

# The Importance of Sexual Context in the Subjective Appraisal of Sexual Arousal, Desire, and Orgasm Among BDSM Practitioners

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Sexual arousal, desire, and orgasm are experienced differently across gender, sexual orientation, and context. The variety of sexual practices performed by the BDSM (bondage, domination/submission, discipline, and sadomasochism) community enables researchers to better understand the human subjective sexual response across a wider range of erotic contexts. The present study investigates the subjective experience of sexual arousal, desire, and orgasm across contexts and their associations with sexual sensation seeking in BDSM practitioners. A total of 122 participants were recruited and completed an online questionnaire. Findings suggest that BDSM practitioners experience sexual arousal, desire, and orgasm differently based on whether they engage in solitary masturbation, partnered intercourse, or BDSM practices. This experience is also related to their level of sexual sensation seeking. This investigation represents a key initiative in understanding the complexity of human sexual responses across multiple contexts and within diverse populations.

*Keywords:* BDSM, sexual arousal and desire, orgasm, subjective experience, sexual contexts

L'excitation sexuelle, le désir et l'orgasme sont vécus différemment selon le sexe, l'orientation sexuelle et le contexte. La variété des pratiques sexuelles adoptées par la communauté BDSM (bondage, domination/soumission, discipline et sadomasochisme) permet aux chercheurs de mieux comprendre la réponse sexuelle subjective humaine dans un éventail de contextes érotiques. Cette étude investigate l'expérience subjective de l'excitation sexuelle, du désir et de l'orgasme à travers les contextes et leurs associations avec la quête de sensations sexuelles chez les pratiquants du BDSM. Un échantillon de 122 participants a complété un questionnaire en ligne. Les résultats suggèrent que les pratiquants du BDSM ressentent différemment l'excitation sexuelle, le désir et l'orgasme s'ils se livrent à la masturbation solitaire, à des rapports sexuels en couple ou aux pratiques BDSM. Cette expérience est aussi corrélée à leur niveau de quête de sensations sexuelles. Cette étude représente une initiative clé pour comprendre la complexité des réponses sexuelles humaines dans de multiples contextes et dans diverses populations.

*Mots-clés :* BDSM, excitation sexuelle et désir, orgasme, expérience subjective, contextes sexuels

In the past, individuals who practice bondage/discipline, domination/submission, and sadism/masochism (BDSM; Richards & Barker, 2015) have been the target of considerable stigmatization and social marginalization. Yet, recent studies show that BDSM practices are commonly fantasized about and experienced in the general population (Joyal & Carpentier, 2017; Joyal, Cossette, & Lapierre, 2014). Indeed, the diversity of human sexual responses reflects our organism's complexity (Pfaus et al., 2012).

The capacity to respond sexually varies greatly between individuals, but models of human sexual responses are largely based on studies performed on conventional populations (e.g., undergraduate

students; Chivers, Seto, Lalumière, Laan, & Grimbos, 2010), which do not encompass the full human potential to respond sexually across contexts and sexual experiences. Moreover, most of these studies use objective physiological measures of sexual responses, which are informative and relatively stable across individuals of the same biological sex, but limited in their capacity to describe one's appraisal of a sexual response. Consequently, this study aims to address these issues by exploring the phenomenological subjective experiences of sexual arousal, desire, and orgasm in individuals with sexual interests in BDSM (Richards & Barker, 2015). By safely and consensually using a variety of stimuli to explore their sexuality, BDSM practitioners provide researchers with a unique opportunity to investigate the nuances of the human sexual responses (i.e., sexual arousal, desire, and orgasm) across a wider range of experiences.

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We would like to express our gratitude to all the participants who contributed to this research project and continue to support our investigations into human sexuality. We would also like to thank the JIRIRI team for their suggestions during the reviewing process. Please address all correspondence concerning this article to Catherine Delisle (email: catherine.delisle3@gmail.com).

## Models of Human Sexual Responses

**Linear models.** Masters and Johnson (1966) posited their Human Sexual Response model, composed of four linear physiological stages: excitation, plateau, orgasm, and resolution. The first stage (i.e., excitation) is the physiological preparation for sexual intercourse (e.g., genital vasocongestion, heart rate acceleration) as a response to erotic stimuli (e.g., kissing, erotic images). The second stage (i.e., plateau) is characterized by an intensification of sexual excitation and pleasure. The third stage (i.e., orgasm) is a brief climactic period of sexual excitement and pleasure that results in repeated muscular contractions in the pelvic region. In females, the vaginal muscles and uterus will experience repeated contractions. In males, the base of the penis will experience contractions and semen will be ejaculated (Scovell & Eisenberg, 2016). In the final stage (i.e., resolution), the body relaxes (e.g., muscle relaxation, heart rate decrease) and returns to its baseline, unexcited state.

Although certain individuals, particularly males, identify with this linear progression, there are numerous shortcomings with Masters and Johnson's (1966) model. For instance, Kaplan (1974) noted that this model overlooks the cognitive precursors of sexual response (i.e., sexual desire) which plays a role in initiating sexual activity, and Robinson (1976) argued that the plateau phase was the final stage of the excitation phase. Hence, in a revised version of this model, the sexual response was proposed to begin with sexual desire, which was followed by arousal, orgasm, and finally, resolution. However, this type of linear model lacked empirical support and has been criticized as being unrepresentative of individual experiences (Meana, 2010; Nowosielski, Wróbel, & Kowalczyk, 2016; Tiefer, 1991).

**Circular models.** Alternative circular models have been proposed wherein the motivation to engage in sexual activities is seen as more complex. Specifically, the sexual activity, desire, or arousal may begin for a variety of reasons depending on the individual and the situation. However, once the activity is initiated, the increase in arousal may contribute to the desire to pursue the activity. The sexual desire will also feedback and increase arousal levels, creating a circular pathway (Basson, 2001, 2002; Brome et al., 2016). Moreover, Basson (2000) proposed that the rewarding sensations previously experienced, such as emotional closeness, increased commitment, and bonding, will feed forward to induce the motivation to engage in sexual activities. This model accounts for the overlap and interrelations between sexual arousal and desire. It also emphasizes the importance of the subjective aspects of the sexual response as they

parallel the physiological components (e.g., genital responses, heart rate, increased sensitivity). Hayes (2011) highlights that other models have attempted to consolidate the factors that “promote” or “inhibit” human sexual responses, but they have failed to provide rigorous definitions or descriptions of the phases of the sexual responses (e.g., Bancroft, 1999; Perelman, 2009).

## Sexual Arousal and Desire

In trying to accurately describe sexual arousal and desire and respond to the need for evidence-based conceptualizations of the human sexual responses that accounts for interpersonal, religious, social, psychological, and biological factors, Toledano and Pfaus (2006) sought to develop a new tool, the *Sexual Arousal and Desire Inventory* (SADI), which captures the subjective experience of sexual arousal and desire. The SADI uses an adjective-rating methodology, whereas each adjective loads onto at least one of the following four factors (with some adjectives overlapping across subscales): (1) an evaluative factor, reflecting cognitive-emotional variables of subjective experience (e.g., *passionate, seductive, pleasure*); (2) a physiological factor, related to autonomic and endocrine experiential features (e.g., *tingly all over, entranced, throbs in genitals*); (3) a motivational factor (e.g., *anticipatory, lustful, tempted*), and (4) a negative/aversive factor, reflecting inhibitory characteristics of sexual arousal and desire (e.g., *frigid, unattractive, uninterested*). The SADI, which can be used as a state or trait measure, was developed as a response to the paucity of information regarding the complex, multidimensional, and interrelated nature of factors involved in the human sexual responses (Toledano & Pfaus, 2006). While acknowledging the debate surrounding a definition of sexual arousal and desire, Toledano and Pfaus (2006, p. 854) defined sexual arousal as:

Increased autonomic activation that prepares the body for sexual activity and decreases the amount of sexual stimulation necessary to induce orgasm. This includes both parasympathetic increases in blood flow to genital tissues and sympathetic increases in blood flow to striated and smooth muscles that participate in different sexual responses, such as increased heart and breathing rate. Sexual arousal also includes a central component that increases neural “tone” or preparedness to respond to sexual incentives.

The awareness of those sensations constitutes what is called the subjective sexual arousal. Contrastingly, Toledano and Pfaus (2006, p. 857) defined sexual desire as: “[...] an energizing force that motivates a person to seek out or initiate sexual contact and behavior”. As Toledano and Pfaus (2006, p. 854) explain, “[sexual desire] is the “wanting” or “craving”

for sexual activity". For example, being horny is fueled by sexual arousal through physiological responses (e.g., erection for men, wetness for women) and sexual desire through cognitive appraisals (e.g., approaching a possible mate, flirting).

Importantly, sexual arousal and desire are based on an individual's capacity to perceive and become aware of physiological state changes, and they rely on the person's cognitive evaluation of these changes, as well as their emotional meaning (Brome et al., 2016; Carvalho & Nobre, 2011; Dosch, Rochat, Ghisletta, Favez, & Van der Linden, 2016; Nimbi, Tripodi, Rossi, & Simonelli, 2017). Toledano and Pfaus' (2006) approach to describing sexual arousal and desire, which we use in the present investigation, mirrors the multidimensional models proposed by Basson (2000, 2001, 2002), as it accounts for the interrelation and coordination of perceptual-cognitive, emotional, motivational, and physiological components of the sexual response.

While establishing the validity of the SADI, Toledano and Pfaus (2006) discovered that sexual arousal and desire can be context-dependent and gender-specific. For instance, individuals' subjective experience is different depending on the type of pornography videos they watch or if they are fantasizing about erotic content (Toledano & Pfaus, 2006). Men experience high concordance between genital arousal and subjective sexual arousal and desire. In contrast, women display more discordant responses between physiological and subjective measures (Chivers et al., 2010). Moreover, men and women's subjective experiences of sexual desire and arousal tended to be different on the evaluative and negative/aversive dimensions of the SADI, but not on the physiological and motivational dimensions (Toledano & Pfaus, 2006). Specifically, men reported higher mean scores for the evaluative dimension than women, whereas women reported higher mean scores on the negative/aversive dimension (Toledano & Pfaus, 2006). Other studies, such as by Persson, Ryder, and Pfaus (2016), have found an association between sexual orientation and sexual arousal and desire during sexual activities. Interestingly, bisexual men and women reported higher sexual arousal and desire for women than heterosexual men and lesbians (Persson et al., 2016).

### **Orgasm**

Sexual pleasure is a key motivating factor in sexual activity (Boul, Hallam-Jones, & Wylie, 2008). Orgasm is certainly considered by many as the hallmark of our hedonistic pursuit of sexual gratification as it provides individuals with highly pleasurable sensations (Kontula & Miettinen, 2016).

Orgasm is included in all models of the human sexual responses, but remains difficult to define as it reflects more than simple muscular contractions in the pelvic region (Ortique & Bianchi-Demicheli, 2007; Tavares, Laan, & Nobre, 2017). Similarly to sexual arousal and desire, orgasms have been traditionally investigated using objective physiological measures. However, as Mah and Binik (2002) note, these physiological measures fail to account for the subjective component of the orgasmic phenomenon, which is likely to be influenced by biopsychosocial factors. Therefore, to account for the variability in its phenomenological expression across individuals, Mah and Binik (2002) also took a multidimensional approach in describing and evaluating the subjective qualities of orgasm. Based on biopsychosocial models by Davidson (1980) and Warner (1981), which indicated that orgasm phenomenology comprises both physical sensations and psychological/emotional experiences, Mah and Binik developed a two-dimensional model of orgasm using an adjective rating methodology.

This model highlights that orgasms are comprised of two dimensions, namely sensory, which encompasses all sensations arising from the physiological events of orgasm, and cognitive-affective, which relates to the affective and evaluative experiences associated with orgasm experiences. Mah and Binik (2002) also found that, to some extent, the human subjective experience of orgasm is context-dependent and gender-specific. Specifically, the situational context in which the orgasm is being experienced will influence the individuals' experience and subsequent description of orgasm, such as whether the individual is engaging in solitary masturbation or partnered intercourse (Mah & Binik, 2002, 2005). Moreover, gender differences are observed with regards to the sensory component, whereby men describe their orgasm with items relating to shooting sensations, likely reflecting males' ejaculation capacity (Mah & Binik, 2002). Overall, their findings suggest that, beyond the sensation of ejaculation, male and female orgasm experiences are subjectively experienced in similar ways.

### **Sexual Sensation Seeking and Human Sexual Experience**

In this regard, some researchers proposed that differences in the breadth of sexual behaviors and preferences may also be related to personality traits such as higher levels of sensation seeking (e.g., Martin, Smith, & Quirk, 2016). Sensation seeking is defined as "a personality trait expressed in the generalized tendency to seek varied, novel, complex, and intense sensations and experiences and the willingness to take risks for the sake of such experiences" (Zuckerman, 1979, 1994, 2007, p. 1).

Kalichman and colleagues (1994) sought to narrow this down to sexual sensation seeking. They operationally defined it as “the propensity to attain optimal sexual excitement and to engage in novel sexual experiences” (Kalichman et al., 1994, p. 387). Elevated levels of sensation seeking are generally associated with a high physiological response and a rapid habituation to new stimuli (Martin et al., 2016). Habituation refers here to decreased response due to repeated stimulation and not sensory or motor fatigue (Groves & Thompson, 1970). This habituation pattern of response to sexual stimuli may be felt through a differentiated sexual subjective experience.

Indeed, some evidence shows that sexual sensation seeking is associated with different subjective and psychophysiological sexual responses. For example, a recent study by Burri (2017) found that women who scored higher on a measure of sexual sensation seeking reported better sexual functioning, as indicated by higher levels of desire, arousal, lubrication, and orgasm, and by less sexual pain. Yet, the association between sexual sensation seeking and sexual functioning has yet to be investigated across various sexual contexts.

### **BDSM: A Gateway to Understanding Human Sexual Responses**

Overall, research suggest that the subjective human sexual responses (i.e., sexual arousal, desire, and orgasm) may be phenomenologically experienced differently across different erotic contexts (Goldey & van Anders, 2012). However, research is quite limited, because researchers mostly focused on conventional populations (e.g., undergraduate students; Chadwick, Burke, Goldey, & van Anders, 2017; Dewitte, 2015), in a limited number of contexts (e.g., pornography viewing, fantasy, solitary masturbation, and partnered sexual intercourse), and using objective physiological measures (Chivers et al., 2010).

As such, these methodological limitations fail to account for the variety and complexity of sexual responses in erotic contexts, such as BDSM practices. In order to understand the human potential to respond sexually across diverse modes of stimulation and a wide variety of contexts, subjective measures must be incorporated in investigations. This methodology can also help reveal the motivation for individuals to explore their sexuality in a diverse manner. To a greater extent, it can tell us about our sexual selves and our capacity to expand our sexual horizons, such as BDSM practitioners do. Finally, understanding diverse sexual practices provides us with an opportunity to explore the relationships between the subjective experience of sexual responses and sensation seeking across a larger variety of erotic contexts.

Our capacity to respond sexually appears to vary greatly among individuals. To grasp its spectrum, one needs to apprehend its extremes and compare them to the more central tendencies. This is what individuals with sexual interests in BDSM enable us to do. BDSM interests are an extreme expression of our potential for sexual arousal, desire, and experiencing orgasm towards different stimulation. As such, BDSM practitioners enable us to study mechanisms that may well apply in more subtle ways in the non-BDSM population.

BDSM is an umbrella term designating a vast range of consensual sexual practices including: (1) bondage and discipline (B/D), which refers to physical and psychological restraints; (2) domination and submission (D/S), which involves one or more person seizing control while the other(s) renounces it; and (3) sadism and masochism (S/M), which refers to sexual gratification through psychological/physical pain or humiliation of others, or from one’s own pain and humiliation (Federoff, 2008; Hébert & Weaver, 2015; Richards & Barker, 2015).

As previously mentioned, BDSM interests have long been stigmatized and considered pathological. However, claims that BDSM interests result from psychopathology, dangerousness tendencies, sexual difficulties, or early traumatic experience have been systematically disproven over the course of the last two decades of research (e.g., Connolly, 2006; Joyal & Carpentier, 2017; Richters, de Visser, Rissel, Grulich, & Smith, 2008). Individuals with an interest in BDSM are now considered to have distinct sexual preferences, which are often associated with increased well-being and sexual satisfaction in comparison to their non-BDSM counterparts (Ambler et al., 2017; Graham, Butler, McGraw, Cannes, & Smith, 2016; Wismeijer & van Assen, 2013). BDSM is also considered a sexual subculture oriented towards experiencing a variety of bodily sensations and erotic stimulations (Caruso, 2012; Spengler, 1977). BDSM erotic activities include power dynamic/exchange (e.g., dominance, submission, switching), pain infliction (e.g., spanking, whipping, burning), humiliation (e.g., verbal degradation), physical restriction (e.g., handcuffs, ropes) and fantasy role-play (e.g., slavery, being a pet). BDSM practices vary in terms of sophistication, intensity, norms, rules and codes, but physical and psychological well-being remain central (Caruso, 2012). While most BDSM practitioners also engage in other forms of non-BDSM sexual interactions, some are fully committed to BDSM relationships, which requires constant role-play (Brame, 2000; Kolmes, Stock, & Moser, 2006; Sandnabba, Santtila, Alison, & Nordling, 2002).

BDSM is commonly fantasized about and experienced in the general population. Joyal and Carpentier (2017) surveyed a large sample of Canadian adults who did not self-identify as BDSM practitioners. They found that approximately 23.8% of participants reported masochistic fantasies (27.8% of women and 19.2% of men). The prevalence of BDSM experiences, as opposed to fantasies is somewhat lower. Joyal and Carpentier's findings revealed that 19.2% of participants reported at least one masochistic experience within their lifetime, whereas Richters and colleagues (2008) found that, among sexually active Australians, 2.0% of men and 1.4% of women reported engaging in BDSM interactions within the past year. According to Joyal and Carpentier (2017), the high prevalence of self-reported BDSM fantasies and experiences calls into question the definition of normophilic and paraphilic interests.

Moreover, contrary to popular misconception, BDSM interests do not appear to be a narrowing of the spectrum of stimuli provoking sexual arousal, but rather an expansion. A study by Chivers, Roy, Grimbos, Cantor, and Seto (2014) shows that individuals with interest in masochism have non-specific subjective and physiological sexual responses when faced with masochistic or non-masochistic sexual stimuli, compared to controls who respond only to non-masochistic stimuli. Thus, it is not that individuals with masochistic interests are not able to be aroused by non-masochistic stimuli, but that they are more fluid regarding what stimuli can trigger their arousal, compared to non-masochist controls.

BDSM practices offer insight into the diversity of sexual experiences and the phenomenology of our sexual responses towards these experiences, which may well represent epigenetic changes in the brain that come from prior experiences of sexual pleasure (Pfaus et al., 2012). BDSM practitioners provides us with an opportunity to look at the human sexual responses across a broader range of sexual contexts (i.e., sexual practices) within individuals. Given that the general population also explores certain BDSM activities, it might be possible to find similar experiences in the non-self-identified BDSM population (Joyal & Carpentier, 2017). However, selecting a sample of self-identified BDSM practitioners would require a smaller sample size considering the larger range of sexual activities they engage in. By exploring a vast range of sensations across various erotic contexts, BDSM practitioners open a door to the investigation of how we respond sexually in terms of arousal, desire, and orgasm to a wider range of stimulations.

In fact, BDSM practitioners often report that their BDSM sexual interactions are intensely embodied and

multisensorial. In a recent study by Turley (2016), a core feature of BDSM play was described by participants as an experience involving diverse bodily sensations that are experienced through various senses (i.e., olfactory, tactile, and auditory stimulation). Participants further stated that such multisensorial experiences within the context of BDSM allowed their focus to shift from cognitive awareness to embodied experience. Moreover, BDSM activities enable the experimentation and manipulation of corporeal sensations on oneself and others. Participants revealed that this enables exploratory experiences that are not permitted in non-BDSM sexual contexts. As such, the appeal towards BDSM may result from the increased opportunities for exploring a diverse range of stimuli and physiological experiences.

As this literature review shows, researches have begun investigating BDSM practitioners and their sexual experiences. However, research so far has ignored how these individuals subjectively experience the sexual episodes in which they are engaged.

### **What We Still Need to Know About Subjective Sexual Experience and the Role of Sexual Sensation Seeking**

Research suggest that BDSM sexual practices may also be related to differential experiences across individuals. For example, findings indicate that women report greater sexual desire for masochistic stimuli (Joyal & Carpentier, 2017; Renaud & Bryers, 1999). Moreover, BDSM practices seem to be related to heightened experiences of sexual arousal and desire for its practitioners (Hébert & Weaver, 2015). Sexual arousal and desire is somewhat context-dependent and gender-specific. Therefore, BDSM sexual experiences may be subjectively experienced differently than non-BDSM sexual experiences by its practitioners. If that is the case, this could provide evidence for the differential phenomenological experience of sexual arousal and desire across various erotic contexts. It could also further explain why individuals seek BDSM stimuli by providing a more accurate description of the experience.

Furthermore, although BDSM practices are not necessarily engaged in for the sake of reaching orgasm, many activities revolve around controlling or preventing orgasm until a high level of arousal and excitation is achieved (Caruso, 2012; Connolly, 2006; Lenius, 2011; Turley, 2016). Orgasms are often used in BDSM practices as a reward for good behavior in a domination-submission interaction or to condition various stimuli with pleasure (Caruso, 2012). While orgasms still represent a rewarding and pleasurable experience that contributes to the well-being of BDSM practitioners, they may well take a different function across BDSM contexts (Mah & Binik, 2005; Pfaus et

al., 2012). Given that BDSM practices are qualitatively different in terms of intensity, practices, settings, or number of partners than solitary masturbation and non-BDSM partnered sexual intercourse (Richards & Barker, 2015), it is presumed that the subjective experience of orgasm during BDSM sexual experience will be different.

Finally, although the relationship between BDSM practice and sexual sensation seeking has not been clearly established, BDSM practitioners tend to display traits that reflect thrill-seeking tendencies. For example, Richters and colleagues' (2008, p. 1660) Australian national survey showed that individuals who reported engaging in BDSM were more likely to have: "experienced oral sex and/or anal sex, to have had more than one partner in the past year, to have had sex with someone other than their regular partner, and to have taken part in phone sex, visited an Internet sex site, viewed an X-rated (pornographic) film or video, used a sex toy, had group sex, or taken part in manual stimulation of the anus, fisting or rimming". The variety and "non-vanilla" nature of these practices reflects a certain openness to experience and extraversion, traits which have been observed in BDSM practitioners (Wismeijer & van Assen, 2013).

Together, this evidence puts forth the possibility that individuals who practice BDSM have a propensity towards sensation seeking in sexual contexts, and that the rapid habituation that marks the sexual response of individuals high on this trait may result in chronically low levels of physiological activation in BDSM practitioners. This could, in turn, drive them to search for more intense/diversified sexual sensations offered by BDSM practices (Martin et al., 2016). It is thus likely that individuals who practice BDSM will experience a more positive experience of subjective sexual arousal, desire, and orgasm within a BDSM context relative to non-BDSM contexts. Furthermore, people who practice BDSM should rate their experience as being higher in sensations and lower in cognitive-affective interpretations when considering a BDSM context compared to a partnered, non-BDSM sexual context.

### Goals and Hypotheses

The present study aims to explore BDSM practitioners' phenomenological subjective experiences of sexual arousal, sexual desire, and orgasm. It will also investigate the relationship between sexual sensation seeking, sexual arousal and desire, and orgasm in North American BDSM practitioners. It is proposed that BDSM practitioners' experience of sexual arousal, desire, and orgasm will be different depending on the context. Specifically:

Hypothesis 1: The sexual arousal and desire of BDSM practitioners will be higher on the evaluative, physiological, and motivational dimensions of the SADI (Toledano & Pfaus, 2006), and lower on its negative/aversive dimension when they engage in their preferred BDSM experience compared to their general experience of sexual arousal and desire.

Hypothesis 2: BDSM practitioners' experience of orgasm will be higher on the sensory and cognitive-affective dimension of the *Orgasm Rating Scale* (ORS; Mah & Binik, 2002) when they engage in a BDSM experience compared to solitary masturbation. Moreover, BDSM practitioners' experience of orgasm will be higher on the sensory dimension and lower on the cognitive-affective dimension of the ORS when they engage in a BDSM experience compared to non-BDSM partnered sexual intercourse.

Hypothesis 3: Since sexual sensation seeking motivates sexual arousal, desire and orgasm in BDSM practitioners, we expect sensation seeking to be positively related to these variables. More specifically, levels of sexual sensation seeking will be positively associated with the evaluative, motivational, and physiological dimensions of the SADI and negatively associated with the negative/aversive dimension of the SADI across solitary, partnered and BDSM-specific sexual experiences. Sexual sensation seeking will be positively associated with the cognitive-affective and sensory dimensions of the ORS across sexual contexts.

## Method

### Participants

One hundred and twenty-two participants ( $M_{\text{age}} = 32.07$  years;  $SD = 14.46$  years; age range = 18-72 years) were recruited using online advertisements on social media specialized BDSM groups (e.g., Facebook's BDSM info), on Fetlife.com groups (e.g., Mental BDSM), by word of mouth in the BDSM community, and through advertisements (e.g., flyers) at Concordia University. The sample was composed of 74 females (60.66%), 41 males (33.61%), two genderqueer individuals (1.64%), two agender individuals (1.64%), one transwoman (0.80%), one transman (0.80%), and one individual who self-identified as being androgynous (0.80%). Participants were invited to answer a 45-minute online questionnaire on LimeSurvey (version 2.50+) pertaining to their BDSM sexual life, sexual health, and sexual practices. To take part in this study, participants needed to be at least 18 years of age. Demographic information is presented in Table 1 and Table 2.

AROUSAL, DESIRE, AND ORGASM IN BDSM PRACTITIONERS

Table 1  
*Demographic Information for Self-identified Females and Males*

|   | All participants<br><i>N</i> = 122 | Females<br><i>n</i> = 74 | Males<br><i>n</i> = 41 |
|---|------------------------------------|--------------------------|------------------------|
| <i>M</i> <sub>age</sub> (years, <i>SD</i> )                       | 32.07 (14.46)                      | 27.61 (11.94)            | 39.90 (15.72)          |
| Age range (years)   | 18-72                              | 18-72                    | 18-70                  |
| Ethnicity (number of participants)                                |                                    |                          |                        |
| White   | 104                                | 63                       | 34                     |
| Hispanic, Latino or Spanish                                       | 3                                  | 0                        | 3                      |
| Black of African American   | 1                                  | 1                        | 0                      |
| Asian   | 7                                  | 4                        | 3                      |
| American Indian or Alaska Native                                  | 1                                  | 1                        | 0                      |
| Other   | 10                                 | 5                        | 0                      |
| Religion (number of participants)                                 |                                    |                          |                        |
| Catholicism   | 38                                 | 25                       | 12                     |
| Protestantism   | 21                                 | 10                       | 9                      |
| Judaism   | 9                                  | 5                        | 4                      |
| Islam   | 3                                  | 3                        | 0                      |
| Hinduism  | 4                                  | 2                        | 2                      |
| Buddhism  | 2                                  | 1                        | 1                      |
| Other   | 12                                 | 5                        | 5                      |
| No religion   | 31                                 | 21                       | 8                      |
| Sexual orientation (number of participants)                       |                                    |                          |                        |
| Exclusively heterosexual  | 47                                 | 29                       | 17                     |
| Predominantly heterosexual, only incidentally homosexual          | 26                                 | 19                       | 7                      |
| Predominantly heterosexual, but more than incidentally homosexual | 15                                 | 13                       | 2                      |
| Equally heterosexual and homosexual                               | 1                                  | 0                        | 0                      |
| Predominantly homosexual, but more than incidentally heterosexual | 0                                  | 0                        | 0                      |
| Predominantly homosexual, only incidentally heterosexual          | 5                                  | 0                        | 5                      |
| Exclusively homosexual  | 4                                  | 0                        | 4                      |
| Relationship status (number of participants)                      |                                    |                          |                        |
| Single  | 29                                 | 15                       | 12                     |
| Casual dating   | 16                                 | 11                       | 5                      |
| In a relationship/exclusive dating                                | 51                                 | 38                       | 10                     |
| In an open relationship/non-exclusive dating                      | 15                                 | 6                        | 8                      |
| Married   | 9                                  | 3                        | 6                      |
| Divorced  | 2                                  | 1                        | 0                      |
| Level of education completed (number of participants)             |                                    |                          |                        |
| High school diploma (DES)   | 88                                 | 55                       | 28                     |
| Professional diploma (DEP)  | 16                                 | 11                       | 5                      |
| CEGEP diploma (DEC)   | 53                                 | 40                       | 12                     |
| University undergraduate degree                                   | 49                                 | 28                       | 20                     |
| University graduate degree (master, PhD, doctorate)               | 14                                 | 5                        | 7                      |
| Other   | 7                                  | 3                        | 4                      |

*Note.* The "All participants" column includes self-identified females and males, but also participants who did not self-identify as male or female.

Table 2  
*Demographic Information for Self-identified Females and Males*

|   | All participants<br>N = 122 | Females<br>n = 74 | Males<br>n = 41 |
|---|-----------------------------|-------------------|-----------------|
| Average times of masturbation/week        |                             |                   |                 |
| 0   | 15                          | 10                | 4               |
| 1-5                                       | 73                          | 52                | 16              |
| 6-10                                      | 19                          | 9                 | 9               |
| 10-15                                     | 9                           | 2                 | 7               |
| 15 or more                                | 5                           | 0                 | 5               |
| Average times of thinking about sex/week  |                             |                   |                 |
| 0   | 0                           | 0                 | 0               |
| 1-5                                       | 14                          | 0                 | 3               |
| 6-10                                      | 30                          | 24                | 5               |
| 10-15                                     | 19                          | 14                | 5               |
| 15 or more                                | 58                          | 26                | 28              |
| Average times of anal intercourse/week    |                             |                   |                 |
| 0   | 81                          | 55                | 22              |
| 1-4                                       | 32                          | 13                | 16              |
| 5-8                                       | 0                           | 0                 | 0               |
| 9 or more                                 | 0                           | 0                 | 0               |
| Average times of genital intercourse/week |                             |                   |                 |
| 0   | 32                          | 15                | 14              |
| 1-4                                       | 62                          | 42                | 16              |
| 5-8                                       | 17                          | 13                | 4               |
| 9 or more                                 | 3                           | 2                 | 1               |
| Average times of oral intercourse/week    |                             |                   |                 |
| 0   | 28                          | 14                | 11              |
| 1-4                                       | 75                          | 46                | 26              |
| 5-8                                       | 11                          | 8                 | 2               |
| 9 or more                                 | 5                           | 3                 | 2               |

*Note.* The "All participants" column includes self-identified females and males, but also participants who did not self-identify as male or female.

**Materials**

**Demographics.** The *Demographic Information Questionnaire* (DIQ) is a Concordia homemade 30-item questionnaire that was created for collecting demographic information in the present study. Participants reported information on their gender, age, ethnicity, religion, religiosity, relationship status, relationship duration, sexual orientation, educational level, and income. Descriptive questions regarding sexual practices, sexual arousal and desire, and the experience of orgasm were also included. Specifically, participants reported the weekly frequency and the type of pornographic material watched, the frequency and pleasure gained from sexual intercourse and related behaviors, as well as the frequency and

intensity of orgasm in both solitary and partnered contexts.

**Sexual arousal and desire.** As aforementioned, the *Sexual Arousal and Desire Inventory* (SADI; Toledano & Pfaus, 2006) is a multidimensional, descriptor-based self-rating scale assessing subjective experience of sexual arousal and desire during partnered intercourse. Specifically, 54 descriptor items factor onto one or more of the SADI's four scales, namely evaluative (28 items), physiological (17 items), motivational (10 items), and negative/aversive (17 items). The SADI produces four scores for each respective factor, whereby ratings for each adjective contained within the respective scale are summed. Toledano and Pfaus (2006) found high reliability for



the total SADI ( $\alpha = .91-.96$ ), as well as for the four subscales ( $\alpha = .72-.93$ ).

In addition to the original SADI, participants completed a modified version used to measure subjective experience of sexual arousal and desire during a preferred BDSM practice. Specifically, participants were asked to name and briefly describe their favorite BDSM sexual practice (e.g., number of partners and materials involved). Subsequently, participants were invited to rate the 54 descriptor items and scores were summed by subscale, as per the original version. Thus, two contexts were implemented using the SADI: (non-BDSM) partnered intercourse and BDSM practice.

**Orgasm.** *The Orgasm Rating Scale* (ORS; Mah & Binik, 2002) is a self-report measure that quantifies men and women's subjective experience of orgasm in three separate contexts. Participants rate how well each of the 40 adjectives (e.g., *blissful, euphoric, unifying, unreal*) describes their experience of orgasm using a 6-point Likert scale (0 = *does not describe it at all* to 5 = *describes it perfectly*). In the solitary-masturbation context, participants are instructed to: "Recall to the best of your ability the most recent orgasm you experienced during solitary masturbation. This would include any sexual activity in which you engaged while alone." In the sex-with-partner context, instructions are to: "Recall to the best of your ability the most recent orgasm you experienced during sex with a partner. This would include any sexual activity in which you had orgasm while your partner was present." In the present study, a third sexual context was included to reflect BDSM experiences wherein participants were instructed to: "Recall to the best of your ability the most recent orgasm you experienced during a BDSM sexual experience." Participants rated the 40-descriptor items three times for a total of 120 adjective ratings. Thus, three contexts were implemented with the ORS: solitary masturbation, (non-BDSM) partnered intercourse, and BDSM practice.

For each context, 28 items load onto one of the two factor/scales comprising the ORS. The sensory factor reflects the physiological sensations (e.g., *throbbing*) that accompany the experience of orgasm. The cognitive-affective factor encompasses orgasm-related evaluations (e.g., *satisfaction*) and emotions (e.g., *elation*). Dimension scores are obtained by summing the subscale scores for each factor. Mah and Binik (2002) have demonstrated high internal consistency of the original ORS for men and women across sexual contexts ( $\alpha = .88-.92$ ).

**Sexual Sensation Seeking.** The *Sexual Sensation Seeking Scale* (SSSS; Kalichman et al., 1994) was

designed to assess sexual sensation seeking and the willingness to engage in high-risk sexual behaviors. The SSSS includes 11 items that reflect individuals' propensity towards four domains of sensation seeking, namely thrill and adventure seeking, experience seeking, disinhibition, and boredom susceptibility. Participants rated the degree to which they related to statements such as "I enjoy "X-rated" videos" and "I like new and exciting sexual experiences" using a 4-point Likert scale (1 = *not at all like me* to 4 = *very much like me*). However, in the present study a 6-point Likert scale (1 = *strongly disagree* to 6 = *strongly agree*) was used to provide participants with more response choices. The original SSSS is a reliable measure, with acceptable internal consistency coefficients ( $\alpha = .75-.79$ ; Kalichman et al., 1994; Kalichman & Rompa, 1995) and test-retest reliability coefficients, both at two-week ( $r = .78$ ) and three-month ( $r = .69$ ) intervals.

## Procedure

Interested participants received an ID code and the link to the survey. Once consent and age were confirmed electronically, participants completed a battery of measures in the following order: a demographic form that included a *Kinsey Scale* (KS; Kinsey, Pomeroy, & Martin, 1948); the original and modified versions of the SADI (Toledano & Pfaus, 2006) wherein orgasm is described in two contexts (partnered intercourse, BDSM practice); the original and modified versions of the ORS (Mah & Binik, 2002) wherein orgasm is described in three contexts (solitary masturbation, partnered intercourse, BDSM practice); and the SSSS as a measure of sensation seeking within contexts of a sexual nature (Kalichman et al., 1994). Participants were compensated with a chance to win a 500.00\$ gift certificate to the Apple Store.

## Results

### Sexual Arousal and Desire

To test the first hypothesis, BDSM practitioners' subjective experience of general sexual arousal and desire was compared to their experience of sexual arousal and desire when they engaged in their preferred BDSM practice using paired samples *t*-test on the four dimensions of the SADI (Toledano & Pfaus, 2006). A Bonferroni correction was used in order to ensure scientific integrity, with a new *p*-value of .013. A paired samples *t*-test detected that BDSM practitioners described their general subjective experience of sexual arousal and desire in a more evaluative manner ( $M = 94.93$ ,  $SD = 26.07$ ) than when they engaged in their preferred BDSM sexual practice ( $M = 87.64$ ,  $SD = 29.54$ ),  $t(105) = 3.72$ ,  $p < .001$ ,  $d = .26$ . A paired samples *t*-test detected that BDSM

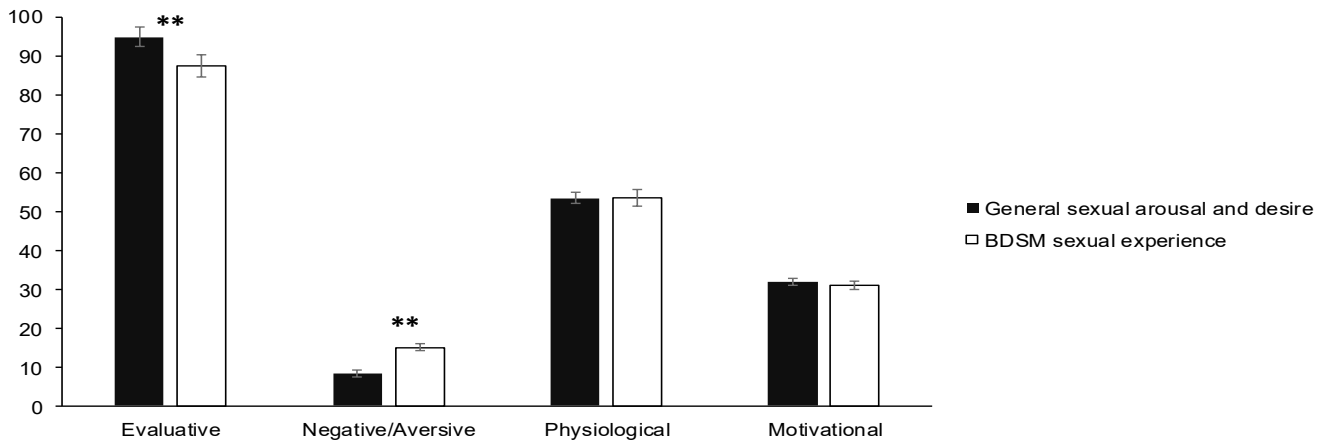


Figure 1. A comparison of within-subjects' general subjective experience of sexual arousal and desire and their subjective experience of sexual arousal and desire during their preferred BDSM sexual practice (\*\*  $p < .01$ ). The error bars represent the standard error of the means (SEM).

practitioners also described their general subjective experience of sexual arousal and desire in a less negative/aversive manner ( $M = 8.43$ ,  $SD = 8.42$ ) than when they engage in their preferred BDSM sexual practice ( $M = 15.09$ ,  $SD = 9.83$ ),  $t(105) = -9.16$ ,  $p < .001$ ,  $d = .73$  (see Figure 1). No significant differences were found between the physiological dimension of sexual arousal and desire in general experience ( $M = 53.55$ ,  $SD = 15.89$ ) and the preferred BDSM sexual practice ( $M = 53.47$ ,  $SD = 21.42$ ),  $t(105) = .06$ ,  $p = .953$ ,  $d = .00$ . Moreover, no significant differences were found between the motivational dimension of sexual arousal and desire in general experience ( $M = 31.84$ ,  $SD = 8.94$ ) and the preferred BDSM sexual practice ( $M = 30.95$ ,  $SD = 11.25$ ),  $t(104) = 1.22$ ,  $p = .226$ ,  $d = .09$ .

### Orgasm

To test the second hypothesis, which proposes that BDSM practitioners' subjective experience of orgasm would be different across different contexts, repeated measures ANOVAs were conducted to compare their experiences of the last orgasm they had during solitary masturbation, partnered sexual experience, and BDSM sexual experience.

Because Mauchly's Sphericity Test indicated that the assumption of sphericity was not met,  $c^2(2) = 17.496$ ,  $p < .001$ , and because Epsilon was greater than .75, a Huynh-Feldt correction was applied (Girden, 1992). The final repeated measures ANOVA revealed that mean scores on the sensory dimension of the ORS differed across solitary, partnered, and BDSM contexts,  $F(1.71, 141.8) = 9.72$ ,  $p < .001$ . Pairwise comparisons revealed that participants scored higher on the ORS sensory dimension when considering their partnered experience ( $M = 33.69$ ,  $SD = 19.57$ ), compared to their solitary experience

( $M = 27.80$ ,  $SD = 17.61$ ),  $p < .001$ , but not their BDSM experiences ( $M = 32.57$ ,  $SD = 21.40$ ),  $p = 1.000$ . Moreover, participants scored higher on the ORS sensory dimension when rating BDSM experiences than when rating solitary experiences,  $p = .019$ .

In addition, a repeated measures ANOVA was conducted to examine the variance in scores on the cognitive-affective dimension of the ORS. Mauchly's Sphericity Test once again indicated that the assumption of sphericity was not met,  $c^2(2) = 9.07$ ,  $p = .011$ , and that Epsilon was greater than .75. A Huynh-Feldt correction was applied and the ANOVA revealed a statistically significant difference in the cognitive-affective dimension across solitary, partnered, and BDSM contexts,  $F(1.86, 169.30) = 22.85$ ,  $p < .001$ . Pairwise comparisons revealed that participants scored higher on this dimension when considering their partnered experience ( $M = 45.05$ ,  $SD = 18.78$ ) compared to their solitary ( $M = 32.36$ ,  $SD = 18.21$ ),  $p < .001$ , and BDSM experiences ( $M = 36.41$ ,  $SD = 23.61$ ),  $p < .001$ . No significant differences were found between solitary and BDSM experiences,  $p = .191$ .

### Sexual Sensation Seeking

We conducted Pearson product-moment correlations to test our third hypothesis that sexual sensation seeking would be: positively associated with the evaluative, physiological and motivational dimensions of the SADI; negatively associated with the negative/aversive dimension; and positively associated with the cognitive-affective and sensory dimensions of the ORS within the BDSM community.

All correlations regarding the association between sexual sensation seeking, experience of orgasm, and sexual arousal and desire are shown in Table 3. Small

## AROUSAL, DESIRE, AND ORGASM IN BDSM PRACTITIONERS

Table 3

*Correlation Between Sexual Sensation Seeking, Orgasm, and Sexual Arousal and Desire*

| Variables                         | SSSS  |
|-----------------------------------|-------|
| Sexual arousal and desire         |       |
| Non-BDSM - Evaluative             | .27** |
| Non-BDSM - Negative/aversive      | .01   |
| Non-BDSM - Physiological          | .27** |
| Non-BDSM - Motivational           | .28** |
| BDSM - Evaluative                 | .27** |
| BDSM - Negative/aversive          | .01   |
| BDSM - Physiological              | .27** |
| BDSM - Motivational               | .28** |
| Orgasm                            |       |
| Org. int. Masturbation            | -.03  |
| Org. int. partnered intercourse   | .16   |
| Masturbation - Sensory            | .23*  |
| Masturbation - Cog./aff.          | .15   |
| Partnered intercourse - Sensory   | .26*  |
| Partnered intercourse - Cog./aff. | .14   |
| BDSM - Sensory                    | .30** |
| BDSM - Cog./aff.                  | .49** |

Note. \* $p < .05$ . \*\* $p < .01$ .

to moderate associations were found between sexual sensation seeking and participants' subjective experience of sexual arousal and desire, both in general and when they engage in their preferred BDSM sexual practice. Sexual sensation seeking was positively associated with the evaluative,  $r(111) = .27$ ,  $p = .004$ , physiological,  $r(111) = .27$ ,  $p = .004$ , and motivational,  $r(111) = .28$ ,  $p = .003$ , dimensions of the SADI within general sexual experience. Sexual sensation seeking also presented statistically significant moderate positive associations with the evaluative,  $r(105) = .29$ ,  $p = .002$ , physiological,  $r(105) = .34$ ,  $p < .001$ , and motivational,  $r(104) = .30$ ,  $p = .002$ , dimensions of the SADI when participants engaged in their preferred BDSM sexual experience. No statistically significant associations between sexual sensation seeking and the negative/aversive dimension of the SADI were found.

In terms of orgasm subjective experience, there is a small to moderate association between sexual sensation seeking and the sensory dimension of the ORS across sexual contexts. Specifically, scores on the SSSS were positively associated with the sensory dimension during solitary masturbation,  $r(98) = .23$ ,  $p = .020$ , partnered sexual experience,  $r(92) = .26$ ,  $p = .013$ , and BDSM sexual experience,  $r(89) = .30$ ,  $p = .004$ . The SSSS was not related to the cognitive-

ffective dimension of the ORS for solitary masturbation or partnered sexual experience. However, for the BDSM sexual experience, there was a moderate positive association between sexual sensation seeking and the cognitive-affective dimension of the ORS. More precisely, sexual sensation seeking was positively associated to the cognitive-affective experience of orgasm during a BDSM sexual experience,  $r(121) = .49$ ,  $p < .01$ .

### Discussion

BDSM practitioners provide the opportunity to capture the nuances of the human sexual responses because of the diversity of their responses and practices. This study is the first step in providing evidence for the phenomenological difference in the subjective human sexual responses (i.e., arousal, desire and orgasm) across different erotic contexts in BDSM practitioners. It is consistent with previous investigation on the reasons to engage in BDSM, which proposed that there is something unique to BDSM practices compared to other form of sexual activity. Lastly, it highlights that differences in sensation seeking are related to the cognitive evaluation of sexual arousal, desire, and orgasm, across sexual contexts.

### Sexual Arousal and Desire

It was hypothesized that the sexual arousal and desire of BDSM practitioners would be higher on the evaluative, physiological, and motivational dimensions of the SADI (Toledano & Pfaus, 2006), and lower on its negative/aversive dimension when they engage in their preferred BDSM experience compared to their general experience of sexual arousal and desire. This hypothesis was not confirmed. Results suggest that BDSM practitioners experience sexual arousal and desire differently depending on the context. However, participants described their general experience of sexual arousal and desire in a more positive evaluative manner (i.e., reflecting cognitive-emotional aspects of the subjective experience) compared to their sexual arousal and desire during their preferred BDSM sexual experience. Practitioners also seem to experience sexual arousal and desire in their preferred BDSM sexual practice in a more negative/aversive way, which is a dimension that taps into aspects of sexual aversion or inhibition (Toledano & Pfaus, 2006). One possibility is that for some individuals, the exploration of BDSM might not have been as satisfying in terms of sexual arousal and desire compared to what they assumed their baseline experience is. Alternatively, it is also possible that some adjectives in the negative/aversive dimension (e.g., *restrained*, *anxious*, *resistant*, or *insensible*) better reflects their preferred BDSM sexual experience

(Toledano & Pfaus, 2006), but do not necessarily imply aversion for BDSM practitioners. It may be that aspects of aversion or inhibition become arousing and the motivation to pursue BDSM practices for some of its practitioners (Bivona & Critelli, 2009; Critelli & Bivona, 2008; Joyal et al., 2014). There may be some arousing aspects to engaging in sexual practices perceived as less socially acceptable, prohibited, or stigmatized. Practitioners report that BDSM experiences offer them an escape from socially-normative sexual practices (Turley, 2016), but overall, they report increased pleasure, enjoyment, and positive affects during BDSM sexual experiences (Hébert & Weaver, 2015; Newmahr, 2010; Williams, Prior, Alvarado, Thomas, & Christensen, 2016). Taken together, it is possible that the feeling of inhibition, control, restraint, and the perceived transgressive value of BDSM practices become arousing and sexually satisfying. This effect might result in participants describing their experience as higher on the negative/aversive dimension, but still enjoying it. These phenomenological findings captured by the SADI may also highlight some of the limitations in the interpretation of this tool. Specifically, the negative/aversive dimension might take a whole new meaning in different sexual populations as some of its adjectives may not be so negative for certain individuals.

### Orgasm

Results suggest that BDSM practitioners experience orgasms differently across contexts. It was expected that BDSM practitioners' experiences of orgasm would be higher on the sensory and cognitive-affective component of the ORS when they engage in BDSM experience compared to solitary masturbation. This hypothesis was partially supported as BDSM practitioners' experience of their last orgasm during a BDSM sexual experience was higher on the sensory dimension of the ORS (Mah & Binik, 2002) compared to solitary masturbation. However, no differences were found between BDSM experience and solitary masturbation on the overall cognitive-affective dimension.

The hypothesis that BDSM practitioners' experience of orgasm would be higher on the sensory dimension and lower on the cognitive-affective dimension of the ORS when they engage in a BDSM sexual experience compared to a non-BDSM partnered sexual intercourse was also partially confirmed. There were no significant differences on the sensory dimension, but their experience of orgasm during a BDSM sexual experience was indeed lower on the cognitive-affective dimension. This may occur because many BDSM practices take place outside of romantic, intimate or primary partnered relationships

as mentioned by participants in the present study and previous research (Connolly, 2006). Thus, it is proposed that this segregation between BDSM sexual experience and romantic sexual experiences is reflected in the present sample orgasm experience. For example, within the cognitive-affective dimension, a significant difference was found on the emotional intimacy dimensions, which uses words such as "close", "loving", "passionate", or "tender" to describe participants' experience of orgasm (Mah & Binik, 2002). These terms might not always reflect practitioners' orgasm experience in BDSM contexts, since they portray an emotional closeness that is not necessarily present with one or many play partners (e.g., mistress, dominant, submissive) in a BDSM scene (e.g., bondage, humiliation). Some BDSM practitioners may seek BDSM experiences because they are different from their usual partnered sexual intercourse (Turley, 2016). It is proposed here that some practitioners may seek BDSM stimuli outside of primary relationships because they are detached from the emotional intimacy that surrounds their romantic relationship or because this detachment enables them to reach states of heightened arousal, desire, or orgasm experience.

### Sexual Sensation Seeking

Results suggest that sexual sensation seeking is related to experiences of sexual arousal, desire, and orgasm across different contexts. Specifically, higher scores on sexual sensation seeking is associated with an experience of sexual arousal and desire that is more evaluative, physiological, and motivational. This extends to both their general experience of sexual arousal and desire, and when they engage in their preferred BDSM sexual practice. Furthermore, high sensation seeking BDSM practitioners will experience their orgasms in a more sensory manner across sexual contexts compared to low sensation seekers. They will also experience their orgasm in a more cognitive-affective way in the context of a BDSM sexual experience. Similarly, other researchers have demonstrated differences in the physiological responses of high versus low sensation seekers. Specifically, research on heart rate (Orlebeke & Feij, 1979; Robinson & Zahn, 1983; Zuckerman, 1971; Zuckerman, Buchsbaum, & Murphy, 1980; Zuckerman, Simons, & Como, 1988), skin-conductance (Feij, Orlebeke, Gazendam, & van Zuilen, 1985; Neary & Zuckerman, 1976; Robinson & Zahn, 1983; Smith, Perlstein, Davidson, & Michaels, 1986; Stelmack, Plouffe, & Falkenberg, 1983), cortical reaction (Brocke, Beauducel, John, Debener, & Heilemann, 2000; Orlebeke, Kok, & Zeillemaker 1989; Zuckerman et al., 1988), stress response (i.e., cortisol secretion; Roberti, 2004) and brain activation (Joseph, Liu, Jiang, Lynam, & Kelly, 2009) suggest

that high sensation seekers' psychophysiological experience is different from low sensation seekers. Taken together, these findings suggest the existence of psychophysiological phenomenon underlying sensation seeking, which may produce a differential experience of sexual arousal, desire, and orgasm in the present sample of BDSM practitioners.

### Future Studies and Conclusion

There are a number of limitations associated with the present study. Firstly, results relied on the use of self-reported measures. Recalling and describing one's experience of sexual arousal, desire, and orgasm days after an experience occurred might not be as accurate as describing it directly following the experience (Mah & Binik, 2002). Secondly, results are limited by the semantical interpretation of adjectives used in the questionnaires (e.g., SADI or ORS) and what participants believe their experience should be like (Mah & Binik, 2002). Thirdly, the present study is limited by its correlational nature that prevents inference of causality (Kline, 2009). Lastly, all participants reported engaging in some form of BDSM practice which prevented the comparison with a control group that never experienced BDSM. Future studies should incorporate a proper control group that will enable better comparison of the experience of sexual arousal, desire, and orgasm between BDSM and non-BDSM practitioners. Additionally, future investigations should aim to investigate the relationship between sensation seeking, sexual arousal and desire, and the development of sexual preferences using combined psychophysiological, subjective, and cognitive measures, such as eye-tracking, fMRI/PET-scan, and genital thermography. This type of research could provide evidence for perceptual differences between individuals with distinct sexual preferences, which could further our understanding of why some individuals explore BDSM and how they experience it. Finally, it will contribute to the development of new objective measures to assess the complexity of the human sexual responses.

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Received September 17, 2017  
Revision received December 22, 2017  
Accepted February 12, 2018 ■