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ORIGINAL PAPER

Dispositional Mindfulness and Compulsive Sexual Behavior Among Women in Residential Treatment for Substance Use Disorders

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Abstract Compulsive sexual behaviors (CSB) are prevalent among populations with substance use disorders (SUD). The risk of relapse following SUD treatment is increased if CSB are not addressed. Despite this risk, few studies have examined protective factors for CSB among individuals with SUD, and none have examined protective factors unique to women with CSB and SUD. Women's CSB are believed to be motivated by efforts to avoid painful affective experiences (e.g., trauma symptoms, loneliness, and shame). Dispositional mindfulness was shown to reduce one's risk for engaging in maladaptive responses to aversive experiences. Thus, we hypothesized that dispositional mindfulness would negatively relate to CSB among women with SUD. For the present study, we reviewed cross-sectional, self-report measures which were included in the medical records of 429 women in residential treatment for SUD. Results of hierarchical multiple regression analyses revealed that, controlling for age, and drug, and alcohol problems and use, dispositional mindfulness negatively related to the core dimensions of CSB. These findings suggest that women with CSB and SUD are less likely to willingly approach present-moment experiences with acceptance. These preliminary findings suggest that researchers and clinicians should consider the utility of mindfulness-based approaches in treating women with CSB and SUD.

Keywords Compulsive sexual behaviors · Sexual addiction · Hypersexuality · Mindfulness · Women · Substance use

Introduction

Compulsive sexual behaviors (CSB), sometimes referred to as sexual addiction or hypersexuality, are characterized by compulsive, excessive, out of control, or otherwise problematic sexual behavior, desire, or drive that causes distress or impairment in functioning (Kafka 2010). Such behaviors might include compulsive or excessive sexual intercourse, masturbation, pornography use, cybersex, sexual chat/video use, or engagement in sexual fantasy (Kafka 2010). Though the nature, terms, and etiology of CSB remain controversial, research consistently demonstrated that CSB are overrepresented among individuals with substance use disorders (SUD; Stavro et al. 2013). Indeed, 19.6% of women in residential treatment for one or more SUD fell within the at-risk range for CSB (Deneke et al. 2015). Researchers suggested that underlying mechanisms, including compulsions, deprivation, and avoidance strategies, underlie both CSB and SUD, therefore accounting for their comorbidity (Carnes et al. 2001; Phillips et al. 2015). Moreover, individuals with CSB and SUD were at an increased risk of relapse following SUD treatment if CSB are not addressed (Carnes 2001; Schneider and Irons 2001). Despite this risk, few studies have examined protective factors for women with CSB who are in treatment for SUD.

Data regarding the prevalence, nature, and correlates of CSB among women are limited as a majority of research in

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this domain has focused on men (McKeague 2014). Prevalence estimates for women who are at-risk for CSB ranged from 5.8 to 40% with large variability due, in part, to poor conceptualization and measurement of CSB among women (Carnes et al. 2001; Dhuffar and Griffiths 2014; McKeague 2014). Specifically, Ferree (2001) argued that researchers have overlooked gender differences in the etiology and course of CSB, thereby hindering the development of gender-specific measurement and efficacious CSB treatments tailored for women.

Of the studies which have examined gender differences in CSB, women with CSB reported experiencing more and greater severity of aversive affective experiences, including childhood trauma (e.g., sexual abuse) than did men with CSB (Perera et al. 2009). Furthermore, loneliness, abandonment, and powerlessness were common motivations for women to engage in CSB (Ferree 2001). Given these experiences and motivations among women with CSB, researchers suggested that women may develop CSB as a way to cope with the aversive internal and external experiences (McKeague 2014). In a review of CSB among women, Ferree (2001) suggested that, as a result of being hurt, controlled, and abused, many women engaged in CSB in an effort to feel powerful, needed, and in control. These findings are consistent with empirical research which suggested that, for women, CSB provides temporary relief from aversive experiences (e.g., shame; Dhuffar and Griffiths 2014; Reid et al. 2009). However, CSB ultimately increases painful affect (e.g., shame), which is then ameliorated by continued engagement in CSB (Dhuffar and Griffiths 2014; Reid et al. 2009). Taken together, the limited research investigating CSB among women suggested that women with CSB may be motivated to engage in sexual behaviors in an effort to temporarily escape aversive internal and external experiences (e.g., loneliness, shame, trauma-related symptoms, powerlessness, and abandonment).

Notably, researchers and clinicians have conceptualized substance use as being motivated, in part, by efforts to avoid unpleasant experiences (Chawla and Ostafin 2007). This avoidance was used to explain the overrepresentation of CSB among individuals with SUD (Carnes 2001; Phillips et al. 2015). Examining factors which have demonstrated efficacy in circumventing the avoidance of affective experiences may therefore offer important insights for intervening with CSB among women with SUD.

Dispositional mindfulness, defined as a propensity to have open and receptive awareness and attention towards present moment experiences, is one such factor known to target avoidance (Brown and Ryan 2003; Woods and Proeve 2014). Furthermore, dispositional mindfulness was shown to protect against negative outcomes following trauma, including negative affect, rumination, post-traumatic stress symptoms, and negative self-referential processes (Nitzan-Assayag et al. 2015). Theoretical and empirical evidence suggested that dispositional mindfulness reduces individuals' over-engagement with internal and external experiences (Bowlin and Baer 2012). That is, individuals high in dispositional mindfulness are better able to approach distressing cognitive, emotional, and physiological experiences with acceptance and separate the self from these experiences (Bowlin and Baer 2012). Such individuals' behavioral responses are therefore motivated by effortful decision-making as opposed to habitual reactivity to distress (Bihari and Mullan 2014).

Given the utility of dispositional mindfulness in facilitating acceptance, as opposed to avoidance, it follows that women high in dispositional mindfulness would display fewer CSB. Specifically, dispositional mindfulness may interfere with women's avoidance of painful affective experiences to reduce the likelihood of CSB in response to aversive experiences (Reid et al. 2009). Indeed, dispositional mindfulness correlated with lower levels of CSB among a sample of men in residential treatment for SUD (Brem et al. 2017b; Shorey et al. 2016). However, dispositional mindfulness has not been examined as a protective factor for CSB among women in residential treatment for SUD. Given the demonstrated efficacy of mindfulness-based interventions in treating individuals with SUD (Chiesa and Serretti 2014), and the dearth of research exploring protective factors for women with CSB, it is important to examine dispositional mindfulness as it relates to CSB among women with SUD to inform future intervention efforts.

Although CSB interfere with SUD treatment, no prior research has examined protective factors for CSB among women in treatment for SUD (Schneider and Irons 2001). Dispositional mindfulness is one such factor linked to lower levels of CSB among men in treatment for SUD that, theoretically, may relate to lower levels of CSB among women (Brem et al. 2017b; Shorey et al. 2016). However, no such research has examined this relationship. Therefore, the present study aimed to (1) contribute to the limited body of research examining CSB among women by examining prevalence of CSB among women in treatment for SUD and (2) examine the relationship between dispositional mindfulness and CSB among women in treatment for SUD, controlling for alcohol and drug problems and use. Based on existing empirical and theoretical literature, we hypothesized that dispositional mindfulness would negatively relate to CSB among women in treatment for SUD.

Method

Participants

Medical records from 485 women in residential treatment for substance use disorders were reviewed for the present study. The primary diagnoses for the sample, based on the

Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition—Text Revision (DSM-IV-TR; American Psychiatric Association [APA], 2000), are displayed in Table 1. The majority of the sample identified as non-Hispanic White (96.0%); a breakdown of the racial/ethnic composition of the present sample is displayed in Table 1. The mean age of participants was 37.40 (SD = 12.72). The majority of participants were married (40.6%) followed by never married (35.6%), divorced (14.4%), separated (2.2%), engaged (2.2%), widowed (1.7%), none selected (1.5%), remarried (1.3%), life partner (0.2%), and "other" (0.2%).

Procedures

Medical records for all adult women residing in a private, residential substance use treatment facility located in the Southeastern USA, from September 2013 to September 2016 were reviewed for the present study. To be admitted to the treatment facility, patients must be at least 18 years old and have a substance use disorder primary diagnosis. Diagnoses were based on criteria found in the DSM-IV-TR (APA, 2000). Diagnoses were made following consultation of the patient's treatment team consisting of a licensed psychologist, a psychiatrist, a general physician, and substance abuse counselors. Length of stay at the residential treatment facility typically lasts between 28 and 30 days. Treatment is broadly based on a traditional 12-step (abstinence-based) model and does not follow a specific protocol or manual. Patients completed a battery of self-report measures upon admission to the treatment facility and following medical detoxification, if necessary. Patients are informed that their medical records may be de-identified and used for research as part of their informed consent to treatment. Patient medical records included total scores of each measure only; thus, reliability statistics could not be calculated. All procedures were approved by the Institutional Review Board of the first author.

Table 1 Prevalence of primary substance use diagnoses and race/ethnicity within a sample of women in residential substance misuse treatment

	%
Diagnosis	
Alcohol dependence	29.0
Opioid dependence	19.6
Sedative, hypnotic, or anxiolytic dependence	13.8
Polysubstance dependence	8.9
Cocaine abuse	6.7
Sedative, hypnotic, or anxiolytic abuse	5.4
Amphetamine abuse	3.6
Cannabis dependence	2.7
Opioid abuse	2.2
Amphetamine dependence	2.2
Cannabis abuse	2.2
Alcohol abuse	2.2
Cocaine dependence	0.9
Other	0.4
Race/ethnicity	
Non-Hispanic White	96.0
Black	2.0
Hispanic/Latino/a	0.7
Native American/American Indian	0.2
Other	0.7

Measures

Compulsive Sexual Behavior The 20-item Core scale of the Sexual Addiction Screening Test-Revised (SAST-R; Carnes et al. 2010) was used to assess core components of CSB an individual experienced in her lifetime. Items are presented in a forced-choice (Yes/No) format; possible scores may range from 0 to 20 with higher scores indicating greater presence of, and problems related to, CSB. Individuals who score 6 or higher on the Core scale are considered "at-risk" for clinical levels of CSB. The SAST-R demonstrated adequate psychometric properties in clinical and non-clinical samples of women and across sexual orientations (Carnes et al. 2010).

Dispositional Mindfulness We used a 14-item version of the Mindful Attention Awareness Scale (MAAS; Brown and Ryan 2003), which does not contain the item "I drive places on 'automatic pilot' and then wonder why I went there," to assess self-reported dispositional mindfulness. The treatment facility used the 14-item version of the measure because patients cannot drive while in treatment. Participants indicated the extent to which they experience 14 statements (e.g., "I find myself preoccupied with the future or the past") with responses ranging from 1 (*almost always*) to 6 (*almost never*). Scores are summed then divided by 14 to result in a mean MAAS score with possible scores ranging from 1 to 6. Higher scores correspond to higher levels of dispositional mindfulness. Existing literature supports the psychometric properties and use of the MAAS in assessing dispositional mindfulness within treatment-seeking populations (Brown and Ryan 2003; Dakwar et al. 2011).

Alcohol Problems and Use The Alcohol Use Disorders Identification Test (AUDIT; Saunders et al. 1993) assessed women's self-reported alcohol use and problems in the year prior to treatment admission. Ten items examined the intensity and frequency of alcohol use, symptoms of alcohol tolerance and dependence, and negative consequences of alcohol use. Scores are summed such that higher scores are indicative of greater levels of alcohol use and problems. The AUDIT

demonstrated excellent reliability and validity across multiple populations (Babor et al. 2001).

Drug Problems and Use The Drug Use Disorders Identification Test (DUDIT; Stuart et al. 2003a, b) assessed patients' drug use (i.e., cannabis, cocaine, hallucinogens, stimulants, sedatives/hypnotics/anxiolytics, opiates, and other substances [e.g., inhalants]) and problems in the year prior to treatment admission. Like the AUDIT, the DUDIT's 14 items examined the intensity and frequency of drug use, symptoms of drug tolerance and dependence and negative consequences of drug use. The DUDIT evidenced good psychometric properties (Stuart et al. 2003a, b).

Data Analyses

All analyses were conducted using SPSS 23.0. We removed 26 participants who had one or more outlier scores (i.e., *z*-scores with an absolute value greater than 2) for a final sample size of 459. We first conducted a one-way, between subjects analysis of variance to determine whether SAST-R Core subscale scores differed based on race/ethnicity, relationship status, or diagnosis to determine the need for control variables. We then examined bivariate correlations between participant age and study variables to determine whether any additional variables needed to be included as controls in subsequent analyses. Prior to conducting the regression analysis, we verified that our data met the necessary assumptions (Osborne and Waters 2002). Because our data were non-normally distributed for our criterion variable (i.e., SAST-R Core subscale scores), we logarithmically transformed this variable. We then conducted a hierarchical multiple regression analysis to determine whether dispositional mindfulness related to CSB, controlling for alcohol and drug problems and use. Alcohol problems and use, and drug problems and use, were entered into the first block of the model. Dispositional mindfulness was entered into the second block of the model. SAST-R Core subscale scores were entered as the criterion variable.

Results

Means, standard deviations, and bivariate correlations are displayed in Table 2. A majority (53.2%) of women endorsed at least one concern with CSB on the SAST-R Core subscale. Furthermore, 12.6% of women fell within the at-risk range of CSB (i.e., scored six or higher on the SAST-R Core subscale). Alcohol problems and use positively related to core subscale scores. Alcohol problems and use are negatively related to drug problems and use and dispositional mindfulness. Drug problems and use positively related to core subscale scores and negatively related to dispositional mindfulness. Dispositional mindfulness negatively related to core subscale scores. Age was negatively related to core subscale scores and positively related to dispositional mindfulness; age was therefore entered as a control variable in step 1 of all regression equations along with alcohol and drug problems and use. SAST-R Core subscale scores did not significantly differ based on relationship status, race/ethnicity, or diagnosis. These variables were not included as controls in subsequent analyses.

Results of the hierarchical multiple regression analyses are displayed in Table 3. Controlling for the influence of age, alcohol, and drug problems and use, dispositional mindfulness is significantly related to the SAST-R Core subscale scores.

Table 2 Means, standard deviations, and bivariate correlations among study variables

	1	2	3	4	5
1. AUDIT	–				
2. DUDIT	−.50**	–			
3. MAAS	−.14**	−.26**	–		
4. Core	.12*	.18**	−.27**	–	
5. Age	.30**	−.50**	.14**	−.17**	–
M	14.78	17.18	3.68	2.10	37.40
SD	12.93	15.13	.97	3.08	12.72

AUDIT Alcohol Use Disorders Identification Test total score, *DUDIT* Drug Use Disorders Identification Test total score, *MAAS* Mindful Attention Awareness Scale average score, *Core* Total score for the core items on the sexual addiction screening test-revised

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

Table 3 Hierarchical regression analyses predicting compulsive sexual behavior among women in residential treatment for substance use disorders

Predictor		R^2	ΔR^2	β	F
Step 1		.06			4.62**
	Age			−.09	
	AUDIT			.21**	
	DUDIT			.19*	
Step 2		.09	.03		5.58***
	Age			−.08	
	AUDIT			.16*	
	DUDIT			.14	
	MAAS			−.19**	

SAST-R Core scores were logarithmically transformed prior to regression analyses *AUDIT* Alcohol Use Disorders Identification Test total score, *DUDIT* Drug Use Disorders Identification Test total score, *MAAS* Mindful Attention Awareness Scale average score

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

Discussion

The present study examined dispositional mindfulness as a potential protective factor for CSB among women in treatment for SUD, thereby extending mindfulness research to women's CSB. Results of the present study supported our hypothesis; dispositional mindfulness negatively related CSB among women in the present sample controlling for age, alcohol, and drug problems and use, which are known correlates of both CSB and dispositional mindfulness (Chiesa and Serretti 2014; Deneke et al. 2015). Notably, alcohol problems and use, but not drug problems and use, remained a significant predictor of women's CSB even after dispositional mindfulness was added as a predictor. Furthermore, a majority of women (53.2%) endorsed at least one concern with CSB, and 12.6% fell within the at-risk range for CSB. These preliminary findings support and extend existing CSB and mindfulness research and theory.

Previous research provided preliminary evidence for the protective utility of dispositional mindfulness for CSB (Brem et al. 2017b; Shorey et al. 2016). Individuals with higher levels of dispositional mindfulness tended to accept internal and external experiences as transient and therefore displayed fewer efforts to avoid aversive experiences through compulsive, maladaptive behaviors (Brown et al. 2007). Similarly, mindful individuals willingly approached, as opposed to compulsively reacted to, distress such that more adaptive emotion regulation strategies were used in place of maladaptive responses (e.g., CSB; Brown et al. 2007). Because women who engage in CSB experience a number of aversive internal and external experiences intricately linked to their CSB (e.g., trauma symptoms, loneliness, and shame), it follows that women who are more mindful may be less likely to engage in CSB as a coping strategy for these and other painful experiences. Indeed, our results suggested that women who were more mindful were less likely to experience problems controlling sexual behavior.

It should be noted, however, that all of the women who participated in the present study were diagnosed with one or more SUD, which suggests that even those with higher levels of dispositional mindfulness still engaged in problematic and potentially impulsive behaviors (e.g., substance use). That alcohol problems and use related to women's CSB even after controlling for dispositional mindfulness suggest that other variables (e.g., impulsivity) may account for the association between alcohol problems and CSB. Due to the limited understanding of CSB among women with SUD, the function of CSB among this population is largely unknown. For instance, Carnes (2001) posited that CSB and substance use are complexly intertwined such that increased substance use may contribute to more risky behaviors, including sexual activity. Alternately, for some individuals, substance use may heighten the experience of sexual activity, thus reinforcing the pairing of illicit substances with sexual activity. Among women with SUD, it is plausible that CSB are prompted less by a need to avoid aversive experiences and is instead used as a method to obtain illicit substances. While findings from the present study provided preliminary evidence for dispositional mindfulness as a protective factor for women's CSB, a more comprehensive understanding of the relations between CSB and substance use among women would help elucidate for whom, and under which circumstances, dispositional mindfulness is beneficial.

Limitations and Future Research

Despite these implications, the present study has a number of limitations which should be considered when interpreting results. First, the present study used chart-review, cross-sectional methodology which precludes the ability to determine directionality or draw causal inferences from the data. While data suggest that women's CSB are motivated by efforts to avoid unpleasant experiences, the motivations for CSB among women in the present study could not be ascertained. Longitudinal research using event-level research methods (e.g., daily diaries) would better elucidate women's affective experiences before, during, and after CSB, as well as the extent to which having an open, non-judgmental approach to present-moment experiences prevents engagement in CSB. Second, patient medical records included total scores of each measure only, thus reliability statistics could not be calculated. Third, the generalizability of our findings is limited as our sample was comprised of primarily White, married women who were diagnosed with one or more SUD. Future research should examine the relations among dispositional mindfulness and CSB among more diverse samples, which include individuals in same-sex relationships. Fourth, results of the present study were limited by self-report methodology. Specifically, the present study did not include structured diagnostic interviews for SUD. Dispositional mindfulness was assessed with the MAAS, which conceptualizes dispositional mindfulness as a unitary construct as opposed to a multifaceted construct (e.g., Baer et al. 2006). Furthermore, social desirability associated with CSB self-reports may be minimized by including partner or observer reports (e.g., reporting on their frequency of pornography use, masturbation, and extradyadic relationships, etc.). Researchers should consider using structured, multifaceted assessments of SUD, CSB, and dispositional mindfulness to provide a better approximation of relationships among study variables. Additional research investigating the role of mindfulness in relation to CSB within a population of women who fall within the at-risk range of CSB, or who self-identify as having CSB, is warranted.

In addition to the present study, only two other studies examined dispositional mindfulness in relation to CSB among a population of individuals in treatment for SUD (Brem et al. 2017b; Shorey et al. 2016). Therefore, there is much to be discovered with respect to the mediating mechanisms

underlying the relations between dispositional mindfulness and CSB among adults in treatment for SUD. For instance, recent evidence suggested that dispositional mindfulness may facilitate distress tolerance and emotion regulation such that women's engagement in potentially impulsive, maladaptive behaviors (e.g., aggression) is minimized (Brem et al. 2017a; Shorey et al. 2014). It is plausible that higher levels of dispositional mindfulness increase one's ability to tolerate and appropriately respond to aversive experiences (e.g., shame, guilt, anxiety, depression, or loneliness) such that CSB are less likely to occur. Future research should consider these and other mediating mechanisms (e.g., impulsivity) in longitudinal studies to elucidate the relations between dispositional mindfulness and CSB, particularly among women. Similarly, mindfulness-based interventions have demonstrated efficacy in treating SUD (Chiesa and Serretti 2014). Future research should examine whether CSB moderate the efficacy of such interventions, and whether increases in mindfulness among women in treatment for SUD correspond with fewer CSB. Specifically, researchers should determine whether helping women who endorse problems related to CSB become more willing to approach internal and external experiences without judgment attenuates their use of CSB to cope with aversive experiences. Finally, developing a comprehensive understanding of the thoughts and situations which elicit and follow CSB using event-level research methodology (e.g., daily diary methods) may inform research aiming to determine whether, and to what extent, mindfulness-based interventions may be beneficial for women with SUD.

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Author Contributions MB: designed and executed the study, analyzed data, and wrote the paper. RS: collaborated with the analyses and writing of the study. SA: collaborated in the writing and editing of the final manuscript. GS: collaborated in the writing and editing of the final manuscript.

Compliance with Ethical Standards

Conflict of Interest Gregory Stuart started conducting psychoeducational treatment groups for patients at Cornerstone of Recovery for a maximum of 4 h per week. None of this research project pertains to any of the psychoeducational groups. Dr. Stuart does not ever do any study recruitment, is not informed which patients do or do not participate in research, and does not mention anything about research to the patients attending groups. Ryan Shorey started working as a research consultant at Cornerstone. There is no restriction on what Dr. Shorey can publish and his research consultation does not influence the study results in any way. Dr. Shorey does not interact with Cornerstone patients. Dr. Shorey has reported all of his consultation activities to Ohio University and no concern about financial conflict of interest has been raised. Scott Anderson is employed as the Chief Clinical Officer/Clinical Director at Cornerstone of Recovery. Dr. Anderson's positions do not influence the study results in any way. Meagan Brem declares no conflict of interest.

Human and animal rights All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

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References

Babor, T. F., Higgins-Biddle, J. C., Saunders, J. B., & Monteiro, M. G. (2001). *The Alcohol Use Disorders Identification Test: guideline for use in primary care* (2nd ed.). Geneva: World Health Organization.

Baer, R. A., Smith, G. T., Hopkins, J., Krietemeyer, J., & Toney, L. (2006). Using self-report assessment methods to explore facets of mindfulness. *Assessment, 13*(1), 27–45.

Bihari, J. L., & Mullan, E. G. (2014). Relating mindfully: a qualitative exploration of changes in relationships through mindfulness-based cognitive therapy. *Mindfulness, 5*, 46–59.

Bowlin, S. L., & Baer, R. A. (2012). Relationships between mindfulness, self-control, and psychological functioning. *Personality and Individual Differences, 52*(3), 411.

Brem, M. J., Khaddouma, A., Elmquist, J., Florimbio, A. R., Shorey, R. C., & Stuart, G. L. (2017a). Dispositional mindfulness, distress tolerance, and women's dating violence perpetration: a path analysis. *Journal of Interpersonal Violence.* doi:10.1177/0886260516664317.

Brem, M. J., Shorey, R. C., Anderson, S., & Stuart, G. L. (2017b). Dispositional mindfulness, shame, and compulsive sexual behaviors among men in residential treatment for substance use disorders. *Mindfulness.* doi:10.1007/s12671-017-0723-0

Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology, 84*(4), 822–848.

Brown, K. W., Ryan, R. M., & Creswell, J. D. (2007). Mindfulness: theoretical foundation and evidence for its salutary effects. *Psychological Inquiry, 18*(4), 211–237.

Carnes, P. (2001). *Out of the shadows: Understanding sexual addiction*. Center City: Hazelden Publishing.

Carnes, P., Delmonico, D. L., Griffin, E., & Moriarity, J. M. (2001). *In the shadows of the net. Breaking free of compulsive online sexual behavior*. Center City: Hazelden Foundation.

Carnes, P., Green, B., & Carnes, S. (2010). The same yet different: refocusing the Sexual Addiction Screening Test (SAST) to reflect orientation and gender, sexual addiction and compulsivity. *The Journal of Treatment and Prevention, 17*(1), 7–30.

Chawla, N., & Ostafin, B. (2007). Experiential avoidance as a functional dimensional approach to psychopathology: an empirical review. *Journal of Clinical Psychology, 63*(9), 871–890.

Chiesa, A., & Serretti, A. (2014). Are mindfulness-based interventions effective for substance use disorders? A systematic review of the evidence. *Substance Use and Misuse, 49*(5), 492–512.

Dakwar, E., Mariani, J. P., & Levin, F. R. (2011). Mindfulness impairments in individuals seeking treatment for substance use disorders. *The American Journal of Drug and Alcohol Abuse, 37*(3), 165–169.

Deneke, E., Knepper, C., Green, B. A., & Carnes, P. J. (2015). Comparative study of three levels of care in a substance use disorder inpatient facility on risk for sexual addiction. *Sexual Addiction and Compulsivity, 22*(2), 109–125.

Dhuffar, M. K., & Griffiths, M. D. (2014). Understanding the role of shame and its consequences in female hypersexual behaviours: a pilot study. *Journal of Behavioural Addictions, 3*(4), 231–237.

Ferree, M. C. (2001). Females and sex addiction: myths and diagnostic implications. *Sexual Addiction & Compulsivity, 8*, 287–300.

Kafka, M. P. (2010). Hypersexual disorder: a proposed diagnosis for *DSM-V. Archives of Sexual Behavior, 39*, 377–400.

McKeague, E. L. (2014). Differentiating the female sex addict: a literature review focused on themes of gender difference used to inform recommendations for treating women with sex addiction. *Sexual Addiction and Compulsivity, 21*, 203–224.

Nitzan-Assayag, Y., Aderka, I. M., & Bernstein, A. (2015). Dispositional mindfulness in trauma recovery: prospective relations and mediating mechanisms. *Journal of Anxiety Disorders, 336*, 25–32.

Osborne, J., & Waters, E. (2002). Four assumptions of multiple regression that researchers should always test. *Practical Assessment, Research & Evaluation, 8*(2). Retrieved from: http://PAREonline.net/getvn.asp?v=8&n=2.

Perera, B., Reece, M., Monahan, P., Billingham, R., & Finn, P. (2009). Childhood characteristics and personal dispositions to sexually compulsive behavior among young adults. *Sexual Addiction & Compulsivity, 16*, 131–145.

Phillips, B., Hajela, R., & Hilton, D. L. (2015). Sex addiction as a disease: evidence for assessment, diagnosis, and response to critics. *Sexual Addiction and Compulsivity, 22*(2), 167–192. doi:10.1080/10720162.2015.1036184.

Reid, R. C., Harper, J. M., & Anderson, E. H. (2009). Coping strategies used by hypersexual patients to defend against the painful effects of shame. *Clinical Psychology and Psychotherapy, 16*, 125–138.

Saunders, J. B., Aasland, O. G., Babor, T. F., de la Fuente, J. R., & Grant, M. (1993). Development of the Alcohol Use Disorders Identification Test (AUDIT): WHO collaborative project on early detection of persons with harmful alcohol consumption–II. *Addiction, 88*, 791–804.

Schneider, J. P., & Irons, R. R. (2001). Assessment and treatment of addictive sexual disorders: relevance for chemical dependency relapse. *Substance Use & Misuse, 36*(13), 1795–1820. doi:10.1081/JA-100108428.

Shorey, R. C., Seavey, A. E., Quinn, E., & Cornelius, T. L. (2014). Partner-specific anger management as a mediator of the relation between mindfulness and female perpetrated dating violence. *Psychology of Violence, 4*, 51–64. doi:10.1037/a0033658.

Shorey, R. C., Elmquist, J., Gawrysiak, M. J., Anderson, S., & Stuart, G. L. (2016). The relationship between mindfulness and compulsive sexual behavior in a sample of men in residential treatment for substance use disorders. *Mindfulness, 7*, 866–873.

Stavro, K., Rizkallah, E., Dinh-Williams, L., Chiasson, J. P., & Potvin, S. (2013). Hypersexuality among a substance use disorder population. *Sexual Addiction & Compulsivity, 20*(3), 210–216.

Stuart, G. L., Moore, T. M., Kahler, C. W., & Ramsey, S. E. (2003a). Substance abuse and relationship violence among men court-referred to batterers' intervention programs. *Substance Abuse, 24*(2), 107–122.

Stuart, G. L., Moore, T. M., Ramsey, S. E., & Kahler, C. W. (2003b). Relationship aggression and substance use among women court-referred to domestic violence intervention programs. *Addictive Behaviors, 28*(9), 1603–1610.

Woods, H., & Proeve, M. (2014). Relationships of mindfulness, self-compassion, and meditation experience with shame-proneness. *Journal of Cognitive Psychotherapy: An International Quarterly, 28*(1), 20–33.