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Fifty shades of Belgian grey: the prevalence of BDSM-related fantasies and activities in the general population

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Abstract

Background: Bondage and discipline (B/D), dominance and submission (D/S), and sadism and masochism (S/M), or BDSM, is gaining popularity through the mainstream media. Nevertheless, very little is known about the prevalence of BDSM related fantasies and activities in the general population.

Aim: The current study aimed at determining the prevalence of both BDSM fantasies and behavioral involvement in four different age groups of the general population in Belgium.

Methods: By use of a cross-sectional survey questionnaire, the level of interest in several BDSM-related activities was investigated in a subject sample representative for the general Belgian population (n=1027). The questionnaire evaluated interest in 54 BDSM activities and 14 fetishes. Self-identification as BDSM-practitioner, situational context of BDSM practice, age of awareness of these interests and transparency to others were questioned.

Outcomes: Individual item scores and summary scores on four BDSM categories were included in the analyses.

Results: A high interest in BDSM-related activities in the general population was found as 46.8% of the total sample had ever performed at least one BDSM-related activity, and an additional 22% indicated having (had) fantasies about it. Interestingly, 12.5% of the total population indicated performing one or more BDSM-related activities on a regular basis. When asked if they saw themselves as being interested in BDSM, 26% revealed this to be the case, and 7.6% self-identified as BDSM-practitioner. Interests in dominant and submissive activities were comparable and, remarkably, were highly intercorrelated. Both BDSM and fetish interests were present significantly higher in men than in women. The older age group (48-65y) had significantly lower BDSM-scores compared to their younger peers. Of the participants with a BDSM interest, 61.4% became aware of it before the age of 25.

Clinical Implications: There is a high level of interest in BDSM in the general population, which strongly argues against stigmatization and pathological characterization of these interests.

Strengths & Limitations: This is the first thorough study concerning prevalence of interest in and fantasies about a wide range of BDSM-related activities in the general population worldwide. Although our findings tend to argue against, we cannot completely rule out participation bias introduced by non-interest in the non-completers. In addition, some of the topics may have been subject to interpretation by the correspondent.

Conclusion: BDSM interest is present within the majority of the general population. Further research is needed to destigmatize it by confirming BDSM as a leisurely preference rather than a psychiatric affliction.

Introduction

BDSM, a combination of the abbreviations B/D (bondage and discipline), D/S (dominance and submission), and S/M (sadism and masochism), refers to (sexual) experiences where, in mutual consent, physical restraint, intense sensorial feeling and/or fantasy about dominance and submission play a key role, often experienced in role play [1, 2]. A related phenomenon is fetishism, implying the use of a specific non-living object, non-genital part of the body or a certain act in attaining sexual arousal.

An increasing ambivalence surrounds the general perception of practices and interest in BDSM-related activities. On one hand, the field is gaining attention in popular media, literature and art, as evidenced by the huge commercial success of the recent Fifty Shades of Grey books and movies. On the other, there is a distinct stigma surrounding the spectrum. Practitioners of BDSM or related behaviors commonly report being stigmatized and discriminated [3], often resulting in them concealing their BDSM related preferences, with self-protection or protection of others most often stated as reason for this concealment [4]. This is mirrored in the fact that BDSM related activities are included in the Diagnostic and Statistical Manual of Mental Disorders 5 (DSM-5) [5], thus labeling them as potentially deviant (e.g. sexual masochism disorder or sexual sadism disorder). Including these behaviors in a psychiatric classification system may have societal consequences of importance, e.g. in context of custody cases [6]. In this light, comparisons have been made with homosexuality, which was also a DSM diagnosis before it was removed from the DSM-III in 1973 [7]. Moser and Kleinplatz [8] proposed the removal of several sexually related disorders from the DSM, including those based on activities within the BDSM spectrum, because of changing cultural and historical factors and more importantly, because of the lack of objective data to support their characterization as a mental disorder.

A lack of knowledge about the nature and prevalence of the BDSM spectrum occupations within the general population may fuel the above mentioned stigmatization. Up to now, there is globally no proper investigation on the prevalence of interests, fantasies and practices on different domains of BDSM. One study based on telephone interviews questioned about various sexual practices, included a stand-alone question about having performed BDSM-oriented sex within the last 12 months [9] and found less than 5% of these respondents to have engaged therein. On the other hand, an older Canadian study

demonstrated that 65% of university students fantasized about being tied up by a sexual partner [10]. The divergent results of these two studies may reflect inherent population differences and/or a potential gap between having fantasies and actually playing them out. A study gauging 184 individuals active in the BDSM community indicated that most individuals only engage in certain actions but not in others [11]. Thus, interest may be focused on a limited set of activities in a wider range of possible BDSM-related behaviors. Other research suggested different preferences in BDSM-oriented activities in women and men [12-14], with potential impact of age. As such, the BDSM spectrum may be a cluster of very heterogeneous, independent profiles of interest.

To our knowledge however, no study has ever combined exploration of both interest in and the level of practice of different aspects of a wide spectrum of BDSM related actions in the general population. The current study therefore aimed at determining the prevalence of both BDSM fantasies and behavioral involvement in different age groups of the general population in Belgium.

Methods

A cross-sectional survey was carried out from February 2017 to March 2017. A digital invitation for participation to the survey was e-mailed out to 8041 subjects by iVox, a market research and polling agency with access to a panel of 150.000 Belgian citizens, representative for the general population. Data of 1027 residents were collected, divided over four age groups (see Table 1; group 1: 18-27y; group 2: 28-37y; group 3: 38-47y and group 4: 48-65y).

The invitation contained the following minimal information: duration of time needed to complete the survey (15 minutes), potential reward for participation (gift card) and the mention that the questionnaire topic concerned 'a special theme'. Invitees opening the link were categorized as responders, those not opening the link as non-responders. To minimize participation bias in the non-responders, an explanation of the content of the study and an informed consent form were presented only after opening the link.

Subsequently, socio-economical status (age, gender, education, occupation) as well as general information concerning sexuality (sexual orientation, sexual habits) were requested. Next, a list of 54 BDSM related activities was presented, including items both from the dominant (e.g. hitting a sexual partner with a whip) and the submissive perspective (e.g. being hit by a sexual partner with a whip). On each of these items, participants had to indicate their level of interest: 1) 'I would never do this', 2) 'It doesn't seem to interest me, but I'm open to it', 3) 'Never thought of it, but I'd like to try', 4) 'I have fantasized about it once, but have never tried it', 5) 'I fantasize about it regularly, but have never tried it', 6) 'I have put it into practice, and I didn't like it' 7) 'I have put it into practice, and I liked it' 8) 'I do this regularly' and finally 9) 'It is indispensable for me'. In addition to these individual responses, three response patterns were created for analysis: 1) 'No Interest' 2) having fantasies about the activity, but never having put it into practice ('Fantasies') and 3) having actually carried out the BDSM-related activity in reality ('Put Into Practice').

After these 54 items, interest in 14 fetish-related activities was gauged by use of a 5-item Likert scale. Finally, participants had to indicate to what extent they identified themselves as BDSM-interested, and answer 11 questions concerning the situational conditions where these activities had been performed, when they became aware of their interests, and whether they had shared these interests with anyone.

Based on a factor analysis of the same questionnaire taken in a sample of 353 members of the BDSM-community (ten Brink et al., in prep.), 4 BDSM-related categories were defined: 1) dominance (including 18 items such as 'blindfolding a partner', 'impose rules to partner', 'hitting a partner'), 2) submission (including 23 items such as 'kneeling before a partner', 'being hit by a partner', 'Use a title to address partner'), 3) visual play

(including 7 items like 'watching people getting hit', 'watching people being tied' or 'fireplay') and 4) attributes (including items like 'use of medical attributes' and 'penetration using big objects'). In addition, a fetishism score was calculated (exemplary fetish categories are 'shoes', 'latex', 'nylon', 'feet' and 'leather'). Corresponding summary scores were calculated for each of these 5 categories by summation of the item scores that primarily loaded on each of the factors.

Results

Of the 8041 invitees, 2764 participants opened the survey (34.4% responders) of which 1.027 (37.2%) completed it, leaving 1.737 non-completers and 5.277 non-responders.

--INSERT TABLE 1 ABOUT HERE --

Profiling the participants concerning their BDSM fantasies and practice

All 1027 participants completed the 54-item BDSM questionnaire, as well as the 14-item fetish questionnaire, gauging their level of interest in each of the BDSM-related activities and fetishes respectively.

--INSERT TABLE 2 ABOUT HERE --

Table 2 presents the prevalence rates of both BDSM related fantasies and actual practices from factors dominance, submission, visual play and attributes. Prevalence of interest in dominance and submission was comparable in men and women, but men demonstrated higher interest in visual play ($p=.001$) and attributes ($p<.001$).

Only 31.2% ($n=320$) of the completers reported no BDSM-related fantasies or practices in either BDSM category. Fantasies without putting these into practice were reported by 22% ($n=226$), whereas 46.8% ($n=481$) participants indicated they had engaged in one or more of the BDSM-related activities *at least once*. When looking at those participants to engage in BDSM-related activities *on a regular basis*, 12.5% indicated to do so for at least one of these activities, 7.5% in at least two different activities, 5.3% in at least three of them, and 3.3% in at least 4 of these activities.

With regard to the 4 factorial BDSM categories, 9.5% engaged in at least one submissive act on a regular basis, whereas this was the case in 8% for dominant behavior; for visual play and attributes this was 2.5% and 1.7% respectively. Note that engaging in one of the categories does not exclude engagement in any of the other categories.

--INSERT FIGURE 1A and 1B ABOUT HERE --

Figure 1 presents fantasies and practiced activities of the 15 most prevalent BDSM-items in the general population, both from the dominance and the submission perspective.

When looking at the specific acts, movement restriction (by use of handcuffs, rope,...), using a blindfold and using ice cubes elicited the highest interest, as these had each been put into practice by 20-24% of our sample, both in a dominant and a submissive role (see figure 1). Very few stated they didn't like the experience (2.1%; 1.4%; 3.9% respectively). On the other hand, only an equal minority indicated they performed these activities on a regular basis (2.2%; 2.2%; 1.6%) and for each of these acts, less than 1% found them to be indispensable in their lives.

Submissive kneeling has been experimented with by 9.9% of the subjects, of which most (78%, i.e. 7.7% of the total sample) stated they enjoyed it and 2.6% of the total sample indicated to do this often. Hitting a partner in a sexual context was done by 11% of the respondents in the dominant role, while 15.3% had been hit by a sexual partner. Both

from the acting (i.e. dominant role; 82% of affirmative item responses or 9% of the total sample) and the receiving perspective (i.e. submissive role; 85% of affirmative item responses or 13% of total sample), respondents stated they liked it, with 3-4% of the total sample integrating it in their life on a regular basis. With regard of hitting attributes, 6% had used a whip or flogger on a partner and equally 6% had been hit with a whip or flogger.

Profiling fetishism in the participants

Prevalence rates of fetish interests as defined by a score of 4 or 5 are reported in Table 3.

--INSERT TABLE 3 ABOUT HERE --

Prevalence rates of these interests were typically 2- to 3-fold higher in men than in women. Interests in materials and clothing objects tended to intercorrelate: latex correlated with leather (Spearman's coefficient = .579; $p < .001$), nylon ($r = .374$; $p < .001$), shoes ($r = .288$; $p < .001$) and furry costumes ($r = .210$; $p < .001$). Similarly, body part fetishes intercorrelated as interest in buttocks correlated with breasts ($r = .504$; $p < .001$) and to a lesser degree with feet ($r = .146$; $p < .001$). Of note, arousal by piercings did not display any correlations of interest with any of the other fetishes.

Fetishism correlated mildly with BDSM interest: Latex fetishism correlated with all 4 BDSM-categories (range Spearman = 0.22-0.29; all $p < .001$), as did leather (Spearman range 0.20-0.33; all $p < .001$) and nylon (0.19-0.30; $p < .001$). Other categories correlated as well, albeit more modestly.

Interrelationships between the BDSM domains

Somewhat surprisingly, calculated BDSM-category scores for submission and dominance scores intercorrelated significantly ($r = .816$, $p < .001$), suggesting that respondents with an interest in performing dominant activities were equally intrigued by experiencing the submissive role. Submission scores also correlated with Visual scores ($r = .706$, $p < .001$) and the Humiliation scores ($r = .718$, $p < .001$) and to a lesser degree with the Fetishism score ($r = .387$, $p < .001$).

BDSM identity and awareness

When asked if subjects judge themselves as having any interest in BDSM, 26% of the respondents affirmed. Of this subgroup, 29.2% (i.e. 7.6% of the total sample) identify themselves as actual BDSM practitioners. Most of these practitioners (85.5%) report the activities being performed at home, whereas the minority state to enjoy their activities out-of-doors (BDSM-club, hotel,...).

Of the subjects reporting an interest in BDSM, 61.4% became aware of this interest before the age of 25 and surprisingly, 8% before the age of 15. Less than 5% told a family member about their interest, whereas 24.6% told a friend. Telling a colleague was only done by 10 out of 264 subjects (3.8%).

Associations with sex, age and sexual orientation

Age had a significant impact on BDSM category scores. When comparing the four age groups, the oldest group (48-65y) had significantly lower submission scores compared to the first (18-27y; $p < .001$), second (28-37y, $p < .001$) and third age groups (38-47y, $p = .017$) as well as significantly lower dominance scores (all $p = .001$ or lower). None of the other category scores (visual, attributes) differed between the eldest and the other age groups. Male participants systematically had significantly higher summary scores compared to their female counterparts (dominance: $F = 44.32$, $p < .001$), submission:

F=10.00, $p=.002$; visual: F=34.93, $p<.001$ and attributes: F=59.24, $p<.001$). These significant differences remained present after controlling for age.

Participants with a sexual orientation other than heterosexuality had higher scores for dominance (F=19.1, $p<.001$), submission (F=33.8; $p<.001$), visual (F=18.8; $p<.001$) and attributes (F=40.5; $p<.001$) but not for fetishism (F<1).

Exploring the impact of dropout

A subgroup (n=141; 8.1%) of the non-completers answered at least the first 18 BDSM-related items before dropping out (partial completers), making them interesting for further analysis of the participation bias.

When entering all 18 BDSM items in a multivariate GLM analysis comparing completers versus partial completers (n=114), no significant differences were found (F=1.310; $p=.167$). When looking at item-level however, a moderate significant difference was found in two items: 'wearing a gag' (F=5.35; $p=.021$) and 'being locked up in a cage' (F=5.930; $p=.015$). Interestingly, these scores were *higher* in the partial completers. Thus, these findings might argue against the idea of a participation bias leading to overrepresentation of BDSM-minded subjects. Of note, no differences were found in age, sex or sexual orientation between completers and partial completers, although the group of partial completers tended to have more women (60.4% versus 55.4% in the completers, $p=0.062$).

Discussion

A high interest in BDSM-related activities in the general population was found as half of the total sample had ever performed at least one BDSM-related activity, and an additional 22% indicated having (had) fantasies about it. When asked if interested in BDSM, 26% revealed this to be the case, and 7.6% self-identified as BDSM-practitioner. Interests in dominant and submissive activities were comparable and, remarkably, were highly intercorrelated. Both BDSM and fetish interests were present significantly higher in men than in women.

Compared to previous research, these prevalence rates seem high and are in contrast with the findings of Richters and colleagues [9], who found less than 5% of the general population to have engaged in BDSM-oriented sex. However, it should be noted that in this study, only one broad question addressed BDSM interest, leaving ample room for interpretation, and addressed a limited time period. The lower rate is rather more comparable with the rate of correspondents from our sample who identify themselves as BDSM practitioners (i.e. 7.6%), which is also in line with Bakker and Wesenbeeck [15], who reported 7% of the population in the Netherlands to act upon their SM-desires. The use of an extensive list of specific BDSM activities (including potentially 'milder' activities) may also explain the higher prevalence percentages in our sample compared to some studies.

In addition to the 46.8% who have practiced BDSM to some extent, another 22% has at least once fantasized about one or more BDSM related activities. Reynaud and Beyers [10] found that 65% of college students had ever fantasized about either tying someone else up or being tied up themselves in a sexual context. Very similarly, the recent study of Joyal and Carpentier [16], also found that in a large sample of the general population (n=1040) nearly half (45.6%) had interests in paraphilic behavior (including sadism, masochism and fetishism). These findings are thus comparable with our cumulative prevalences for both enactment and fantasizing and indicate that at least some degree of interest in BDSM is found in about 70% of the population.

Regular BDSM practitioners tend to participate more in submissive and dominant behavior (9.5% and 8% respectively) rather than in visually stimulating acts (2.5%) or use of BDSM-related attributes (1.7%). Surprisingly, respondents with an interest in submissive roles were highly likely to have an interest in a dominant role as well. This is in contrast with a study within the BDSM community [4, 14], that demonstrated a more clear-cut preference for either role. These seemingly contrasting findings could result from the fact that participants from the general population are exploring their interests, experiment more with BDSM activities, and as a result, are more likely to still have no well-defined interest or identity within the spectrum. It may also be that within the BDSM community a more well-defined categorical identity (dominant, submissive or switch) is expected or sometimes even required. This is in line with the study of Alison [11] that demonstrated that subjects participating in a certain number of specific BDSM acts tended to avoid other BDSM activities.

Older participants (i.e. 48-65y) had lower submission and dominance scores compared to their younger peers, whereas no other age effects were found. This is remarkable, as these participants had more time to explore their interests. Quite possibly, these differences reflect cultural and generational differences as older generations may have experienced a higher amount of stigma. Additionally, access to literature and other BDSM-related media on the subject may have been more restricted and it might have been more difficult to connect with peers, ultimately having allowed fewer people to develop and explore their interests.

The majority (61.4%) of the completers with a self-proclaimed interest in BDSM became aware of this interest before the age of 25. Bezreh and colleagues [4] demonstrated awareness at an even younger age (85% before the age of 20) within a small sample of the BDSM community. Similarly, Floyd and Bakeman [17] demonstrated first awareness of same-sex attraction was reported around the age of 13.2 years old and self-identification as being gay/lesbian/bisexual came at an age (19.7y) which is comparable with our findings concerning BDSM interests.

The majority of participants felt uncomfortable revealing their BDSM interests, more to family members or colleagues than to friends. Stiles and colleagues [14] found resembling data as 38% of their research sample completely concealed their interest, whereas 11-25% only told some close friends or family members. In contrast, talking about sexuality in general to family members was done by 58-75% of teenagers [18]. This could reflect the stigma and the feelings of shame and guilt associated with BDSM involvement [19].

When looking at fetish interests, most people who were found to be sexually aroused by a certain clothing fabric, were likely to be aroused by other materials as well. Comparable associations were seen for interest in body parts. It should be noted that the survey only gauged arousal by / interest in a certain fetish domain; it did not verify whether the objects were *per se* required to get sexually aroused as is the case for some people with a specific fetish. Thus, similar to BDSM practice, fetishism could also be categorized as a spectrum ranging from "some interest in" or "arousal by" an object/body part to "absolutely indispensable to achieve sexual arousal".

The study has some limitations. A market research and polling agency collected the data to ensure a study sample representative for the general population, but due to our study design only participants between the age of 18 and 65 with internet access entered the study. Nevertheless, apart from those limitations, we feel our sample is indeed representative. Although 37.2% invitees knowledgeable about the study topic completed the survey and while we did not find significant lower BDSM interest in non-completers versus completers, we cannot completely rule out participation bias introduced by non-interest in the non-completers. Also, although the survey was anonymous, the fear of being exposed in some way may have contributed to dropout during completion of the

survey. In addition, some of the topics may be subject to interpretation by the correspondent (e.g. categorizing an object or body part as sexually stimulating). Finally, no specific information was requested on timing of specific acts. As a result, no distinction can be made between a subject referring to an act performed recently versus decades ago; thereby potentially impacting age group-related correlations.

To conclude, there is a high level of interest in BDSM in the general population, which strongly argues against pathological characterization and stigmatization of these interests. Further research is needed to confirm BDSM as a leisurely preference rather than psychiatric affliction to destigmatize it within the population. This quest might benefit from exploring comparisons between BDSM profiles from the general population and those from the BDSM community.

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Demographic Variables of the total sample (n=1027)

	Age 18-27	Age 28-37	Age 38-47	Age 48-65
N	254	254	255	264
Gender				
M	84 (33.1%)	120 (47.2%)	127 (49.8%)	128 (48.5%)
F	168 (66.1%)	133 (52.4%)	128 (50.2%)	136 (51.5%)
other	2 (.8%)	1 (.4%)	0 (0%)	0 (0%)
Education				
no high school degree	6 (2.4%)	18 (7.1%)	21 (8.2%)	53 (20.1%)
high school degree	100 (39.3%)	91 (35.8%)	85 (33.4%)	136 (51.5%)
Higher education degree	148 (58.3%)	145 (57.1%)	149 (58.5%)	75 (28.4%)
Living area				
Rural	52 (20.5%)	39 (15.4%)	42 (16.5%)	37 (14%)
suburban	63 (24.8%)	65 (25.6%)	60 (23.5%)	75 (28.4%)
Urbal	139 (54.7%)	150 (59.1%)	153 (60.0%)	152 (57.6%)
Sexual orientation				
heterosexual	232 (91.3%)	213 (83.9%)	233 (91.4%)	244 (92.4%)
homosexual	14 (5.5%)	24 (9.4%)	12 (4.7%)	10 (3.8%)
bisexual	8 (3.1%)	11 (4.3%)	10 (3.9%)	7 (2.7%)
asexual	0 (0%)	5 (2.0%)	0 (0%)	1 (.4%)
pansexual/other	0 (0%)	1 (.4%)	0 (0%)	2 (.8%)

Table 2: Prevalence rates of lack of interest, fantasies about and practicing of BDSM-related categories

N (%)	No Interest	Fantasy	Put into practice
Dominance			
M	174 (37.9%)	94 (20.5%)	191 (41.6%)
F	232 (41.1%)	106 (18.8%)	227 (40.2%)
total	407 (39.6%)	200 (19.5%)	420 (40.9%)
Submission			
M	171 (37.3%)	100 (21.8%)	188 (41.0%)
F	210 (37.2%)	96 (17.0%)	259 (45.8%)
total	382 (37.2%)	197 (19.2%)	448 (43.6%)
Visual play			
M	299 (65.1%)	80 (17.4%)	80 (17.4%)
F	441 (78.1%)	44 (7.8%)	80 (14.2%)
total	741 (72.2%)	125 (12.1%)	161 (15.7%)
Attributes			
M	313 (68.2%)	87 (19.0%)	59 (12.9%)
F	481 (85.1%)	42 (7.4%)	42 (7.4%)
total	795 (77.4%)	130 (12.7%)	102 (9.9%)

Table 3: Prevalence of fetish interests (as defined by a score of 4 or 5 out of 5) in the general population

	TOTAL		Men		Women		Mann Whitney U test (M vs F)
	n	%	n	%	n	%	p
Latex	127	12,4	95	20,7	32	5,7	<.001
Leather	151	14,7	94	20,5	57	10,1	<.001
Lingerie	735	71,7	385	83,9	350	61,9	<.001
Shoes	99	9,7	70	15,3	29	5,1	<.001
Nylon	302	29,5	202	44,0	100	17,7	<.001
Piercings	80	7,8	50	10,9	30	5,3	.001
Furry costumes	31	3,0	20	4,4	11	1,9	.025
Breasts	671	65,5	398	86,7	273	48,3	<.001
Buttocks	660	64,5	382	83,2	278	49,2	<.001
Feet	99	9,7	76	16,6	23	4,1	<.001