



Sexual Arousal by Dominance and Submissiveness in the General Population: How Many, How Strongly, and Why?

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ABSTRACT

Sexual arousal by dominance and submissiveness was long considered as pathology. Surprisingly, approximately half of respondents ($n = 673$) were excited by their partner's submission or their own submission. A strong preference was found in 8.2% of respondents. Respondents of 6.1% were not even excited by equality, but only by disparity. The respondents differed in the type of disparity that they prefer, and how strongly they preferred this disparity. We suggest that sexual arousal by dominance and submissiveness is related to a common mating strategy.

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Introduction

The term “BDSM” refers to consensual sexual activities. The acronym consists of (1) B for bondage or B&D for bondage and discipline (2) D/s for sexual arousal by dominance and submission, and (3) SM for sadism and masochism in the strong physical stimuli are involved (Cross and Matheson 2006; Hoff 2006; Kolmes, Stock, and Moser 2006; Richters et al. 2003; Weinberg 2006).

Practitioners of BDSM sex are not classified as suffering from a disorder in the new diagnostic manuals Diagnostic and Statistical Manual of Mental Disorders (DSM)-V (Moran 2013). On the other hand, Diagnostic manual International Classification of Diseases (ICD) 10 (World Health Organization 2010) places (even consensual) BDSM in Mental and Behavioral Disorders, subchapter Disorders of Sexual Preference. However up to the present day, four European states (Denmark 1995, Sweden 2009, Norway 2010, and Finland 2011) have fully respected this minority sexual preference by removing sadomasochism from their ICD 10 (Revise F65 2009).

Approach to BDSM should be based on three essential facts: (1) how many people are sexually aroused by such stimuli 2) how strongly these people prefer stimuli which are connected to BDSM, and (3) why people have such a preference. Powls and Davies (2012) summarized four older studies reporting that more than 50% of respondents were aroused by fantasies or activities classified as BDSM. On the other hand, in an Australian study only 1.8% of people (2.2% of men, 1.3% of women), who had had a sexual partner in a previous year, confessed a BDSM involvement (Richters et al. 2008).

An evolutionary explanation considers the biological base of these preferences. Sexual arousal by dominance and submissiveness may be a manifestation of a mating strategy which would lead to an increase in reproductive success (Jozifkova, Bartos, and Flegr 2012; Jozifkova and Konvicka 2009; Jozifkova, Konvicka, and Flegr 2014). Previous research confirmed the connection between sexual arousal by a dominant or submissive partner and higher self-reported attractiveness, as well as the higher number of offspring (Jozifkova and Konvicka 2009). Generally, a higher-ranked individual provides lower-ranking individual high quality genes and/or resources while a lower-ranked individual provides higher ranking individuals a chance to mate (see (Alcock 2013; Davies, Krebs, and

West 2012) for more). Therefore, the sexual preferences linked to such strategy should be very common.

Here we discover how many people and how deeply they were involved in sexual arousal by dominance and submissiveness in respondents from the general population. We hope that such findings may reveal whether this behavior is rather pathological or rather normal under given conditions.

Method

Respondents were introduced to the research by means of an email survey in The Czech Republic, European Union. Emails with questionnaires were sent by the email account provider as a part of our advertising campaign. Data were collected anonymously within a few months in 2013.

The provider guaranteed to send 50,000 emails to each part of The Czech Republic. Out of 903 respondents who started to fill out the questionnaire, 803 people completed it. Only respondents of two age cohorts (25–34 years and 35–44 years) who were not sexually aroused by the same gender and/or who did not live with a same gender partner were included in the analysis.

Questionnaire

Respondents answered according to their situation and experiences in regard to their former, current or future partner, number of children, number of siblings and parents' siblings, relationships between partners and between parents, attractiveness, sexual preference, and socioeconomic status. Respondents either chose a specific detail (or a range) offered by the choice of answers or they provided specific details with respect to an answer. Most questions related to attitudes and opinions and were categorized on a five-level scale.

In the questionnaire, people who were sexually excited when their partner was submissive (answers: “definitely yes”, “rather yes”) but were not excited by a dominant partner (answers: “definitely not”, “rather not”, and “neither yes nor no”) were marked as “Dom”. Other respondents were excited by their submission to their partner (answers: “definitely yes”, “rather yes”) but were not excited by their partner's submission (answers: “definitely not”, “rather not”, and “neither yes nor no”). They were marked as “Sub”. The group without any sexual preference of this kind was described as “No”. Within this group, individuals either ranked themselves “neither yes nor no”, or were not excited by these types of preferences (answers: “rather not” and “definitely not”). People who were excited by both their own submission and their partner's submission were included in the group “Both”. Respondents who replied to one or both answers “I don't know” were excluded from the analysis.

Respondents

Out of 673 respondents, 4 (0.6%) people had completed elementary education, 51 (7.6%) had secondary education without graduation, 290 (43.1%) respondents had secondary education followed by graduation (UK A level), 79 (11.7%) had higher education to Bachelor's degree level, and 249 (37.0%) had academic education to at least Master's degree level.

A total of 25 (3.7%) respondents considered their financial situation significantly below average, 83 (12.3%) respondents considered their situation below average, 292 (43.4%) average, 223 (33.1%) moderately above average, and 50 (7.4%) significantly above average.

A Total of 6 (0.9%) respondents did not agree that they have a good social status, 71 (10.5%) rather, 250 (37.1%) answered “neither yes nor no”, 306 (45.5%) rather agreed, and 40 (5.9%) respondents fully agreed.

Statistics

Data were analyzed with IBM SPSS Statistic 20 and 21. Data normality was assessed using Shapiro–Wilk’s test and the Kolmogorov–Smirnov test with Lilliefors Significance Correction. We used Pearson’s chi-squared test (non-parametric test) to analyze the data.

Results

Out of 673 respondents 51.1% of men and 39.4% of women (45.9% of all respondents) were sexually aroused by dominant or/and submissive partner (Table 1).

Sexual arousal by dominance and submission: Gender differences

A higher number of men than women were excited by their own submission and/or their partner’s submission ($n = 673$, $\chi^2 = 9.100$, $d.f. = 1$, $P = 0.003$) (Table 1).

When comparing the number of men with the number of women in individual hierarchical groups (“Sub”, “Dom”, and “Both”), frequencies differed ($n = 309$, $\chi^2 = 140.718$, $d.f. = 2$, $P = 0.0001$). Men were more excited by their dominance than their submission, but women were excited by their own submission rather than their partner’s submission ($n = 233$, $\chi^2 = 121.056$, $d.f. = 1$, $P = 0.0001$). Almost one third of men who got excited by a disparity in hierarchy were sexually aroused by both their own submission and their partner’s submission. Women were much less excited by both their own submission and their partner’s submission than men ($n = 309$, $\chi^2 = 14.077$; $d.f. = 1$, $P = 0.0001$). (Table 1)

Sexual arousal by dominance and submission: Age differences

Men aged 25–34 did not differ from men aged 35–44 in their sexual preference for hierarchy ($n = 376$, $\chi^2 = 1.944$, $d.f. = 1$, $P = 0.163$). Women in the age category of 25–34 years had a tendency to prefer hierarchy disparity more than women between the ages of 35–44 years (45.6% to 34.9%; $n = 297$, $\chi^2 = 3.482$, $d.f. = 1$, $P = 0.062$). (Table 2)

Table 1. Sexual arousal by dominance and submission.

	Men	Women	All
	% (n)	% (n)	% (n)
No	48.9 (184)	60.6 (180)	54.1 (364)
Dom	28.7 (108)	3.4 (10)	17.4 (118)
Sub	6.1 (23)	31.0 (92)	17.1 (115)
Both	16.2 (61)	5.1 (15)	11.3 (76)

Percentages and number of respondents who were excited by their partner’s submission (Dom), by their own submission (Sub), by both their partner’s submission and their own submission (Both), and by no such preference (No).

Table 2. Sexual arousal by dominance and submission – age differences.

	Men		Women	
	Age 25–34	Age 35–44	Age 25–34	Age 35–44
	%(n)	%(n)	%(n)	%(n)
No	53.2 (83)	45.9 (101)	54.4 (68)	65.1 (112)
Dom	22.4 (35)	33.2 (73)	5.6 (7)	1.7 (3)
Sub	7.7 (12)	5.0 (11)	34.4 (43)	28.5 (49)
Both	16.7 (26)	15.9 (35)	5.6 (7)	4.7 (8)

Percentages and number of respondents of two age cohorts who were excited by their partner’s submission (Dom), by their own submission (Sub), by both their partner’s submission and their own submission (Both), and by no such preference (No).

Women aged 25–34 did not differ from men of the same age ($n = 281$, $\chi^2 = 0.4$; $d.f. = 1$, $P = 0.842$), while women aged 25–34 less preferred hierarchy disparity than men of the age (34.9–54.1%; $n = 392$, $\chi^2 = 14.353$; $d.f. = 1$, $P = 0.0001$). (Table 2)

The number of men in the hierarchical groups (Sub, Dom, and Both) did not differ between the two age categories ($n = 192$, $\chi^2 = 3.943$, $d.f. = 2$, $P = 0.139$). Nor did the number of women ($n = 117$, $\chi^2 = 1.982$, $d.f. = 2$, $P = 0.371$). (Table 2)

Sexual arousal by dominance and submission: Strength of the preferences

Generally, out of these 673 people, 8.2% (55) people answered “definitely yes”, to the question about being sexually aroused by their own submission or their partner’s submission. Two respondents (0.3%) revealed their preference for BDSM sex in open-ended questions “I have another (sexual) preference” and “Your other notions”.

Equality

Generally, out of 673 people, 41 (6.1%) were excited by their submission or their partner’s submission but were not excited by gender equality. Fourteen men in the “Dom” group, six men in the “Sub” group, one man in the “Both” group, and one man in the “No” group answered “rather not” excited by equality. Three men chose “Definitely not excited” in the “Dom” group and two men in the “Both” group. twelve women in the “Sub” group and one woman in the “Both” groups were “rather not” excited by equality. Two women (“Sub” group and “Dom” group) were “definitely not” excited by the equal partner. See Table 3 for percentages and number of answers to the question about being sexually aroused by an equal partner in the “Hierarchy” and “No” group of respondents.

Discussion

Sexual arousal by dominance and submissiveness was found to be frequent. Out of 673 respondents 51.1% of men and 39.4% of women (45.9% of all respondents) were sexually aroused by dominant or/and submissive partner (Table 1). The same proportion of men and women interested in hierarchy disparity unconsciously showed their preference for disparity by clicking on the symbol (Jozifkova and Flegr 2006) (Table 4).

As such a frequent occurrence suggests sexual arousal by dominance and submission may represent an important mechanism of the mating strategy in humans. In accordance with common reproductive strategy, markers for improved reproductive success, which are related to increased social dominance, were found in humans. For example, in the past, high-ranking Mormons used to have multiple wives because a wife was given to them with every increase in rank (Mealey 1985).

Table 3. Sexual arousal by equality.

	Gender equality	
	“Hierarchy” group	“No” group
	%(n)	%(n)
Definitely yes	30.4 (94)	51.9 (189)
Rather yes	35.3 (109)	30.2 (110)
Neither yes nor no	20.7 (64)	17.3 (63)
Rather not	11.0 (34)	0.3 (1)
Definitely not	2.3 (7)	0
Not sure	0.3 (1)	0.3 (1)

Percentages and number of answers to the question about being sexually aroused by an equal partner in “Hierarchy” and “No” group of respondents. “Hierarchy” group consists of respondents who were excited by their partner’s submission (Dom), by their own submission (Sub), by both their partner’s submission and their own submission (Both). “No” group of respondents shows no such preference.

Table 4. Comparison with an internet trap study (Jozifkova and Flegr 2006).

	Men		Women	
	Questionnaire	Symbol (Jozifkova and Flegr 2006)	Questionnaire	Symbol (Jozifkova and Flegr 2006)
	%	%	%	%
No	48.9	49.6	60.6	59.7
Dom + Sub + Both	51.1	50.4	39.4	40.3
Dom	28.7	36.6	3.4	19.8
Sub	6.1	13.8	31.0	20.5
Both	16.2		5.1	

Comparison of the percentages of respondents who were excited by their partner's submission (Dom), by their own submission (Sub), by both their partner's submission and their own submission (Both), and by no such preference (No) with earlier research done by clicking on the symbols on the Internet (Jozifkova and Flegr 2006). The percentage of questioned respondents who were sexually excited by hierarchy disparity (Dom + Sub + Both) and who had no such preference (No) did not differ from trap study based on symbols (data were analyzed for both genders independently: men: $n = 745$, $\chi^2 = 0.032$, $d.f. = 1$, $P = 0.858$; women: $n = 686$, $\chi^2 = 0.636$, $d.f. = 1$, $P = 0.425$). However, the trap did not permit a choice of both the dominant and the submissive partner. Since we have performed the recent survey, we can calculate the percentage of men preferring both if we sum the differences between the percentages in the former study (Internet trap) and the current study (questionnaire): $(13.8 - 6.1) + (36.6 - 28.7) = 15.6$. This result is similar to the percentage of these men found in our current study (16.2%).

These Mormons also had more children (Fieder et al. 2005), just like contemporary male university employees in leading positions (Mealey 1985). Striking results were found in modern populations where the number of offspring may be influenced by contraceptive use. In Montréal, Quebec, men of high social status had increased copulation frequency, equaling to a higher potential fertility (Perusse 1993). "Women reported more frequent and earlier-timed orgasms when mated to masculine and dominant men" (Puts et al. 2012). Thus the sexual arousal by dominance and submissiveness may have a biological base.

Theoretically, there might be also an effect of social equality in an egalitarian society where disparities are not strengthened. The conflict between mating strategy and modern ethics might drive the need for a symbolic emphasis of dominance and submission between sexual partners. In highly developed areas, educated personas (for more see (Connolly 2006; Sandnabba et al. 2002; Wismeijer and van Assen 2013)) may seek a safe and harmless expression of mating strategy via ritualized sexual fantasy.

Connolly (2006) reported that the "majority of males fell along the dominant end of the spectrum whereas the majority of females fell along the submissive end of the spectrum". Similar results were found in this study. Men were more excited by their dominance than their submission, but women were excited by their own submission rather than their partner's submission. On the other hand, the study provides evidence of women who were aroused by male submission, and men who were aroused by female dominance. The higher proportion of sexually dominant men and sexually submissive women corresponds with the above-mentioned mating strategy. Interestingly, we find increased reproductive success in a parental pair of dominant men and submissive women as well as in pairs consisting of dominant women and submissive men in westernized urban populations (Jozifkova, Konvicka, and Flegr 2014). It seems that sexual arousal by dominance or submissiveness may help its bearer independently of his or her gender. Nevertheless, sexual arousal by dominance or submissiveness may help its bearer only if he or she can find a matching partner.

The earlier research was conducted using an internet trap in Czech respondents (Jozifkova and Flegr 2006) (Table 4). Within the trap, respondents chose between several web pages which were accessed by clicking on the symbol of couples displayed on "entrance doors". Considering hierarchical disparity (preference for dominance and submissiveness), the results of this earlier research correspond with our current study. However, in contrast to men, women responded to the schemes Dom \times Sub (dominance or submissiveness) in the trap differently from how they responded in the questionnaire in the current study.

The sum of respondents who were excited by sexual hierarchical disparity did not differ between men and women aged 25–34 (45.6–46.8%). Surprisingly, women aged 35–44 preferred their own submission and/or their partner's submission less than men of that age (34.9–54.1%) (Table 2).

Table 5. Comparison with Dutch respondents interested in BDSM sex (Wismeijer and van Assen 2013).

		General population %	BDSM respondents (Wismeijer and van Assen 2013) %
Men*	Dom	56.2	48.3
	Sub	12.0	33.4
	Both	31.8	18.3
Women	Dom	8.5	8
	Sub	78.6	75.6
	Both	12.8	16.4

* $P = 0.001$

Percentages of the Czech general population respondents who were excited by their dominance, their submission and both dominance and submission compared to Wismeijer and van Assen (2013) findings in Dutch respondents interested in BDSM sex (464 men, age $m = 45.5$, $SD = 11.12$; 438 women, age $m = 37.1$, $SD = 10.8$). Respondents with the preference for hierarchy were excited either by their partner's submission (Dom) or by their own submission (Sub); but there were also respondent who were excited by both preferences (Both). Respondents are separated according their gender and age. The Czech population sample differed from Dutch BDSM respondents in the portion of respondents with specific preferences in men but they did not differ in women (men $n = 656$, $\chi^2 = 35.724$, $df = 2$, $P = 0.0001$; women: $n = 555$, $\chi^2 = 0.920$, $df = 2$, $P = 0.631$).

Women aged 35–44 seemed to have a much less marked preference for hierarchical disparity in their sexual life or they might have been too shy to report their preferences linked to sexual deviation.

We compared our results with a study by another research group that also investigated sexual preferences for hierarchical disparity. Wismeijer and van Assen (2013) recruited their respondents on BDSM web forum in The Netherlands. The division of preferred hierarchical disparity was similar to the division of these preferences in Dutch respondents interested in BDSM sex in women but there were statistical differences in men (Table 5). However, this difference might be a result of a bias, because submissive men, who have difficulties in finding a partner in the general population, might be present among BDSM respondents with a higher frequency. Surprisingly, no such phenomenon was found in dominant women. This finding suggests that the factors that influence gathering in BDSM communities are different for men and women.

A total of 8.2% (55) people answered “definitely yes”, to the question about being sexually aroused by their own submission or their partner's submission, which may reflect the size of the minority with a strong preference for hierarchical disparity between sexual partners. Surprisingly, only 6.1% (41) of respondents were excited by hierarchical disparity but not by equality. This observation supports the idea of Bezreh, Weinberg, and Eedgar (2012), which suggests that the general population should be educated about this sexual preference in the same way that it is educated about homosexuality.

We can conclude that 8.2% of respondents displayed a strong preference for dominance and submission. Among these respondents, such a preference may be fundamental for 6.1% of people. Later, some of these people may learn that this preference is classified as BDSM and practitioners are called BDSMers. In our study, two (0.3%) of our respondents openly confessed to BDSM practices. These respondents revealed their BDSM preference in open-ended questions. We did not ask them about their BDSM sexual preference directly (see Method for more).

Conclusion

This study shows that almost half of people consider as arousing those sexual activities which are related to hierarchical disparity between partners. Thus, sexual arousal by dominance and submission is likely to represent an important mechanism in human mating strategy; this fact indicates a biological basis for these sexual preferences. People differed in the type of disparity that they preferred, and how strongly they preferred this disparity. A strong preference was found in 8.2% of respondents. Respondents of 6.1% were not even excited by equality, but only by disparity. Therefore, rather than being a characteristic of a minority, this preference represents an intensity scale that is differently expressed in as many as almost half of the population.

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