were less sexually satisfied and reported greater depressive symptoms, anxiety, and genital pain intensity during intercourse. Thus, there was a significant indirect effect of women's greater sexual CSW on their poorer daily psychological and sexual well-being through greater daily sexual distress.

5.1 Strengths and Limitations

I have discussed the strengths and limitations of each study in the corresponding manuscripts. There are some broader strengths and limitations of my research that I will review below.

5.1.1 Sample

There were strengths and limitations of using an online recruitment tool (Amazon Mechanical Turk) in Study 1. The primary strength of this strategy was that I was able to

collect two large samples of participants in a short time period. Also, past research has reported that this particular recruitment tool produces high quality data (Buhrmester et al., 2011; Hauser & Schwarz, 2016; Kees, Berry, Burton, & Sheehan, 12017; Paolacci & Chandler, 2014; Peer, Vosgerau, & Acquisti, 2014; Shank, 2016). Although my sample was homogenous with respect to culture and sexual orientation, it was more heterogeneous than a community sample collected from a university population, for example. Nonetheless, a limitation of using an online sample is the risk of participants answering eligibility questions dishonestly or answering survey questions at random. To address these concerns, I did not identify inclusion criteria when asking eligibility questions (e.g., how long have you been in your current relationship?) and attention checks were embedded in the measures (e.g., please select the number two; Hauser & Schwarz, 2016; Paolacci & Chandler, 2014; Peer et al., 2014; Rouse, 2015). Since my subsequent studies utilized a clinical population (i.e., PVD), participants in the PVD studies were required to interact face-to-face with the research team and women received a diagnosis of PVD from the study gynaecologist.

Including both members of couples in my PVD samples was a strength for Studies 2 and 3. Dewitte (2014) has argued that sexual problems occur within the interactions between individuals, thus dyadic designs are the most suitable and accurate methods for assessing processes within the sexual relationship. Partners of women with PVD frequently trigger the pain during intercourse, and they also witness the pain and how women adjust to it, and may experience sexual and psychological consequences themselves (Rosen, Rancourt, et al., 2014). Including partners in PVD research presents the opportunity to examine how one person's level of sexual CSW is associated with their

partners' outcomes. Many of the findings in Study 2 (i.e., cross-sectional associations) related to partners' sexual CSW. If partners were not included in this study, I would not have learned that partners' sexual CSW is important for how women with PVD adjust to this condition. The results of Study 3 (i.e., daily experience study) suggested that there were only significant indirect effects of women's sexual CSW on their own daily well-being through increased sexual distress on sexual activity days. Nonetheless, including the partners of women with PVD was important because I was able to control for the perspectives of the partners. Further, I became aware of the fact that, although partners' sexual CSW was previously associated with poorer well-being, the pathway that explains these associations must be different than for women with PVD. Thus, future research is needed to gain an understanding of how sexual CSW in partners of women with PVD is linked to their own and women's well-being.

There were also some limitations related to the samples used in Studies 2 and 3. Namely, the samples were homogenous due to our eligibility criteria and convenience sampling. To be eligible for the studies, women had to be diagnosed with PVD and still be engaging in some sexual activity. The frequency of sexual activity is often reduced in couples coping with PVD and some women avoid sexual intercourse all together (Bergeron et al., 2015). Thus, our sample of sexually active couples may not be representative of all couples coping with PVD. Other inclusion criteria that decreased the generalizability of our findings were that couples had to be in committed relationships and women with PVD were premenopausal. Although couples were eligible regardless of their sexual orientations, most of the participants were in heterosexual relationships. I did not actively recruit same-sex couples, so this bias was a result of convenience sampling.

As such, our findings may not be applicable to post-menopausal women or couples in same-sex or causal dating relationships. Further, the samples consisted of couples who volunteered to participate in a study that examined sensitive topics (e.g., sex) and that required a time commitment (completing daily surveys in Study 3); thus, a selection bias may have reduced the generalizability of our findings.

The samples for Studies 2 and 3 were recruited in two sites, Halifax and Montréal. This was a strength of the studies because it increased the rate of recruitment. Further, multi-site recruitment increased the generalizability of our findings. However, multi-site recruitment also presented a limitation because of the potential for cultural and language differences between the two provinces. One of the cities is predominantly English-Canadian (Halifax), while the other is French-Canadian and has a more multicultural population (Montréal). All of the study measures were available in English and French and the process of translating the surveys followed guidelines for effectively adapting study measures to different languages (Wild et al., 2005). Further, I ran analyses in both studies to assess whether there were any differences between study sites on the study measures and any subsequent analyses accounted for study site when needed.

5.1.2 Research Design

The research designs of all three studies included in my dissertation had some important strengths. Study 1 validated the measure of sexual CSW in two separate large community samples and I will discuss this further in the section below (see section 5.1.3 Validation of the Sexual CSW Scale). As previously discussed, Studies 2 and 3 had a dyadic research design. Another strength of Study 3 was the utilization of a daily experience design. Daily diary measures allowed for the examination of daily variability

in couples' well-being closer in time to their actual experience. Indices of well-being, such as anxiety, depressive symptoms, sexual satisfaction, and pain intensity have been found to vary daily in couples coping with PVD (Rosen, Bergeron, et al., 2015; Rosen et al., 2013; Rosen, Bergeron, et al., 2014; Rosen, Muise, Bergeron, Delisle, et al., 2015; Rosen et al., 2018; Vannier et al., 2016). This is not surprising since sexual relationships can be impacted by factors that vary day-to-day, such as thoughts, mood, and conflict (Davison et al., 2008; Rosen, Bergeron, et al., 2014). In contrast, CSW is considered a trait variable (Crocker, Luhtanen, et al., 2003). Assessing the associations between trait domains of CSW and daily outcomes allowed me to examine how sexual CSW is linked to women's ability to adjust to the pain condition across days and sexual interactions.

There were also some limitations to the research designs of the studies included in this dissertation. Namely, Studies 2 and 3 were based on a cross-sectional research design; thus, I could not determine causality or directionality. My interpretation of the findings were based on the theoretical model of CSW, as well as research findings related to associations between greater CSW in other domains and well-being (Crocker, 2002b; Crocker & Luhtanen, 2003; Crocker & Park, 2004; Crocker & Wolfe, 2001; Park & Crocker, 2005; Sanchez et al., 2011). Nonetheless, I cannot say definitively that greater sexual CSW lead to poorer well-being. Future research using longitudinal designs is needed to confirm my interpretation of the research findings. Another shortcoming of my research design across all three studies is the reliance on self-report. Some of the potential limitations of using self-report measures are the risk of response bias, the need for participants to have the introspective ability to report their experience accurately, and the reliance on participants to answer honestly (Chan, 2009). However, the constructs of

interest (i.e., sexual CSW, psychological and sexual well-being, pain) are based on how an individual subjectively evaluates these aspects of their life. As such, these factors are difficult to assess using more objective measures.

Finally, I did not measure some potentially important measures of well-being and the sexual relationship. I limited the amount of measures that I included to minimize participant burden and reduce issues that arise when making multiple comparisons with the same data (Curran-Everett, 2000). As such, I did not examine some factors that may be important to couples coping with PVD who are engaging in sexual activity, such as sexual desire, sexual functioning, and intimacy in the relationship (Bergeron et al., 2015; Bois et al., 2016; Rosen, Rancourt, et al., 2014; Vannier et al., 2016). Further, only a subset of the sample in Study 3 received measures of other forms of CSW. Basing self-worth on other domains of one's life may act as a buffer from potential negative consequences associated with sexual CSW. A larger sample size should be used in future research examining whether various domains of CSW serve as protective factors.

5.1.3 Validation of the Sexual CSW Scale

There were some strengths and limitations specific to the development and validation of the Sexual CSW Scale. A strength of the measure is that the development and validation adhered to guidelines for best practice (Cohen, 1988; Costello & Osborne, 2005; Hambleton et al., 2004; Tabachnick & Fidell, 2007). The Sexual CSW Scale was validated in two separate and large community samples. The utilization of two separate samples allowed for exploring and confirming the factor structure of the measure. I developed and validated the measure in a community sample prior to applying it to a clinical sample, which was consistent with the validation of other measures of CSW

(Crocker, Luhtanen, et al., 2003; Knee et al., 2008). Further, sexual CSW had not been previously examined and by testing the measure in a community sample, I was able to observe that individuals who reported greater sexual problems were more likely to have greater sexual CSW than those without problems, which supported the relevance of this construct to PVD.

At the same time, a limitation of my dissertation research is that I did not conduct confirmatory factor analysis (CFA) of the Sexual CSW Scale in a sample of couples coping with PVD. Thus, I validated the measure in a community sample, but then used it with a clinical sample. The sample sizes in Studies 2 and 3 were not large enough to run CFA (P. J. Curran, West, & Finch, 1996). However, I ran an exploratory factor analysis (EFA) with the couples in Study 3 (Chapter 4). Using a principle axis factor analysis with an oblique rotation, I replicated the factor structure reported in the development of the Sexual CSW Scale and which supported the use of a total score (Study 1, Chapter 2). Given these results and the importance of using the same scale for both women and partners, I used the total score of the Sexual CSW Scale for my studies with a sample of couples coping with PVD (i.e., Studies 2 and 3).

5.2 Future Research Directions

5.2.1 Validation of Sexual CSW Scale in Sexual Dysfunction Populations

It may be beneficial to validate the Sexual CSW Scale with a broader group of individuals with sexual dysfunctions, allowing for the generalizability of findings to a larger sexual dysfunction population. Research has found that sexual dysfunctions frequently co-occur in the same individual (Mitchell et al., 2013). Further, men and women with other sexual dysfunctions have reported perceived failures in their sexual

relationships and greater sexual distress (Gomes & Nobre, 2011; Oliveira & Nobre, 2013). The theoretical model of CSW suggests that perceived failures in a contingent domain lead to poorer outcomes (Crocker & Wolfe, 2001). As such, greater sexual CSW in sexual dysfunctions other than PVD may be linked to poorer well-being.

5.2.2 Research to Confirm Causality and Directionality

As previously mentioned, a limitation of this dissertation is that the studies employed cross-sectional research designs. Future research examining the associations between sexual CSW and well-being in couples with PVD would benefit from using longitudinal or experimental study designs to confirm causality and the directionality of the associations. Longitudinal studies that follow couples or individuals over time could determine how sexual CSW impacts responses to various positive and negative sexual events that may occur over the course of a romantic relationship. Further, longitudinal studies would allow for the assessment of temporal precedence for meditational models that aim to explain the associations between sexual CSW and well-being. Experimental designs may be difficult to implement because sexual CSW is considered a trait variable. However, based on self-perception theory, individual's perceptions of how they view themselves on a construct, such as sexual CSW, could still be manipulated temporarily (Bem, 1972; Salancik & Conway, 1975). For example, in a study of children who engaged in a task that included experiencing a setback, those children who were praised or criticized based on an evaluation of their performance as an individual were more likely to report fluctuations in their CSW after the manipulation than those who received feedback based on the strategies they used or the outcome (Kamins & Dweck, 1999). Thus, one may be able to (temporarily) induce greater sexual CSW by providing

feedback that problems in their sexual relationship mean that they are not adequate sexual partners, while others could receive feedback that is aimed to reduce sexual CSW, such as information that normalizes sexual problems. After manipulating sexual CSW, one could examine subsequent psychological and sexual well-being. Further, research could also examine the impact of treatments that target sexual CSW and distress to assess how these variables relate to well-being. I will discuss possible interventions that may reduce sexual CSW and distress below in the Clinical Implications section.

5.2.3 Predictors of Greater Sexual CSW

An understanding of how sexual CSW develops, may help to inform interventions aimed at reducing sexual CSW. Thus, future research could take a developmental approach and use longitudinal study designs to identify predictors of sexual CSW. Prior research has suggested that children are more likely to have greater CSW if their parents tend to express acceptance of them only when they are successful (e.g., get good grades in school), while expressing disappointment in response to any failures (Crocker & Knight, 2005; Kamins & Dweck, 1999). Developing greater sexual CSW, specifically, may be based on early sexual experiences and whether individuals received negative or positive feedback from sexual partners. There may also be other predictive factors that could lead to developing greater sexual CSW such as personality traits, core beliefs about sex, and general childhood experiences.

5.2.4 Examine Other Potential Mediators/Moderators Between Sexual CSW and Well-Being

Future research should examine other factors in the theoretical model of CSW, as well as test for other potential mediators that may explain associations between greater

sexual CSW and poorer well-being in couples coping with PVD. As previously discussed, the theoretical model of CSW assumes that it is perceived failure in the contingent domain that leads to distress about the domain and in turn poorer well-being (Crocker & Wolfe, 2001). Although I found indirect effects of sexual CSW on well-being through sexual distress in women with PVD, and the PVD literature suggests the presence of perceived failures in this population, I did not explicitly test whether participants perceived a failure in their sexual relationship (Ayling & Ussher, 2008; Marriott & Thompson, 2008; Pazmany et al., 2013; Sadownik et al., 2016; Sheppard et al., 2008). Future research should include a question asking participants to rate the extent to which they perceive a failure in their sexual relationship. Another option would be to use a measure that includes an assessment of perceptions of the sexual relationship. For example, the Questionnaire of Cognitive Schema Activation in Sexual Contexts assesses the activation of negative self-schemas (including undesirability, incompetence, and helplessness) in response to unsuccessful sexual events and has been validated in individuals with and without sexual dysfunctions (Nobre & Pinto-Gouveia, 2009). Future research could use this measure to determine whether certain beliefs are more likely than others to explain the pathways between greater sexual CSW and poorer well-being in couples affected by PVD.

It is important to note that the meditational pathway between partners' greater sexual CSW and their own poorer well-being remains unknown. There continues to be a dearth of research examining the predictors of poorer well-being in partners of women with PVD. One variable that has been examined is partners' beliefs about the causes of women's PVD pain. In a study of couples coping with PVD, when partners attributed

women's pain to internal (pain is partner's fault), women's responsibility (pain is woman's fault), stable (pain will never change) and global (pain is affecting entire life) factors, they experienced more psychological distress (Jodoin et al., 2008). Further, partners' global and stable attributions were also associated with their lower sexual satisfaction. Greater CSW has been linked to having less flexible perspectives about problems that arise in the contingent domain, as well as having more beliefs that the problems will be detrimental to the person beyond the consequences to the contingent domain (Crocker & Park, 2004). When partners of women with PVD have greater sexual CSW, they may be more likely to have global and stable attributions about women's pain, which may in turn be linked to their poorer well-being. This is just one potential pathway that could be considered; however, other potential mediators should also be explored.

Future research could also examine possible moderators that determine whether greater sexual CSW is linked to poorer well-being for individuals. For example, sexual self-efficacy (i.e., degree of confidence in one's ability to engage in positive and satisfying sexual interactions) may moderate the associations between greater sexual CSW and poorer well-being in women with PVD. Since PVD negatively affects the sexual functioning of affected women (Bergeron et al., 2015), some women may question the extent of their sexual abilities. When women base their self-worth on their sexual relationship, whether they are confident in their sexual abilities may have implications for women's ability to cope with the pain. Greater sexual self-efficacy has been associated with greater sexual satisfaction, while lower pain self-efficacy, which includes self-efficacy for sexual function, was related to greater pain intensity and sexual difficulties in women with PVD (Desrochers et al., 2009; Reissing, Laliberte, & Davis, 2005; Seal,

Minichiello, & Omodei, 1997). On the one hand, among women with greater sexual self-efficacy, those with greater sexual CSW may have better psychological and sexual well-being because increased sexual self-efficacy may positively influence their perception of the sexual relationship leading to improved well-being, and lower pain. On the other hand, among individuals with lower sexual self-efficacy, those with higher sexual CSW may be more likely to view their decreased sexual confidence as a threat to their self-worth, leading to poorer psychological and sexual well-being and increased pain. Such research is important for not only increasing our understanding of how sexual CSW functions in couples coping with PVD, but also for informing theoretical models of PVD and CSW.

5.3 Theoretical Implications

5.3.1 Biopsychosocial Models of PVD

The results of this dissertation are consistent with a biopsychosocial model of PVD since they support the importance of considering psychological variables in how couples adjust to the pain condition (Bergeron et al., 2015; Bergeron, Rosen, & Morin, 2011). The findings from Studies 2 and 3 suggest that sexual CSW is a relevant psychological factor for several aspects of well-being in couples coping with PVD. The prior PVD literature has examined how psychological factors such as childhood abuse, catastrophizing, fear of pain, hypervigilance to pain, pain self-efficacy, and pain attributions relate to how women experience pain (Bergeron et al., 2015; Crombez et al., 2012; Desrochers et al., 2009; Desrochers et al., 2008; Harlow & Stewart, 2005; Khandker et al., 2014; Payne et al., 2005; Vlaeyen & Linton, 2012). Results of this dissertation suggest that sexual CSW is an important novel factor to consider in affected

couples. Greater sexual CSW was related to couples' poorer sexual and psychological well-being, as well as women's greater pain. Further, although it was not the main objective of this dissertation, partners' greater relationship CSW was generally associated with the couples' better well-being in Study 2. Thus, this research supports the significance of examining psychological factors in women with PVD and their partners.

5.3.2 Knowledge of CSW

The three studies in this dissertation also contribute to the broader CSW literature by introducing a novel domain of CSW, sexual CSW. The Sexual CSW Scale was adapted from a standardized measure of relationship CSW (Knee et al., 2008). The sexual relationship often occurs within the context of a romantic relationship and is important to an individual's overall quality of life, their psychological and physical health, and their ability to maintain connection and intimacy in their romantic relationships (Byers, 2005; Christopher & Sprecher, 2000; Davison et al., 2009; Fallis et al., 2016). Further, sexual dysfunctions, such as PVD, are associated with significant consequences for couples' well-being (Bergeron et al., 2015; Granot & Lavee, 2005; Meana et al., 1997; Nylanderlundqvist & Bergdahl, 2003; Payne et al., 2005; Rosen, Rancourt, et al., 2014; Sadownik et al., 2016). Previous research has established that the sexual relationship is distinct from the overall romantic relationship (Byers, 2005; Diamond, 2004; Smith & Pukall, 2011). Such findings suggest that the sexual relationship is a unique domain on which an individual can base their self-worth, and which is associated with various dimensions of an individual's well-being. Indeed, I included relationship CSW in all my studies and found support for sexual CSW being a unique domain on which an individual can base their self-worth above and beyond relationship CSW, as well as that it is a

domain of CSW that is linked to specific outcomes (i.e., poorer psychological and sexual well-being in couples coping with PVD).

Additionally, findings in Study 3 provided evidence for the theoretical model of CSW (Crocker & Wolfe, 2001). The model posits that psychological distress about the contingent domain explains associations between greater CSW and poorer well-being when individuals perceive a failure in the contingent domain. Indeed, I found that in women with PVD, who have been found to perceive failures in their sexual relationship in prior research (Ayling & Ussher, 2008; Marriott & Thompson, 2008; Pazmany et al., 2013; Sheppard et al., 2008), there was a significant indirect effect of women's greater sexual CSW on poorer daily sexual and psychological well-being through daily sexual distress. Thus, these findings are consistent with research about the pathways between other domains of CSW and poorer well-being (Knee et al., 2008; Lawrence & Williams, 2013; Park et al., 2011; Tomaka et al., 2012) and support this pathway in the specific domain of sexual CSW.

5.3.3 Knowledge of CSW and PVD

To my knowledge, this dissertation represents the first research to examine any domain of CSW in a sexual dysfunction population, and in couples coping with PVD specifically. The vast majority of CSW research has utilized community samples and university populations (Crocker, 2002b; Crocker & Park, 2004; Lawrence & Williams, 2013; Park & Crocker, 2005; Tomaka et al., 2012). It is important to initially examine novel constructs with community samples to see how they function in presumably more heterogeneous populations (Reise, Waller, & Comrey, 2000). However, it is then beneficial to assess constructs in various populations including clinical samples, which

may experience consequences to their well-being more so than in community samples. Indeed, the presence of PVD is linked to consequences to the psychological and sexual well-being of couples (Bergeron et al., 2015) and understanding factors that exacerbate poorer well-being, such as sexual CSW, may help to inform effective treatments that aim to help couples adjust to this pain condition.

5.4 Clinical Implications

Although the findings in this dissertation are of a cross-sectional nature, they suggest that targeting sexual CSW in treatment for couples with PVD may improve their ability to cope with the pain condition. For affected women, reducing sexual distress could also be a focus of treatment since it is one pathway between sexual CSW and poorer well-being. It is important to note that longitudinal research examining sexual CSW in couples with PVD is required to determine whether it is indeed greater sexual CSW that leads to poorer well-being. Nonetheless, I will review some of my ideas for what treatment approaches may be effective for interventions targeting sexual CSW in women with PVD and their partners.

5.4.1 Cognitive-Behavioural Interventions

One potential option is to take a cognitive-behavioural approach to help couples with PVD adjust their perceptions of the meaning of their sexual pain condition for their self-worth. Cognitive-behavioural therapy (CBT) typically includes psychoeducation, cognitive restructuring, and exposure activities (J. S. Beck, 2011). There is evidence for the efficacy of CBT in treating women with PVD and their partners. In two randomized controlled trials (RCTs), group-based CBT resulted in lower pain intensity and better sexual and psychological well-being for women with PVD (comparison groups received

surface electromyographic biofeedback or vestibulectomy in one study and a topical steroid in the other; Bergeron et al., 2001; Bergeron, Khalifé, Dupuis, & McDuff, 2016). A follow-up study with a subset of participants in one of the RCTs found that treatment gains were maintained for two and a half years post-treatment (Bergeron, Khalifé, Glazer, & Binik, 2008). In an RCT comparing the effectiveness of individual CBT to supportive psychotherapy for women with vulvodynia, women who received CBT had lower pain intensity and better sexual functioning than the supportive group, and these effects were maintained at one year post-treatment (Masheb, Kerns, Lozano, Minkin, & Richman, 2009). In addition, a study that surveyed women with vulvodynia who previously received CBT treatment, found that many women reported that they experienced positive outcomes due to the treatment (Engman, Wijma, & Wijma, 2010). Finally, a pilot study of a cognitive behavioural couples therapy found improvements in pain and sexual functioning in women with PVD and better sexual satisfaction for women and their partners when comparing pre to post-treatment (Corsini-Munt, Bergeron, Rosen, Mayrand, & Delisle, 2014).

CBT that targets sexual CSW in couples coping with PVD could be focused on challenging perceptions of inadequacy as a sexual partner and failure in the sexual relationship. There is a dearth of studies examining how psychological treatments impact an individual's level of CSW. However, an experimental study found that when individuals with greater academic achievement CSW were primed with a more flexible view of learning from setbacks, the associations between academic failures and negative outcomes, such as negative affect, were eradicated (Niiya et al., 2004). Thus, using cognitive restructuring to challenge perceptions that failures in a contingent domain, such

as the sexual relationship, are everlasting and all encompassing and, instead, encouraging more adaptive beliefs may lower sexual distress, as well as eliminate links between sexual CSW and poorer well-being in couples affected by PVD. Therapists could also facilitate the expansion of couples' sexual repertoire beyond a focus on intercourse, which may enhance mutually satisfying sexual experiences. Such behavioural interventions may positively reinforce a focus on the positive aspects of the sexual relationship rather than any perceived failures.

5.4.2 Acceptance-Based Interventions

Sexual CSW may also be targeted with acceptance-based approaches. One potentially relevant approach from Acceptance and Commitment Therapy is cognitive defusion, which involves distancing oneself from thoughts by noticing thoughts and letting them come and go without trying to change them or hold on to them (R. Harris, 2009). Couples with PVD could practice such strategies in response to thoughts of inadequacy or failure, as well as thoughts that events in their sexual relationship define their self-worth. Couples could work with the therapist to approach problems in their sexual relationship with acceptance, rather than with avoidance. Cultivating a more balanced perception of themselves and their relationship could help couples change the focus of attention to broader life domains, such as pleasant experiences in the overall romantic relationship. Indeed, in Study 2 (Chapter 3), I found that when partners based their self-worth on the overall romantic relationship to a greater extent, they were more sexually and relationally satisfied and less sexually distressed, and women with PVD reported lower depressive symptoms and greater relationship satisfaction.

Another component of acceptance-based strategies is practicing mindfulness, which is paying attention to the present moment in a non-judgmental manner (R. Harris, 2009). In a mindfulness-based group therapy for women with PVD, women reported less sexual distress, catastrophizing, and pain hypervigilance post-treatment compared to pre-treatment levels (Brotto, Basson, Smith, Driscoll, & Sadownik, 2015). Thus, mindfulness skills may help to reduce sexual distress in women with PVD who report greater sexual CSW, with beneficial effects for their psychological and sexual well-being. Further, since a core component of mindfulness is practicing non-judgmental responses, couples may be less likely to evaluate events in their sexual relationships as successes or failures when they practice mindfulness in their relationships. Both mindfulness and acceptance-based strategies were incorporated into the cognitive behavioural couples therapy described above, which found benefits pre to post-treatment for both women with PVD and their partners (Corsini-Munt et al., 2014). Thus, acceptance-based and cognitive-behavioural treatments are not mutually exclusive and could be together implemented into interventions for couples with PVD who report greater sexual CSW and associated difficulties.

5.4.3 Compassion-Based Interventions

A compassion-based treatment approach may also be helpful for couples with PVD who have greater sexual CSW. Such an approach may include engaging in meditations that are focused on cultivating self-compassion, practicing mindfulness of inner experiences (particularly emotions), and psychoeducation and experiential activities that emphasize self-kindness and common humanity (Germer, 2009; Neff & Germer, 2013). Self-compassion includes treating oneself kindly even in the face of perceived failures

and it is more stable than self-esteem (Neff, 2011). In fact, self-compassion emphasizes having positive regard for the self that is not contingent on successes, failures, or others' approval. Instead, it encourages people to view themselves as wholes rather than to evaluate various aspects of themselves (Neff, 2003). Thus, compassion-focused approaches may decrease the tendency for an individual to base their self-worth on a contingent domain, such as sexual CSW. Indeed, an RCT of women with body image concerns found that those who engaged in self-compassion meditations reported a reduction in levels of appearance CSW compared to those in a waitlist control group (Albertson et al., 2015). Further, greater self-compassion has been linked to being less critical of oneself, and having lower anxiety and depressive symptoms (Neff, 2009). In a recent study of couples coping with PVD, greater self-compassion was associated with one's own lower anxiety and depressive symptoms (Santerre-Baillargeon et al., 2017). Further partners' greater self-compassion was linked to their own greater sexual satisfaction, as well as their own and women's lower sexual distress. Thus, compassion-focused interventions may reduce sexual CSW, sexual distress, feelings of failure, and the associated consequences. Interventions that lower sexual CSW and help couples coping with PVD better adjust to the pain condition may improve the psychological and sexual well-being of these couples.

5.5 Conclusions

This dissertation introduced a novel domain of CSW, sexual CSW (i.e., self-worth dependent on perceived success or failure in the sexual relationship), and after developing a validated measure of this construct, I examined it in women with PVD and their partners. The findings provided support for the use of the Sexual CSW Scale in

community and PVD populations. When women with PVD reported greater sexual CSW they experienced more sexual distress and pain in a cross-sectional, dyadic study. At the same time, partners' greater sexual CSW was associated with their lower sexual and relationship satisfaction and greater sexual distress, as well as women's greater depressive symptoms and lower relationship satisfaction. Thus, greater sexual CSW was linked to couples' poorer well-being. However, partners' greater relationship CSW (i.e., self-worth based on the overall romantic relationship) seemed to be a protective factor since it was linked to couples' better psychological, relational, and sexual well-being. In a dyadic daily experience study, when women with PVD had greater sexual CSW, on days when their sexual distress was higher, they in turn reported lower sexual satisfaction and greater anxiety, depressive symptoms, and pain on those days (compared to their average level across all days). Thus, sexual distress may be one pathway that explains links between greater sexual CSW and poorer well-being in women with PVD. Overall, the findings in this dissertation support the continued investigation of sexual CSW in couples coping with PVD, and potentially other sexual dysfunctions as well. However, longitudinal research is required to confirm the causality and directionality of the research findings, as well as to identify additional mechanisms that drive the associations between sexual CSW and well-being in couples coping with PVD. This dissertation has offered various future research directions with the overarching goal of informing more effective interventions aimed at helping couples affected by PVD adjust to this pain condition.

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APPENDIX A: SEXUAL CONTINGENT SELF-WORTH SCALE

Instructions: Please rate the following items 1 (not at all like me) to 3 (somewhat like me) to 5 (very much like me).

	Not at all like me	Somewhat like me			Very much like me
1. I feel better about myself when it seems like my partner and I are getting along sexually.	1	2	3	4	5
2. I feel better about myself when it seems like my partner and I are sexually connected.	1	2	3	4	5
3. When my sexual relationship is going well, I feel better about myself overall.	1	2	3	4	5
4. If my sexual relationship were to end tomorrow, I would not let it affect how I feel about myself.	1	2	3	4	5
5. My self-worth is unaffected when things go wrong in my sexual relationship.	1	2	3	4	5
6. When my partner and I fight about a sexual issue, I feel bad about myself in general.	1	2	3	4	5
7. When my sexual relationship is going bad, my feelings of self-worth remain unaffected.	1	2	3	4	5
8. I feel better about myself when I feel that my partner and I have a good sexual relationship.	1	2	3	4	5

Reverse score items 4, 5, 7
Positive Sexual Events Subscale: sum items 1, 2, 3, 8
Negative Sexual Events Subscale: sum items 4, 5, 6, 7
Sexual CSW total: sum of all items (i.e., sum of both subscales)

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Study 1: Development and Validation of the Sexual Contingent Self-Worth Scale

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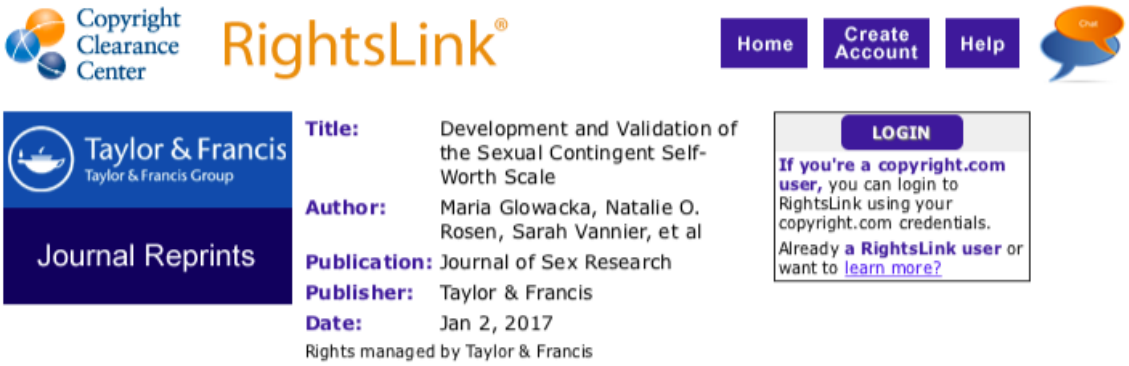

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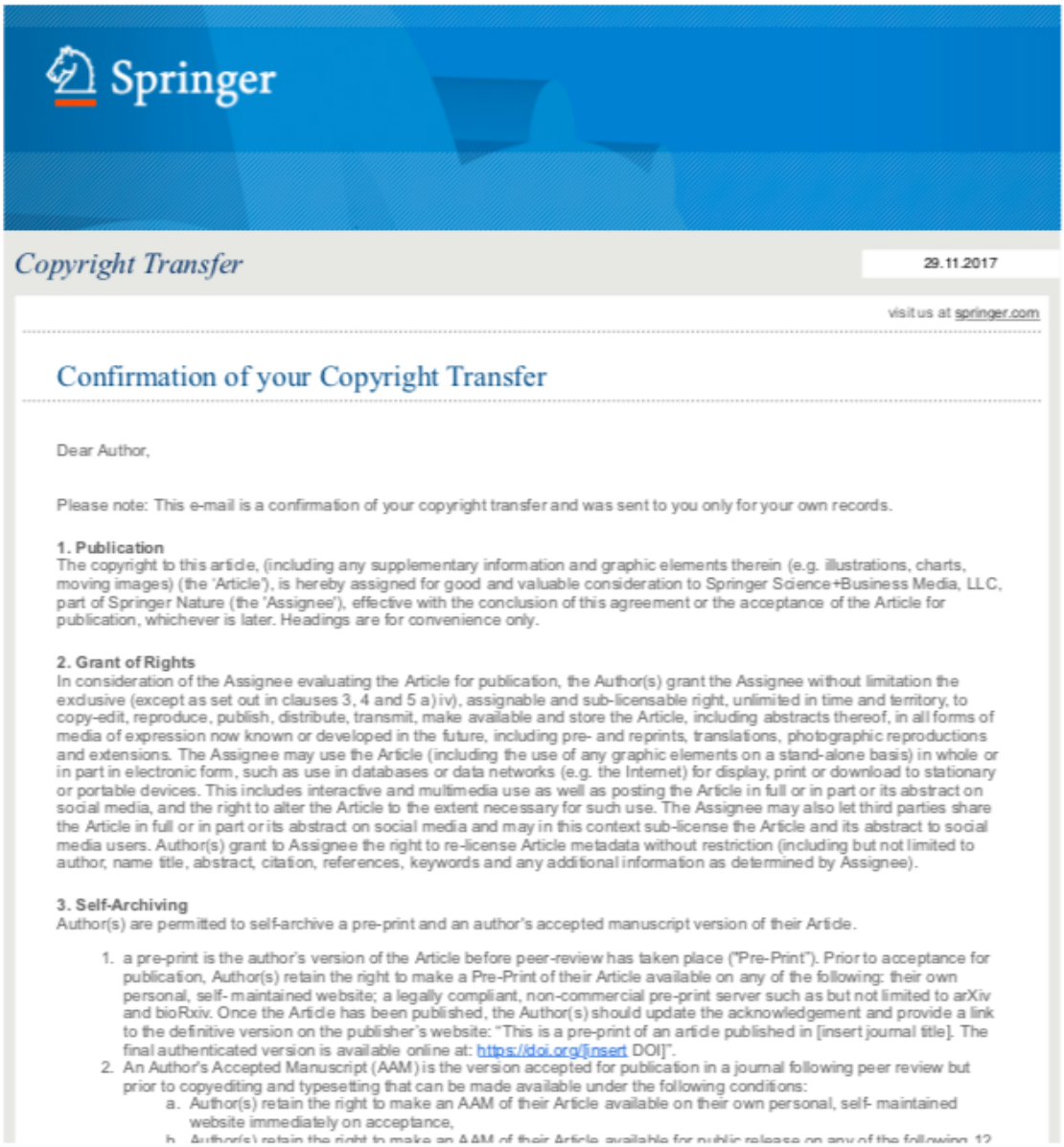

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