

BDSM: Does it Hurt or Help Sexual Satisfaction, Relationship Satisfaction, and Relationship Closeness?

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BDSM: Does it Hurt or Help Sexual Satisfaction, Relationship Satisfaction, and Relationship Closeness?

This national web-population study from Norway ($N = 4,148$) assessed 1) the prevalence of BDSM and role-play interests and behaviors, 2) the socio-demographic characteristics of the BDSM-oriented participants, and 3) the associations between a) BDSM and b) role-play interests and behaviors, and sexual satisfaction, relationship satisfaction, and relationship closeness. Over one in three study participants endorsed at least one BDSM interest or behavior variable. There were no gender nor educational level differences between the BDSM-oriented participants and their traditional “vanilla” (non-BDSM-oriented) counterparts, though BDSM and interests were more common among younger and self-identified LGBTQ+ participants. Sexual satisfaction was positively associated with role-play and BDSM behaviors while interest in role-play (but not having previously engaged in it) was negatively associated with this outcome. Lower relationship closeness was associated with an interest in role-play (but not having tried it). No BDSM-related variables were significantly associated with relationship closeness. The findings suggest that BDSM interests and behaviors are relatively common and are linked with sexual and relationship satisfaction.

Keywords: BDSM; sexual satisfaction; relationship satisfaction; intimate relationships; sexual behavior

Bondage-discipline/dominance-submission/sadomasochism (BDSM) is an area of sexuality that has received relatively little attention from sexual science. Although the experiences and identities of BDSM practitioners (Simula, 2019) and definitions of BDSM vary, “BDSM reflects an experience in which the consensual use of physical and/or psychological stimulation involving the eroticization of power and/or pain generates sexual arousal and satisfaction”, (Graham et al., 2016, p. 895). BDSM behaviors can include using restraints in a sexual setting (blindfolds, handcuffs, chains, or ropes), consensual sexual spanking, flogging, whipping, or hitting, showing subordination to a partner (e.g., kneeling in front of a partner and/or using titles when addressing a partner), humiliation, and breath control/play (controlling breath/suffocation) (Holvoet, et al., 2017; Weierstall & Giebel, 2017). BDSM behaviors may often be characterized by a key element of role-play (Moser & Kleinplatz 2006) and contributions from game studies suggest that BDSM sexual activities may even be considered a type of live-action role-play (Brown & Stenros, 2018; Harviainen, 2012). Moreover, many role-play themes can involve the erotization of power, a key feature in the definition of BDSM (e.g., age-play, master-slave, torturer/captive prisoner, authority figure, goddess worship; Harviainen, 2012). Thus, the two may be inextricably linked. Although sexual role-play is believed to be common among sexual repertoires (e.g., doctor/nurse/patient, handyman and housewife), there have been almost no peer-reviewed articles published on the topic (Harviainen, 2012).

There has also been limited research on the topic of BDSM (Ahlers et al., 2011; Moser & Klienplatz, 2006). Though early psychological and medical research focused on BDSM from a pathologizing point of view (Langdridge & Barker, 2007; Simula, 2019), there has been a move away from the pathologizing

view towards BDSM in research (Langdridge & Barker, 2007; Simula, 2019; Weirstall & Giebel, 2017). Outside of academia, BDSM has become more mainstream in popular culture (Sisson, 2007; Weiss, 2006), quite possibly due to the rise of the internet (Langdridge & Barker, 2007) and best sellers like *Fifty Shades of Grey* (James, 2012). However, stigma and discrimination towards BDSM practitioners are reported on the societal level (Bezreh et al., 2012; Wright, 2006) and among clinicians (Kolmes et al., 2006; Rogak & Connors, 2018; Sprott & Randall, 2017). This could lead to physical and/or mental health disparities resulting from strained interactions with healthcare systems, such as discrimination from health care professionals and refusal of treatment of BDSM practitioners (Sprott & Randall, 2017).

In order to consider a particular sexuality (either in terms of: sexual orientation, desire, arousal pattern, fantasy, or behavior) pathological, it requires juxtaposition to “normal” sexuality (Moser & Kleinplatz, 2006; Rogak & Connor, 2018). If we understand “normal” in terms of prevalence or frequency (i.e., that it is common), estimates of the prevalence of BDSM fantasies, desires, and behaviors could serve to better comprehend human sexuality in general as well as to place BDSM along the spectrum of conceptualizations of “normal” to “pathological” sexualities. However, current estimates of BDSM are rudimentary at best (Moser & Kleinplatz, 2006; Sisson, 2007). Population studies from Australia and Belgium found that 1.8-12.5% engaged in BDSM behavior in the last year/regularly and nearly 47% have ever performed a BDSM behavior in the past (Holvoet et al., 2017; Richters, 2008). Another study found sadomasochistic fantasies to be reported by between 18.5% (masochistic) and 24.8% (sadistic) of German men (Ahlers et al., 2011). A Canadian study reports the desire to realize

behavior related to sadism to be 7.1% and masochism 23.8%, and lifetime engagement in sadism 5.5% and masochism 19.2% of a provincial population (Joyal & Carpentier, 2017). A national web-population Norwegian study of younger adults (18-29 years of age) found that approximately 20% of this population had ever engaged in at least one BDSM-related activity and nearly 16% had ever tried sexual role-play (Træen, 2016). However, more population studies are needed.

Research has found that BDSM practitioners are more likely to be male (Holvoet et al., 2017; Richters et al., 2008) and that BDSM is more sexually arousing to men (Dawson et al., 2016), particularly sadism (Mundy & Cioe, 2019), while humiliation/masochism related fantasies and behaviors are more common and arousing among women (Alison et al., 2001; Joyal & Carpentier, 2017; Mundy & Cioe, 2019). BDSM practices have been reported to be more common among lesbian, gay, bisexual, and Queer (LGBQ) identified people (Richters et al., 2008). Research has consistently suggested that those with higher educational levels (e.g. Alison et al., 2001; Botta et al., 2019; Connolly, 2006; Gemberling et al., 2015; Træen, 2016; Wismeijer & Assen, 2013) and older age were more represented in BDSM communities (Alison et al., 2001), though these findings have not been replicated in all studies (e.g., Richters et al., 2008). Further, BDSM has long been associated with higher socio-economic classes (Simula, 2019).

Despite the fact that one of the most common reasons for engaging in BDSM behaviors is pleasure (it feels good) (Labrecque et al., 2020; Silva, 2015) and pornography research suggest that BDSM related themes are prevalently accessed for sexual arousal (Hald & Štulhofer, 2016a; Hald & Štulhofer, 2016b), few studies have examined sexual satisfaction among BDSM practitioners (Pascoal et al., 2015). Those

that have investigated the topic found that when compared with non-BDSM-oriented (vanilla) populations, those with BDSM interests/behaviors reported higher levels of sexual satisfaction (Botta et al., 2019; Joyal & Carpentier, 2017). Moreover, among BDSM practitioners, no difference in sexual satisfaction levels was reported in BDSM contexts vs non-BDSM contexts (Pascoal et al., 2015).

Due to the general pathologizing of BDSM desires and behaviors (Klein & Moser, 2006; Kolmes et al., 2006; Lawrence & Love-Crowell, 2008; Ridinger, 2006; Wright, 2006, 2010), therapists and clinicians have also appeared to pathologize the romantic relationships of BDSM practitioners. Kelsey and colleagues (2013) found that 33% of surveyed therapists believed that the romantic relationships of BDSM practitioners were unhealthy. However, extant research has found that those who practice BDSM did not differ from a sample of non-BDSM practitioners in terms of the level of relationship satisfaction (Rogak & Connors, 2018). Indeed, according to first-person testimonies (narratives) obtained from Internet discussion forums, BDSM practitioners report that one of the most frequent reasons for engaging in BDSM behaviors is that they trust their partner (Labrecque et al., 2020). Together, these two findings suggest that BDSM behaviors may take place within romantic relationships characterized by trust and satisfaction, two factors that are often assumed to indicate a healthy relationship (Campbell & Stanton, 2019; Fitzpatrick & Lafontaine, 2017). The link between BDSM behaviors and relationship satisfaction may be understood through the lens of self-expansion theory (Aron et al., 1991). According to this theory, relationship satisfaction is higher when partners engage in shared novel and challenging activities (Aron et al., 1991). Such activities allow for increased closeness, as partners learn about themselves and each other through these activities (i.e., include the other in the self; Aron et al., 2013). In line with this logic, Sagarin et al. (2009) found that

BDSM practitioners reported higher relationship closeness immediately after a BDSM interaction (scene) that both practitioners rated as having had gone well, suggesting that BDSM behaviors may be associated with increased closeness in BDSM relationships. However, thus far, the associations between BDSM desires, interests and behavior, relationship satisfaction, and closeness have not been well investigated.

Current study

In summary, notably sparse in the literature are population studies on BDSM and role-play; to our knowledge, only two studies specifically assessing the prevalence of BDSM have been published (Holvoet et al., 2017; Richters, 2008). This limits our ability to estimate how common BDSM interests and behaviors are, as well as what the socio-demographic characteristic of BDSM practitioners are. Other voids in our understandings of BDSM practitioners are regarding sexual satisfaction, relationship satisfaction, and relationship closeness, especially taking into account that the most common motivations for engaging in BDSM behaviors are related to these factors. In order to bridge these gaps, this study uses a large web-sample from Norway to explore the following research questions (RQ):

RQ1: How common are a) BDSM and b) role-play interests and behaviors?

RQ2: What are the socio-demographic characteristics of the BDSM-oriented participants?

RQ3: What are the associations between a) BDSM and b) role-play interests and behaviors, and 1) sexual satisfaction, 2) relationship satisfaction, and 3) relationship closeness?

Method

Participants

A total of 4,148 people were included in the study, of which 52.4% (n = 2,181) identified as men and 47.3% (n = 1967) as women (the 12 respondents who identified as “other” were excluded from the analyses of the present paper). The average age was 46.53 years ($SD = 17.08$, $Mdn = 44.00$, range 18 to 89) and 64.4% had a higher educational level. In terms of sexuality and relationship status, 93.5% identified as heterosexual and 74.1% had a steady romantic/sexual partner (see Table 1).

To assess the representativeness of the sample, we compared the participants to the general Norwegian population in 2019 in terms of gender, age, and education. These analyses revealed that the study sample was more highly educated ($\chi^2(3) = 1867.57$, $p < .001$), that more men participated ($\chi^2(1) = 11.04$, $p = .001$), and more people between the ages of 30 and 44 responded whereas people younger than 30, and over the age of 45 were less represented ($\chi^2(3) = 81.55$, $p < .001$) (population data were obtained from Statistics Norway, n.d.: <https://data.ssb.no/api/v0/en/table/08921/>; <https://data.ssb.no/api/v0/en/table/07459/>). Other sample characteristics are presented elsewhere (Træen et al., 2021). This study is part of a larger project concerning a wide range of non-BDSM-related aspects of sexuality and other articles from this larger project have been published (Fisher & Træen, 2021; Koletić et al., 2021; Træen et al., 2021; Træen & Fischer, 2021; Træen & Thuen, 2021).

Measures

Sociodemographic Variables

Gender was coded 1 = male and 2 = female.

Age was measured as continuous variables and recoded into the following *age groups*: 1 = 18-29 years, 2 = 30-44 years, 3 = 45-59 years, and 4 = ≥ 60 years. The age categories were chosen to ensure an approximate equal number of respondents in each

category: < 30 ($n = 882$), 30–44 ($n = 1,225$), 45–59 ($n = 965$), and ≥ 60 years ($n = 1,088$).

Sexual orientation was assessed by the question: “Do you currently regard yourself as:” The response categories were 1 = Homosexual/lesbian, 2 = Heterosexual, 3 = Bisexual/pansexual, 4 = Asexual, and 5 = Other. The variable was coded as a dichotomous variable: 1 = LGBQ+ (previous categories 1, 3, 4 and 5), and 2 = Heterosexual.

Relationship status was assessed by asking, 1) “What is your marital status?” The response categories were 1 = unmarried, 2 = separated/divorced, 3 = widow/widower, and 4 = married/cohabitant/registered partnership. Those who responded unmarried, separated/divorced, or widow/widower were asked 2) “Are you currently in a stable/long-term relationship?” with the response categories of 1 = no, 2 = yes, with one person, 3 = yes, with several people. A relationship status variable was computed with these two questions so that people who indicated being in a steady relationship by indicating being in a married/cohabitant/registered partnership (response option 4 to question 1) or in a stable/long-term relationship (or response options 2 or 3 to question 2) were coded 1 = in a relationship, 0 = not in a relationship.

Education level was assessed as the highest level of formal completed education. The response categories were 1 = primary school (6–8 years at school), 2 = Lower secondary school (9–11 years at school), 3 = Higher secondary school, high school (12–13 years at school), 4 = College, lower university level (Bachelor degree level or similar), and 5 = Higher university level (Master degree, Ph.D. level or similar). The variable was subsequently recoded into 1 = lower educational level (response options 1, 2, and 3), 2 = higher educational level (response options 4 and 5). The dichotomized variable was used in all analyses whereas the original variable is reported in Table 1.

Relational Factors

Relationship satisfaction was assessed by a one-item indicator: “All things considered, how satisfied are you with your current relationship?” The response options were evaluated on a 7-point scale ranging from 1 = not at all satisfied to 7 = completely satisfied. The measure was taken from the German Health and Sexuality Survey (GeSiD) (<https://gesid.eu/studie/>).

Relationship closeness was assessed using the Inclusion of Other in the Scale (IOS) pictorial scale (Aron et al., 1992). The scale is a single item consisting of 7 Venn diagrams of varying overlap, corresponding to different degrees of sensed closeness. Participants were asked to choose the figure which best describes their relationship to their partner. Higher scores represent greater feelings of closeness.

Sexual satisfaction

Sexual satisfaction was assessed with the question “All things considered – how satisfied are you with your sexual life?”, with the following response options: 1 = Dissatisfied, 2 = A little dissatisfied, 3 = Neither satisfied nor dissatisfied, 4 = Quite satisfied, and 5 = Very satisfied. Higher scores indicate higher levels of sexual satisfaction.

BDSM-related variables

Participants were asked the following questions regarding their BDSM orientation:

- 1) Could you see yourself being sexually stimulated by ritual games connected to dominance and submission?
- 2) Could you see yourself being sexually stimulated by using consensual dominance/submission/pain?
- 3) What have you tried, or want to try, during sex: Role-play?”

- 4) “What have you tried, or want to try, during sex: BDSM (sodomasochism, bondage, dominance and submission)?”

For question 1 and 2, the response options were 1 = Can think of doing this myself, 2 = Cannot think of doing this myself, but would accept it in my partner, 3 = Cannot think of doing this myself, and would not accept it for my partner, but accept that others function that way, and 4 = Unacceptable. These phrasings were taken from Lewin et al. (2000) and part of a 9-item series of questions employed in this study regarding attitudes towards sexual behaviors ranging from sexual stimulation with shoes and undergarments, sending nude pictures, and cross-dressing. Two dummy coded variables were created (*Ritual sub/dom games stimulating* and *Consensual dom/sub/pain stimulating*), in which where 1 = “can think of doing this myself” and all other responses = 0. These two items come from a series of seven questions included in this study regarding sexual behaviors adapted from the 2019 German Health and Sexuality Survey. The other items in this section assessed lifetime prevalence of and interest in behaviors such as using sex toys, having sex in unusual places, and engaging in group sex (GeSid; <https://gesid.eu/studie/>). For questions 3 and 4, the response options were 1 = I have already tried it, 2 = I want to try it, and 3 = I have not and do not want to try it. These items were dummy coded to create two sets of dummy variables so that vanilla (non-BDSM-oriented responses) were the reference category (response option 3) and BDSM/role-play interests and behaviors were the comparison categories. For the first set of dummy variables (*Role-play Interest* and *BDSM Behavior Interest*), the response “I want to try it” was coded as 1 and all other responses were coded as 0. For two other dummy variables (*Role-play Behavior* and *BDSM Behavior*), the response “I have already tried it” was coded as 1 and all other responses were coded as 0. Thus, for these

dummy variables, the response “I have not and do not want to try it” served the reference category (0).

Additionally, *Any BDSM Interest/Behavior* was calculated by summing any affirmative response to the above BDSM-related variables; this variable was only used for descriptive Table 1.

Procedure

Email invitations were sent in March of 2020 to a randomly selected sample of 11,685 people registered in Kantar’s Gallup Panel. The Norwegian Kantar’s Gallup Panel (<https://www.gallup.com/analytics/213695/gallup-panel.aspx>) consists of approximately 46,000 individuals. People are randomly recruited through telephone interviews and cannot self-recruit. The panel is representative of the 98% of Norwegians with internet access (Media Norway, n.d.; see <http://www.medienorge.uib.no/english/>). The response rate in this study was 35.6% (N = 4,160) and nearly half responded to the survey on mobile devices.

The Gallup Panel members are registered with a large set of social background variables, such as age, gender, occupation, education, income, media habits, consumer habits, and questions related to politics, culture, sports, etc. All members are guaranteed safety and anonymity, and participation in surveys is voluntary. A small incentive is given to motivate participation, but not large enough to be the cause of participation in surveys. All studies follow the ethical guidelines developed for market- and poll organization surveys (see also: <https://www.tnsglobal.com/press-release/we-are-strongly-committed-ethical-and-sustainable-practices>).

Statistical Analysis

To investigate how common BDSM interests and behaviors are (RQ1), frequencies were calculated for the seven BDSM-related variables.

To examine the socio-demographic characteristics of the BDSM-oriented participants (RQ2), chi-square analyses were used to assess whether there were differences regarding the socio-demographic variables of gender, sexual orientation, age, and educational level in terms of endorsement of BDSM interests and behaviors. Each BDSM variable was analysed separately (yes = 1/no = 0 format).

To examine the associations between the socio-demographic, BDSM, and relational variables, we first examined zero-order Pearson correlation among all variables. We then conducted a series of hierarchical regression analyses, with BDSM interests and behaviors as predictors, and sexual satisfaction, relationship satisfaction, and relationship closeness as outcomes. Sociodemographic variables were entered in the first step and BDSM interests and behavior variables were entered in the second step. In this way, we could assess the unique contribution of BDSM-related variables to the outcome measures in terms of the change in R^2 (i.e., how much of the variance of the outcome is accounted for by BDSM-related variables, after accounting for socio-demographic factors). Only those who reported being in a steady relationship were included in the relationship satisfaction and relationship closeness analyses.

Results

Frequency analyses showed that 34% of the population were BDSM oriented in some way (RQ1). Breaking it down by sub-question, 16.6% of participants asserted interest in BDSM in that they could see themselves being sexually stimulated by ritual games connected to dominance and submission (*Ritual Sub/Dom Games Stimulating*), 15.5% could see themselves being sexually stimulated by using consensual dominance/submission/pain (*Consensual Dom/Sub/Pain Stimulating*), 14.3% would like to try role-play but had not (*Role-play Interest*), and 8.9% would like to try BDSM but had not (*BDSM Behavior Interest*). As to the lifetime prevalence of BDSM and role-

play behaviors, 11.1% have tried role-play during sexual activity (*Role-play Behavior*) and 9.7% have tried BDSM (*BDSM Behavior*) (see Table 1).

The results of the chi-square analyses (RQ2) demonstrated that BDSM-oriented people did not differ from non-BDSM-oriented participants in terms of gender (except for *Role-play Interest*, more men would like to try it but have not) and educational level. More LGBTQ+ participants were BDSM-oriented than their heterosexual counterparts and more of the younger populations were BDSM-oriented than older participants (see Table 2).

Examining associations between BDSM interests/behaviors, and relational factors (RQ3), Pearson zero-order correlations demonstrated that *Role-play Interest* and *BDSM Interest* were negatively correlated, while *Role-play Behaviors* and *BDSM Behaviors* were positively correlated with sexual satisfaction. *Ritual Sub/Dom Games Stimulating*, *Role-play Interest*, and *BDSM Interest* were negatively correlated with relationship satisfaction, whereas no BDSM-related variables were significantly correlated with relationship closeness (see Table 3).

The overall hierarchical regression model for sexual satisfaction accounted for 2.4% of the variance and BDSM-related variables accounted for 1.4% of the variance. Wanting to try role-play (but not having tried it) was associated with lower sexual satisfaction ($\beta = -.078$), while having tried role-play ($\beta = .037$) and having engaged in BDSM activity ($\beta = .052$) predicted higher sexual satisfaction (see Table 4).

The hierarchical regression analysis for relationship satisfaction revealed that none of the BDSM-related variables were associated with relationship satisfaction. The overall model explained 1.6% of the variance and BDSM-related variables accounted for 0.3% of the variance. The analysis for relationship closeness found that the overall model accounted for 0.7% of the variance and that BDSM related variables accounted

for 0.7% of the variance, and only wanting to try role-play (but not having done so) was associated with lower reported relationship closeness ($\beta = -.075$) (see Table 4).

Discussion

This study surveyed a large national web-population to gain insight into role-play and BDSM interests and behaviors. Moreover, the study design allowed for comparing BDSM-oriented and traditional vanilla (non-BDSM-oriented) populations in terms of socio-demographic characteristics and three sexual/relational outcomes: sexual satisfaction, relationship satisfaction, and relationship closeness. Overall, the study addresses key gaps in knowledge identified in the literature (see introduction).

Our study revealed that being interested in and engaging in BDSM related behaviors is fairly common, as 34.4% of a Norwegian adult population are interested in BDSM in some way (including interest in trying BDSM but never having done so, and openness to being sexually stimulated in a BDSM situation), though just under 10% had ever engaged in BDSM behavior (RQ1). Our findings contrast with other population studies' findings of 1.8% and 46.8% prevalence rates (Holvoet et al., 2017; Richters et al., 2008). These differences could be due to differences in measurement, as we employed a single-item measure of ever engaging in BDSM, whereas Holvoet et al. (2017) used a 54-item measure of a broader variety of BDSM-related activities. People may be more likely to endorse a specific behavior, such as sexual spanking, whipping, or using handcuffs in a sexual context, than "BDSM" and, some participants may have been reluctant to endorse items with the term "BDSM" due to the associated stigma. However, a 2013 study of 18-29-year-olds in Norway included the same items as we employed. That study found that participants were more likely to endorse the item with the word "consensual" than a similar item without it (see items 1 and 2 under BDSM-related variables in the methods section) (Træen, 2016). This finding may highlight the

importance of concreteness and wording of items and participant responses (Træen, 2016). Further, our nearly 10% lifetime prevalence of BDSM behaviors was likely higher than the nearly 2% found by Richers et al. (2008) as their study assessed behaviors in the past 12 months.

An alternative explanation could be cultural differences in acceptance and prevalence of BDSM-related behaviors as BDSM was found to be widely accepted among Norwegian young adults (Træen, 2016); future research could further assess this possibility.

The findings from this large web-population study concerning the frequency of BDSM-related arousal, interests, and behavior may serve to contextualize “normal” sexuality. If “normal” is conceptualized as normative in terms of what normally (frequently) occurs in the absence of culturally informed judgment, then if one in three people of a general web-population is interested in this type of sexuality in some way, perhaps it can be considered to constitute “normal” sexuality. More research is needed on a global scale to categorically define “normality” if this is even theoretically possible. However, the current study can contribute to a better understanding of the position of BDSM in the context of human sexuality.

Demographic Characteristics of the BDSM participants

In reference to the socio-demographic characteristics (RQ2), BDSM-oriented people in our study did not differ from non-BDSM-oriented participants in terms of gender and education, except for an interest in trying role-play, which more men than women endorsed. In general, this lack of association with gender contrasts previous research, which found gender differences in that more men are likely to engage in and be aroused by BDSM (Dawson et al, 2016; Holvoet et al., 2017; Mundy & Cioe, 2019; Ritchters et al., 2008). The lack of significant findings in terms of educational level also

differed from much of the literature (e.g. Alison et al., 2001; Botta et al, 2019; Connolly, 2006; Gemberling et al., 2015; Traæn, 2016; Wismeijer & Assen, 2013), and these studies were conducted in diverse countries including Italy, the United States, Finland, the Netherlands, and Norway. Thus, our null finding is likely not due to cultural differences and/or differences in educational attainment levels between countries, though it could be due to a ceiling effect, as nearly 65% of the participants had at least a bachelor's degree. It could also be due to sampling bias, as participants had higher educational attainment levels than the general Norwegian population, or due to employing the dichotomized variable in the chi-square analyses, which was done to improve power.

Moreover, we found that BDSM interests and behaviors were more common among younger populations, which is in accordance with what was found in another Norwegian study (Traæn, 2016). However, this finding is also in contrast to previous research, which has found that those with older age were more represented in BDSM communities (Alison et al., 2001). Together, the absence of educational level and gender differences, and the reversal of the age association could be indicative of the general mainstreaming of BDSM (Andrieu et al, 2019; Simula, 2019; Sisson, 2007; Weiss, 2006) that has occurred in recent years, especially considering that BDSM-related sexual activities are found to be relatively prevalent in college-age populations (Herbenick et al., 2021). Conversely, our findings that more of the younger populations were BDSM-oriented than older participants (which differs from previous studies) may be due to methodological differences, as this study was conducted online and earlier studies were often conducted in person or recruited participants through BDSM clubs.

The final finding regarding sociodemographic variables - that more LGBTQ+ participants were BDSM oriented than their heterosexual counterparts - is in line with

previous research, which has also found that more LGBTQ+ identified participants endorsed BDSM than heterosexual participants did (Richters et al., 2008). This could be due to sexual cultural scripts and more acceptance of sexual diversity in preferences such as BDSM among LGBTQ+ communities, particularly among the gay leather community (Simula, 2019).

Sexual Satisfaction, Relationship Closeness, and Relationship Satisfaction

Consistent with previous research (Botta et al., 2019; Joyal & Carpentier, 2017), the findings indicated that having engaged in role-play and BDSM behaviors were associated with higher levels of sexual satisfaction. Other research found similar reports involving pain during sexual activity for increased pleasure, and quality/intensity of orgasm (Silva, 2015). Although this study does not directly assess the integration of pain in BDSM behaviors, a mechanism for the increased sexual satisfaction among participants may be related to the findings of the induction of analgesia during sexual activity (particularly vaginal/cervical stimulation). The pain threshold is raised yet tactile sensitivity is not altered (Komisaruk et al., 2004; Komisaruk et al., 1997; Komisaruk & Wallman, 1977; Whipple & Komisaruk, 1985; Whipple et al., 1992). However, more research is needed to understand the potential neural basis of the relationships between pain, pleasure, and BDSM.

In the current study, an interest in role-play but never having tried it was associated with lower levels of sexual satisfaction. This could indicate a difference between 1) wanting to try or experiment with a particular sexual behavior but not yet having done so and 2) fulfilling the interest by engaging in the behavior. That is, leaving the interest unfilled may be a determining factor in sexual satisfaction levels. It may also be that these individuals have lower sexual assertiveness and/or communicate their sexual interests and desires poorly to their partners, both of which have been

consistently found to be predictive of lower sexual satisfaction (e.g., Haavio-Mannila & Kontula, 1997; Theiss, 2011; Velten & Margraf, 2017).

Similarly, we found that no BDSM-related variable was associated with relationship satisfaction and only interest in role-play (wanting to try role-play but never having had done so) was significantly associated with lower relationship closeness. Together with the finding that interest in role-play (wanting to try role-play but never having had done it) was associated with lower sexual satisfaction, these results may support the idea that issues with communication about sexual interests to a partner and sexual assertiveness may be the mechanism at play. That is, people who wish to try role-play may not feel close and comfortable enough with their partner to communicate such desires and therefore experience lower sexual satisfaction and relationship closeness.

Moreover, if one member of a couple is BDSM-oriented while the other is not/traditional vanilla (non-BDSM) oriented, communication within the relationship, and specifically negotiation about sexuality, is important for the relationship (Meyer & Chen, 2019). Indeed, in line with self-expansion theory (Aron et al., 1991), such communication may be particularly important in the early stages of the relationship in which a great deal of the relational negotiations and learning about the self through the inclusion of the other in the self takes place. Feeling that one's need for self-expansion is not met (whether early or later in the romantic relationship) is associated with feelings of less closeness and satisfaction (Aron et al., 2013).

The finding that role-play interest was negatively associated with both sexual satisfaction and relationship closeness while interest in BSDM was not may also be related to sexual scripts. Santtila et al. (2002) found that sadomasochistically oriented behaviors tend to follow a temporal pattern, in that, less intense behaviors precede more

intense behaviors. Furthermore, BDSM practitioners (e.g., Wiseman, 1996) recommend exploring BDSM behaviors slowly and following a temporal pattern. More broadly applied to BDSM, according to this perspective, the desire to engage in role-play may precede other BDSM behaviors. However, role-play does not have the same stigma as more stereotypical BDSM behaviors, so stigma consciousness is most likely not an inhibiting factor for this behavior. Future research should seek to examine whether lower sexual assertiveness and poorer communication skills about sexual interests serve this mechanistic function.

Interestingly, we did not find any associations between BDSM-related variables and relationship satisfaction. This finding is somewhat contrary to the findings of the only other study (to our knowledge) that assessed relationship satisfaction in connection with BDSM (Rogak & Connor, 2018). Rogak and Connor (2018) found that, when compared to criterion scores from other publications, their sample of coupled BDSM practitioners reported levels of relationship satisfaction that were on par with a sample of non-BDSM practitioners; in fact, BDSM couples reported higher levels of relationship satisfaction than a comparison group of distressed couples. There are notable differences between our study and the study by Rogak and Connor (2018); for one, we employed a much larger sample size, and thus, our estimates may be more reliable than theirs. Secondly, we were able to compare with coupled non-BDSM practitioners within the same sample, while Rogak and Connor (2018) compared with samples from other (and older) studies. Lastly, there may be cultural factors at play, as the current study was conducted in a more sexually liberal and less religious social context of Norway, while Rogak and Connor (2018) conducted their study in the US and used US comparison samples.

Limitations

There are several strengths to this study; primarily that it is one of the very few national web-population studies exploring BDSM. Secondly, it includes non-BDSM-oriented individuals for comparison and assesses relationship closeness, which has not previously been examined with a non-BDSM-oriented comparison population. Finally, this is one of the few empirical studies assessing sexual role-play interests and behaviors, if not the first; Harviainen (2012) suggests that, if they exist, they are obscure and difficult to obtain. However, these results should be interpreted taking into account the following limitations. First, the measures BDSM and role-play were not from validated scales specific to BDSM/role-play and single items were used for sexual satisfaction, relationship satisfaction, and relationship closeness to maximize response rates and reduce response fatigue. This is common practice and evidence of good construct validity has been reported for single-item measures (Gardner et al., 1998; Mark et al., 2014). Our measures of BDSM relied on participants' self-identification with BDSM as opposed to endorsing specific behaviors. This may have resulted in under-reporting from participants, who have engaged in BDSM behaviors but who may not recognize them as such and/or do not identify as being BDSM practitioners. Further, the four BDSM-related items are limited in that they only refer to sadomasochism, bondage, dominance, submission, and pain and may not capture the diversity and richness of BDSM behaviors. Secondly, the items pertaining to BDSM and role-play behaviors (i.e., having engaged in those behaviors) reflected lifetime prevalence. This may have resulted in an over-reporting as people could have experimented once and decided not to keep them in their sexual repertoire; thus, results may not capture habitual BDSM practitioners. Third, there were few LGBTQ+ respondents, which may limit the generalizability of the results. Finally, the assessment of relationship status did not allow for considering all relationship configurations, particularly polyamorous and

consensual non-monogamous (CNM) relationships. It is unclear if CNM was related to relationship satisfaction and relationship closeness as the measurement limitations preclude further assessment in our study. However, most studies did not find associations between CNM and these outcomes in research that did not target BDSM populations (e.g. Fairbrother et al., 2019; Garner et al., 2019; Rodrigues et al., 2016; Rubel & Bogaert, 2015) though some reported lower relationship satisfaction among CNM participants (e.g. Levine et al., 2018). Future research would benefit from assessing the possible impact of CNM on relationship satisfaction and closeness among BDSM practitioners.

Conclusions

BDSM-related behaviors and interests are relatively common in the Norwegian population with approximately 34% having reported some kind of interest in BDSM and nearly 10% having ever engaged in BDSM behaviors. The BDSM-oriented population did not differ from the traditional vanilla (non-BDSM-oriented) population in terms of gender and educational level, though BDSM was more frequent among self-identified LGBQ+ and younger respondents. Being interested in role-play but not having engaged in it was negatively associated with sexual satisfaction and relationship closeness, whereas role-play and BDSM behaviors are positively associated with sexual satisfaction. There were no significant associations with relationship satisfaction and BDSM-related variables among partnered participants.

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Table 1. Participant sociodemographic information (N = 4,148).

Variable	
Gender, %	
Female	47.3
Male	52.7
Sexual orientation, %	
Heterosexual	93.5
Bisexual/pansexual	3.3
Homosexual/lesbian	2.6
Asexual	.06
Other	.0
Age, %	
Below 30	21.2
30-44	29.4
45-59	23.2
60+	26.2
Educational Level, %	
6-8 years	0.8
9-10 years	4.6
12-13 years	30.4
Bachelor degree or similar	41.4
Master's degree or higher	22.8
Marital status, %	
Unmarried	25.4
Separated/divorced	8.4
Widow/widower	2.8
Married/cohabitating/registered partnership	63.4
Unmarried relationship status, %	
Not in a permanent relationship	71.2
In a relationship with 1 person	28.3
In a relationship with several people	.5

BDSM related variables, %	
Ritual sub/dom games stimulating	16.6
Consensual dom/sub/pain stimulating	15.5
Role-play Interest	14.3
BDSM behavior interest	8.9
Role-play behavior	11.1
BDSM behavior	9.7
Any BDSM interest/behavior (1 or more of the above BDSM-related variables)	34.4

Table 2. Comparisons of socio-demographic characteristics of BDSM-oriented participants (N = 4,148).

	Ritual Sub/Dom Games Stimulating	Consensual Dom/Sub/Pain Stimulating	Role Play Interest	BDSM Interest	Role Play Behavior	BDSM Behavior
Gender, %						
Men	17.3	15.7	17.3	9.2	11.3	9.6
Women	15.8	15.0	11.1	8.6	10.9	9.5
$\chi^2 (df), p$	1.63 (1), .202	0.37 (1), .546	30.57 (1), < .001	0.40 (1), .530	0.14 (1), .711	.88 (1), .975
Sexual Orientation, %						
Heterosexual	15.6	14.1	14.1	8.3	10.3	8.6
LGBQ+	34.2	38.0	19.1	19.6	22.6	24.8
$\chi^2 (df), p$	61.61 (1), < .001	107.64 (1), < .001	4.49 (1), .034	33.97 (1), < .001	32.96 (1), < .001	65.38 (1), < .001
Educational Level, %						
Lower	15.1	15.2	14.5	9.8	10.5	9.8
Higher	17.5	15.6	8.5	8.5	11.5	9.6
$\chi^2 (df), p$	2.84 (1), .050	0.11 (1), .735	0.05 (1), .818	1.95 (1), .164	0.76 (1), .385	0.08 (1), .778
Age, %						
Below 30	28.2	28.5	21.9	18.5	14.0	16.5
30-44	21.2	21.1	18.9	11.9	15.6	12.1
45-59	13.2	10.2	13.7	5.8	10.9	8.5
60+	5.1	3.3	3.8	1.1	3.9	2.6
$\chi^2 (df), p$	216.08(3), < .001	288.16(3), < .001	144.97(3), < .001	181.40(3), < .001	83.06(3), < .001	104.78(3), < .001

Table 3. Pearson correlations of socio-demographic, BDSM-related variables, and sexual satisfaction, relationship satisfaction, and relationship closeness.

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1. Gender	-											
2. Age	-.107**	-										
3. Educational Level	.058**	-.019	-									
4. Sexual Orientation	.037*	.156**	.016	-								
5. Ritual sub/dom games stimulating	-.020	-.228**	.030	-.123**	-							
6. Consensual dom/sub/pain stimulating	-.009	-.262**	.005	-.162**	.665**	-						
7. Role Play Interest	-.090**	-.189**	-.004	-.035*	.240**	.217**	-					
8. BDSM Interest	-.010	-.217**	-.023	-.095**	.410**	.431**	.317**	-				
9. Role Play behavior	-.006	-.129**	.014	-.094**	.247**	.226**	-.145**	.032*	-			
10. BDSM behavior	-.003	-.165**	-.005	-.132**	.416**	.453**	.013	-.102**	.415**	-		
11. Sexual Satisfaction	.077**	-.052**	.016	.034*	-.022	-.010	-.085**	-.045**	.062**	.054**	-	
12. Relationship Satisfaction	.053**	.020	-.009	.008	-.048**	-.034	-.081**	-.037*	-.011	.005	.473**	-
13. Relationship Closeness	-.031	-.105**	.006	-.020	-.004	.018	-.015	.009	.027	.024	.284**	.499**

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

Table 4. Hierarchical multiple regression analyses predicting sexual satisfaction, relationship satisfaction, and relationship closeness.

Variable	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
Sexual Satisfaction						
Gender	0.147	0.039	0.062**	0.126	0.040	0.053*
Age	-0.088	0.019	-0.080**	-0.104	0.019	-0.095**
Educational Level	0.027	0.041	0.011	0.028	0.041	0.011
Sexual Orientation	0.215	0.083	0.043*	0.234	0.083	0.047*
Ritual sub/dom games stimulating				-0.010	0.078	-0.003
Consensual dom/sub/pain stimulating				-0.110	0.072	-0.035
Role Play Interest				-0.262	0.060	-0.078**
BDSM Interest				-0.050	0.086	-0.012
Role Play behavior				0.138	0.069	0.037*
BDSM behavior				0.207	0.087	0.052*
R		.114			.164	
Adjusted R^2		.012			.024	
<i>F</i>		11.92**			10.00**	
Change R^2					.014	
<i>F</i> Change R^2					8.64**	
Relationship Satisfaction						
Gender	-0.164	0.066	-0.047*	-0.179	0.067	-0.052*
Age	-0.186	0.031	-0.114**	-0.199	0.033	-0.122**
Educational Level	-0.013	0.069	-0.003	-0.006	0.069	-0.002
Sexual Orientation	-0.035	0.159	-0.004	-0.032	0.160	-0.004
Ritual sub/dom games stimulating				0.017	0.136	0.003
Consensual dom/sub/pain stimulating				-0.217	0.125	-0.046
Role Play Interest				-0.189	0.107	-0.036
BDSM Interest				0.098	0.155	0.015
Role Play behavior				0.027	0.119	0.005

BDSM behavior		0.157	0.159	0.026
R	.116		.128	
Adjusted R^2	.013		.016	
F	9.62**		4.66**	
Change R^2			.003	
F Change R^2			1.355	

Relationship Closeness

Gender	0.140	0.046	0.058*	0.120	0.046	0.049*
Age	0.029	0.022	0.025	0.007	0.023	0.006
Educational Level	-0.021	0.048	-0.008	-0.014	0.048	-0.006
Sexual Orientation	0.010	0.110	0.002	0.002	0.110	0.000
Ritual sub/dom games stimulating				-0.022	0.094	-0.007
Consensual dom/sub/pain stimulating				-0.128	0.087	-0.039
Role Play Interest				-0.273	0.074	-0.075**
BDSM Interest				0.053	0.107	0.012
Role Play behavior				-0.099	0.082	-0.026
BDSM behavior				0.179	0.108	0.042
R		.059			.104	
Adjusted R^2		.002			.007	
F		2.52*			3.14*	
Change R^2					.007	
F Change R^2					3.55*	

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