

ORIGINAL RESEARCH—PSYCHOLOGY

Defining “Normophilic” and “Paraphilic” Sexual Fantasies in a Population-Based Sample: On the Importance of Considering Subgroups

Christian C. Joyal, PhD*†

*Université du Québec à Trois-Rivières, Trois-Rivieres, Québec, Canada; †Philippe-Pinel Institute of Montreal, Montreal, Québec, Canada

DOI: 10.1002/sm2.96

ABSTRACT

Introduction. According to the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5), a sexual fantasy (SF) is paraphilic if it concerns activities outside the realm of “genital stimulation or preparatory fondling with phenotypically normal, physically mature, consenting human partners” (normophilic). Intensity of the paraphilic SF is also “greater than or equal to normophilic interests.” Surprisingly, however, very few data are available to corroborate that definition of a paraphilic SF. Although the relatively high prevalence of paraphilic SF in the general population is well known, the magnitude of difference between intensity of “normophilic” and “paraphilic” SF remains to be assessed.

Aim. The main goal of this study was to analyze the SF of adults recruited in the general population to obtain person profiles based on the nature and intensity of their SF.

Methods. Multiple correspondence analysis (MCA) were used with data collected from 1,501 adults recruited in the general population to generate subgroups of participants based on the nature and intensity of their SF.

Main outcome measures. The main outcome measures used was a revised version of the Wilson Sex Fantasy Questionnaire.

Results. When all participants are considered as a unique group, the mean intensity of the most intense “normophilic” SF (oral sex) is significantly higher than the mean intensity of the most intense “paraphilic” SF (being sexually dominated for women and watching two women having sex for men), as expected from the DSM-5. When clusters of participants are considered separately, however, conclusions are nuanced. Four significant clusters of participants (two predominantly female and two predominantly male) reported at least one paraphilic SF with intensity as high as that of their most intense “normophilic” SF. In fact, 57% of this sample met the criteria of paraphilia.

Conclusion. These results suggest that the current criteria for paraphilia are too inclusive. Suggestions are given to improve the definition of pathological sexual interests, and the crucial difference between SF and sexual interest is underlined. Joyal CC. Defining “normophilic” and “paraphilic” sexual fantasies in a population-based sample: On the importance of considering subgroups. *Sex Med* 2015;3:321–330.

Key Words. Paraphilia; Normophilia; Sexual fantasies, DSM-5; General population

Defining and assessing healthy vs. pathological sexual interests is challenging, important, and controversial in medicine. In the Diagnostic and Statistical Manual of Mental Disorders (DSM) [1], sexual interests are sexual fantasies, urges, or behaviors. A sexual interest is considered to be a paraphilia (which is distinguished from paraphilic disorders) if it concerns non-normophilic activity and for which interest is “greater than or equal to normophilic interests” [1, p. 685]. Non-normophilic interests, labeled as “anomalous,” are defined as “any intense and persistent sexual interest other than sexual interest in genital stimulation or preparatory fondling with phenotypically normal, physically mature, consenting human partners” [1, p. 685]. Eight specific examples of paraphilic interests are given: fetishism (non-sexual object), sadism (inflicting humiliation, bondage, or suffering, real or not, physical or not), masochism (undergoing humiliation, bondage, or suffering, real or not, physical or not), transvestism (cross-dressing), voyeurism, exhibitionism, frotteurism (rubbing against a nonconsenting person), and pedophilia. This definition of paraphilia (not a paraphilic disorder) is based on goodwill and acknowledges that less typical sexual interests are not necessarily associated with mental disorders. Unfortunately, it is controversial because defining “paraphilic” sexual interest by opposing it to normophilic sexual interests is potentially stigmatizing [2]. In addition, the empirical bases of the distinction are unclear.

The present study focuses on sexual fantasy (SF), which by itself can meet the definition of paraphilia in the DSM-5. Paraphilic SF, especially those involving voyeurism, fetishism, and sadomasochism (e.g., bondage, domination, submission, humiliation), are common among college students [3]. More recently, we found the same result for adults recruited from the general population [4]. However, these fantasies are consistently found to be less prevalent than “normophilic” fantasies because only comparisons within the whole group are conducted. It remains possible that for significant subgroups of individuals in the general population prevalence and intensity of paraphilic SF are as high, or higher, than those of normophilic SF. Although the prevalence of normophilic fantasies would constantly be higher than that of “paraphilic” interest within a single non-clinical sample, considering subgroups of individuals with more homogeneous profiles might generate a different picture. Still, the mere occurrence of a particular SF is insufficient to meet the DSM-5 criteria

of paraphilia: its intensity must also be greater or equal than that of “normophilia.” There are very few studies of the intensity of SF among non-clinical samples, and DSM-5 does not provide any assessment scale, cut-off point, or criteria to assess the intensity of SF. It is possible that, although fairly high rates of “paraphilic” SF are reported in non-clinical samples [4], such SF may indeed be less intense than “normophilic” SF. This remains to be demonstrated, however.

Another important aspect to consider is the strong, mostly unexplained, association between diversity of sexual practices and socio-demographic factors [5]. Higher diversity of sexual behavior is consistently found to be associated with gender (male), age (lower), sexual orientation (bisexual or homosexual, especially in men), and above all, educational attainment (higher) [6–10]. Therefore, it remains possible that non-clinical clusters of persons with intense paraphilic fantasies would simply regroup individuals with specific socio-demographic profiles, such as young white bisexual men with higher education. These socio-demographic factors should be considered.

In a previous report [4], we asked participants to rate the subjective intensity of 55 SF, which were divided into three sexual domains: peripheral (non-sexual themes: atmosphere, location, romance, and emotions), normophilic (DSM-5 definition or themes related to genital stimulation or preparatory fondling with phenotypically normal, physically mature, consenting human partners), and paraphilic (DSM-5 definition or any other sexual behavior). As expected, peripheral themes tended to be rated more intensely than normophilic themes, which in turn tended to be rated more intensely than paraphilic themes [4]. These ratings, however, were simple bivariate comparisons based on averages of the whole sample ($N = 1,516$). Given this, it comes as no surprise that ideas about romance received significantly higher ratings, on average than, say, tying-up one’s partner. Comparing SF intensities among more homogeneous subgroups of participants might provide more nuanced conclusions, such as showing the presence of significant clusters of persons reporting “paraphilic” SF as intensively as “normative” SF.

The first goal of the present study was to perform further in-depth analyses of the data reported in [4] with multivariate statistics to define subgroups of persons based on the nature and intensity of their SF. A second objective of this study was to test, in part, the validity of the DSM-5 definition of paraphilic SF. It was first hypoth-

esized that significant clusters of persons would report paraphilic SF with an intensity as high as that of normophilic SF. It was further hypothesized that these clusters of persons reporting paraphilic SF would not solely reflect socio-demographic characteristics associated with higher diversity of sexual practices. If confirmed, these hypotheses would suggest that qualifying some paraphilic SF as “anomalous” might be an overstatement.

Methods

Participants

This study is a follow-up to an initial paper reporting rates and bivariate analyses of data obtained through an Internet survey of individuals recruited among the general population (see [4] for methodological details). Briefly, a total of 1,516 persons were involved ($N = 799$ women, 52.7%; $N = 717$ men, 47.3%; mean age: 29.6 ± 10.8 ; range 18–77 years old; mean number of years of formal education: 14.9 ± 3.6 ; range 6–30 years). The majority of respondents (85.1%) reported being heterosexual, 3.6% reported being definitive homosexuals (significantly more women [6%] than men [1.5%]), with the remainder reporting bisexuality (12.6% of women and 9.8% of men, not significantly different). The study was limited to participants who had fully completed the questionnaire ($n = 1,501$).

Instrument

To determine the nature and intensity of the SF of the participants, a revised and expanded version of the Wilson Sex Fantasy Questionnaire (SFQ [11,12]; was used. A principal component analyses (PCA) originally conducted with the SFQ generated four main components (intimate, impersonal, exploratory, and sadomasochistic), although it was based on only 90 participants [11]. Participants in this study were asked to evaluate the presence and intensity of 55 SF, including peripheral (e.g., ambiance and location), “normophilic” (e.g., genital stimulation with a consenting human partner), and “paraphilic” (e.g., voyeurism, sadomasochism, fetishism, transvestism) themes. Intensity of interest for each SF was assessed with a rating scale ranging from 0 to 7 (0—*not at all*; 1—*no*; 2—*very weak*; 3—*weak*; 4—*mild*; 5—*moderate*; 6—*strong*; 7—*very strong*). Preliminary descriptive results (percentages and between-gender comparisons) are available in [4].

Statistical Analyses

The first goal of the present study was to define subgroups of persons based on the nature and intensity of their SF. To achieve this goal, multiple correspondence analyses (MCA) was used as it is a non-parametric and non-linear statistical approach [13]. MCA is similar to PCA, an exploratory multivariate technique that allows pattern analysis of relationships between several variables [14]. Contrary to PCA, however, MCA accepts non-normally distributed variables, which might be grouped into categories, and it can generate non-mutually exclusive clusters [13,14]. Given that intensities of SF do not show a normal distribution, MCA is perfectly suited for our present purposes. Because linear relationships between the variables are not assumed, it is possible to define subgroups of persons reporting both similar (e.g., romantic location) and different (e.g., spanking vs. oral sex) SF themes (non-mutually exclusive groupings), which again is well suited for this type of study. Finally, at least 10 participants per variable are required for MCA, which is easily achieved here (55 SF for $N = 1,501$).

Each variable (SF) was categorized, based on the intensity ratings, as follows: no or low intensity (0–2); mild intensity (3–4); and high intensity (5–7). These three categories multiplied by 55 fantasies generated 165 possibilities in the MCA for each participant. MCA generates binary codes (0 = no; 1 = yes) for each possibility, arranged in a two-way frequency cross-tabulation (binary indicator matrix). This tabulation provides person profiles (i.e., individuals defined by one particular variable) and variable profiles (i.e., variables common to one person profile). Graphically, rows correspond to the participants and columns to the variables, all represented by points in a Euclidian space. Associations between rows (persons) and columns (variables) are obtained by computing the distances between points in space, i.e., the chi-squared distances between the individuals and between different categories of the variables. This makes it possible to extract dimensions of the space that capture most of the inertia (similar to the variance). Person profiles and variable profiles are positioned in space as a function of their place on each dimension and the further the profiles are separated on a given dimension, the more they contribute to the definition of that dimension.

The number of dimensions retained (those with clinical significance explaining most of the inertia) was determined with a scree test [15]. This was

achieved with visual examination of the graphic scree plot of the dimension eigenvalues (the “elbow” of eigenvalues). Once the best dimensional solution of the data was obtained, cluster analysis was performed, in which participants with similar profiles were grouped. Hierarchical clustering analysis with Ward’s criterion was used because it has been shown to yield a minimum loss of inertia [16]. The dendrogram (aggregation tree) obtained from the hierarchical analysis served to determine the number of clusters to be retained. Finally, clusters of persons were compared a posteriori with a limited set of socio-demographic, predetermined external variables (gender, sexual orientation, mean educational attainment, and mean age). The number of high-intensity fantasies, total fantasy intensity rating, and mean fantasy intensity rating were also compared between clusters for descriptive purposes. Tukey’s post hoc tests corrected for multiple comparisons were conducted.

To address the second goal of this study, the most intense “normophilic” SF (involving genital stimulation or preparatory fondling) was compared with the most intense “paraphilic” SF (other SF except those limited to peripheral components such as atmosphere, romance, emotion, and location) within each cluster with paired *t*-tests. Given the high statistical power generated by this sample (risk of type-I error) and the repetitive use of bivariate comparisons, the criterion of significance was the effect sizes (0.10: non-significant; 0.30: significant, 0.50: highly significant [17]), not the simple *P* values.

Ethics

This study was approved by the ethical committee of the University of Québec at Trois-Rivières.

Results

The best MCA solution was based on four dimensions, which accounted for 95.04% of total inertia. These four dimensions were labeled “emotion presence” (from importance of romance and atmosphere to total exclusion of romance and atmosphere), “interpersonal distance” (from intimate partner exclusively to strangers exclusively impersonal), “personal power” (from total domination to total submission), and “gender of fantasized persons” (from men exclusively to women exclusively). These four dimensions generated seven clusters of participants, a well-distributed (N from 128 to 314) and theoretically relevant MCA solu-

tion (Table 1). Ten SF (out of 55) were not used by the model because of their lack of discriminant value (contribution of less than 1.8% to total inertia). These fantasies tended to be either too rare (urinating on partner, being urinated upon, pedophilia, bestiality, transvestism, true exhibitionism, having sex with a non-sexual object, or having sex with someone much older) or common (having sex with someone not my spouse, having sex with a known person). The remaining 45 SF were sufficient to distribute participants in seven clusters.

As shown in Table 1, the external variables gender, educational attainment, sexual orientation, and mean age differed significantly between certain clusters. First, clusters 1, 2, 4, and 7 were composed mostly of women, whereas men constituted a majority in clusters 3, 5, and 6. It is worth noting that predominantly female clusters did not necessarily obtain significantly lower mean SF intensity than predominantly male clusters (see clusters 1 and 2); on the contrary, they could be equally high or higher (see cluster 2 vs. clusters 3 and 6). In addition, although the number of high-intensity SF (rated between 5 and 7) characterizing each cluster is generally higher in predominantly male clusters, it varies more among predominantly female clusters, ranging from only 1 to up to 30 (Table 1). This result suggests the presence of significant variability between subgroups of participants, especially for women. All other socio-demographic factors varied, more or less significantly, between clusters (age, sexual orientation, educational attainment; Table 1). Importantly, however, no single cluster regrouped all factors associated with higher sexual diversity (young age, bi-homosexuality, being male, higher education).

Figure 1 shows the distribution of mean intensity of each SF for each cluster, divided by predominant gender (1A, women; 1B, men). As illustrated by the mean intensity curves, clusters clearly differ from each other, on average, for both genders, on different SF. For this reason, each cluster was labeled as high, low, mild, or variable intensity (Figure 1). Therefore, the seven clusters were labeled as follow: 1—predominantly women, variable SF intensity; 2—predominantly women, high SF intensity; 3—predominantly men, variable SF intensity; 4—predominantly women, low SF intensity; 5—predominantly men, high SF intensity; 6—predominantly men, low SF intensity; 7—predominantly women, mild SF intensity (Table 2). The two “variable-intensity” clusters (one mostly women, one mostly men) are noteworthy because they generated up-and-down curves of

Table 1 Description and comparisons between the multiple component analysis seven cluster solution

	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	Cluster 6	Cluster 7	Between-group*
Number of participants [†]	261	174	274	314	142	208	128	
Gender (%)								
Male			92.3	82.8	79.6	81.7	70.0	
Female	88.5	70.1						
Sexual orientation (%)								
Heterosexual	88.1	54.6	96.7	94.9	69.7	91.8	78.9	
Bisexual	6.9	31.6			28.9		20.0	
Homosexual	5.0	13.8			1.4		1.5	
Number of high-intensity fantasies [‡]	16	30	26	1	32	4	1	
Mean years of education	14.9 ± 3.5	15.0 ± 3.3	14.5 ± 3.4	15.7 ± 3.4	13.8 ± 3.8	14.8 ± 3.8	14.9 ± 3.4	4 > 3, 5 5 < 1, 2, 4 4 < all 5 > all
Total fantasy intensity rating	117.8 ± 27.9	186.9 ± 32.9	176.7 ± 22.1	62.5 ± 22.9	249.8 ± 39.5	112.6 ± 22.8	124.4 ± 26.9	1 > 4; 1 < 2, 3, 5 2 > 1, 3, 4, 6, 7 4 < all 5 > all
Mean fantasy intensity rating	2.17 ± 0.5	3.43 ± 0.6	3.22 ± 0.4	1.15 ± 0.4	4.56 ± 0.7	2.05 ± 0.4	2.29 ± 0.4	
Mean age	26.0 ± 8.6	29.1 ± 8.9	32.3 ± 11.2	28.5 ± 11.5	33.7 ± 10.5	31.7 ± 12.4	26.7 ± 8.4	> 4; 1 < 2, 3, 5 2 > 1, 3, 4, 6, 7 4 < 3, 5, 6 5 > 1, 2, 4, 7 1 < 2, 3, 5, 6 2 < 3, 5; > 1

*Between-group comparisons; †Post hoc Tukey's tests corrected for multiple comparisons, significant at 0.05. ‡The total number of participants with complete data set was 1,501. #Number of intense fantasies (rated between 5 and 7 on the scale) which contributed significantly to defining the cluster. Bold indicates significant difference from the mean.

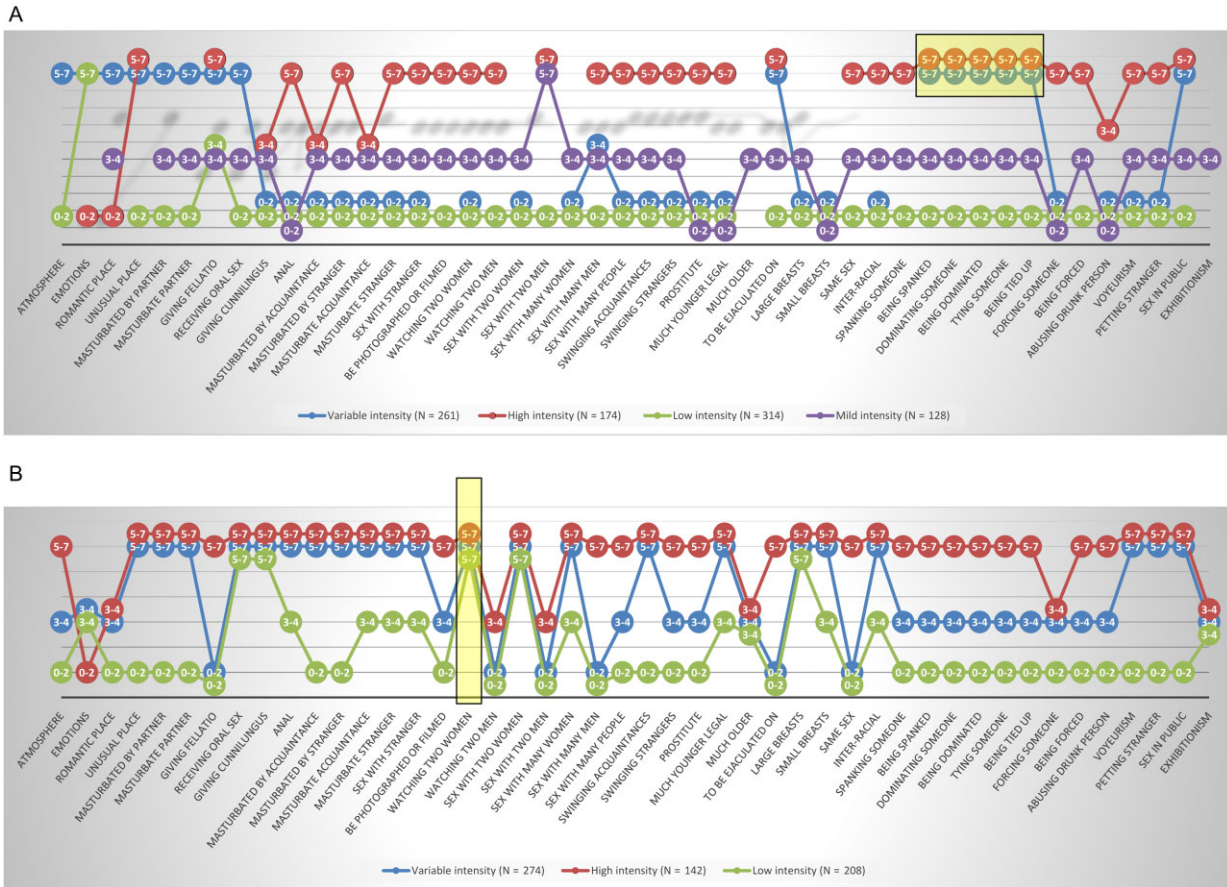


Figure 1 Significant sexual fantasy (SF) contributors (generate at last 2.3% of inertia) for clustering (four clusters) with three intensity categories (0–2: low; 3–4: mild; 5–7: high; missing data indicate non-significant contribution from that SF for a given cluster; yellowed box: high-intensity SF with paraphilic themes in two clusters). (A) Predominantly female clusters (clusters 1, 2, 4, and 7). (B) Predominantly male clusters (clusters 3, 5, and 6). Yellowed box indicate high-intensity paraphilic SF.

intensities; that is, in these cases intensity of a given SF is not necessarily a good predictor of intensity of other SF, contrary to the straighter lines of low-, moderate-, and high-intensity clusters (Figure 1). The “variable-intensity” female cluster, for instance, rated SF themes connected to domination and submission almost as high as the “high-intensity” female cluster (see the blue line peak on the right of Figure 1A). Similarly, those in the “variable-intensity” male cluster gave some SF ratings that were as low as those of the “low-intensity” male cluster (e.g., same sex fantasies), whereas other SF were rated as high as those of the “high-intensity” male cluster (e.g., having sex with two women at the same time). It is interesting to note that these “variable-intensity” clusters are significant, both among predominantly female (N = 261) and predominantly male (N = 274) clusters (Table 2). This result suggests that intensity of

paraphilic SF (e.g., themes related with sadomasochism and domination–submission) is not necessarily equal or lower than that of “normophilic” SF for all clusters. This hypothesis is tested later.

Table 2 shows the mean intensity of each SF for each cluster. After discarding peripheral SF because they are nonsexual (grayed in Table 2; atmosphere, romance, emotions, and locations), the most intense sexual SF is indeed “normophilic:” receiving oral sex, for both genders, as previously reported in [4] (overall average: 5.09 ± 1.05 ; women: 4.7 ± 2.5 ; men: 5.4 ± 2.1). Interestingly, however, this intense SF was rated 3.33 on average by one cluster (cluster 4, low-intensity women) as compared with 6.51 for another cluster (cluster 5, high-intensity men). As well, cluster 4 rated presence of emotions 5.59 on average while the average for cluster 5 was 4.63. These results illustrate the importance of considering patterns of interests and

Table 2 Mean intensity of each SF for the seven clusters of participants

	Cluster 1 (variable-intensity F)	Cluster 2 (high-intensity F)	Cluster 3 (variable-intensity M)	Cluster 4 (low-intensity F)	Cluster 5 (high-intensity M)	Cluster 6 (low-intensity M)	Cluster 7 (mid-intensity F)	Total
Atmosphere	5.48	4.60	4.61	4.39	5.16	4.38	4.70	4.76
Emotions	5.90	4.95	4.55	4.95	4.95	5.08	5.12	5.12
Romantic place	5.63	4.06	4.81	4.58	4.75	4.04	4.66	4.65
Unusual place	5.32	5.31	5.57	3.33	6.06	4.25	4.63	4.92
Masturbated by partner	5.11	3.91	4.63	3.07	5.30	3.80	3.63	4.21
Masturbate partner	5.03	3.67	5.12	2.78	5.41	3.90	3.59	4.22
Giving fellatio	5.10	5.16	1.07	2.56	3.57	1.02	3.06	3.08
Receiving oral sex	5.47	5.03	5.89	3.33	6.51	5.14	4.27	5.09
Giving cunnilingus	1.74	3.43	5.65	0.90	5.89	4.35	2.95	3.56
Anal penetration	2.13	4.41	3.78	0.59	5.63	2.43	1.85	2.97
Masturbated by acquaintance	1.49	3.66	4.81	0.91	5.89	2.64	3.02	3.20
Masturbated by stranger	1.29	4.22	4.71	0.59	6.04	2.38	2.54	3.11
Masturbate acquaintance	1.31	3.33	4.92	0.80	5.85	2.74	2.80	3.11
Masturbate stranger	1.02	3.76	4.73	0.44	5.89	2.18	2.23	2.89
Sex with stranger	2.12	5.20	5.25	1.33	6.42	3.24	3.59	3.88
Be photographed or filmed	2.01	3.56	2.75	0.53	4.80	1.06	1.88	2.37
Watching two women	1.51	4.27	5.91	1.29	6.39	4.50	3.64	3.93
Watching two men	1.02	3.51	0.23	0.45	2.19	0.32	1.34	1.30
Sex with two women	1.25	4.24	6.23	1.02	6.40	5.19	3.54	3.98
Sex with two men	3.09	5.91	0.38	1.50	2.49	0.46	3.17	2.43
Sex with many women	0.59	3.11	5.33	0.30	5.99	3.29	2.03	2.95
Sex with many men	1.34	4.77	0.13	0.43	2.16	0.17	1.55	1.51
Sex with many people	1.24	4.79	2.93	0.37	5.23	1.06	2.23	2.55
Swinging acquaintances	0.48	2.44	3.04	0.24	5.04	0.94	1.46	1.95
Swinging strangers	0.81	3.58	3.02	0.25	5.20	1.00	1.60	2.21
Prostitute	0.48	1.99	2.69	0.25	4.33	1.00	0.72	1.64
Much younger, legal	0.98	2.73	3.56	0.56	4.65	1.92	1.12	2.22
Much older	1.98	2.86	3.39	0.90	3.91	1.83	2.20	2.44
Being ejaculated on	2.91	4.59	1.34	0.95	3.75	0.60	1.90	2.29
Large breasts	0.55	2.18	4.48	0.46	5.53	3.50	1.88	2.65
Small breasts	0.29	1.51	3.54	0.18	4.54	2.53	1.11	1.96
Same sex	1.55	4.88	0.75	0.74	3.31	1.05	2.32	2.09
Interracial	1.33	3.38	3.96	0.71	5.04	2.45	2.02	2.70
Spanking someone	2.09	2.76	2.39	0.42	4.77	1.10	1.32	2.12
Being spanked	2.98	3.71	1.52	0.50	3.75	0.60	1.57	2.09
Dominating someone	3.77	3.80	3.58	1.13	5.49	1.84	2.46	3.15
Being dominated	5.03	5.28	3.09	1.96	4.83	1.51	3.60	3.62
Tying someone up	3.46	3.39	3.06	0.78	5.46	1.28	2.15	2.80
Being tied up	4.06	4.34	2.85	1.19	4.83	1.19	3.00	3.07
Forcing someone	0.49	1.62	1.22	0.20	3.28	0.47	0.55	1.12
Being forced	1.51	3.61	1.73	0.45	4.11	0.58	1.59	1.94
Abusing drunk person	0.67	1.43	1.26	0.19	3.27	0.54	0.55	1.13
Voyeurism	1.61	3.32	4.13	0.81	5.58	2.13	2.10	2.81
Petting stranger	0.57	2.84	3.61	0.22	5.46	1.16	1.47	2.19
Sex in public	3.87	4.62	4.50	1.45	5.72	2.51	3.08	3.68
Exhibitionism	0.86	2.12	1.63	0.27	3.52	0.49	0.94	1.40
Cross-dressing	0.36	0.85	0.45	0.17	1.68	0.39	0.55	0.64
Fetishism	1.53	2.47	1.57	0.79	3.08	0.83	1.36	1.66
Total	2.17 ± 0.5	3.43 ± 0.6	3.22 ± 0.4	1.15 ± 0.4	4.56 ± 0.7	2.05 ± 0.4	2.29 ± 0.4	

□, peripheral (non-sexual) fantasies (atmosphere, emotion, romance, and location); □, normophilic fantasy (DSM definition) with highest mean intensity (both men: 5.4 ± 2.1 and women: 4.7 ± 2.5; Joyal et al. [4]); □, paraphilic fantasies (DSM definition) with highest mean intensity (men, watching two women: 4.9 ± 2.4; women, being dominated: 3.8 ± 2.7; Joyal et al. [4]). F, predominantly women; M, predominantly men, same order as in Table 1; gray, peripheral SF; yellow, normophilic SF with highest mean intensity; green: paraphilic SF with highest mean intensity; SF, sexual fantasy; DSM, Diagnostic and Statistical Manual of Mental Disorders.

intensities among subgroups in sex research. Figure 1 and Table 2 show the different arrangements of the seven clusters.

Another important point concerns the most intense paraphilic SF (i.e., sexual interest other than sexual interest in genital stimulation or preparatory fondling with phenotypically normal, physically mature, consenting human partners, according to the DSM-5), which was “being dominated” for women and “watching two women having sex” for men, as reported in Joyal et al. ([4]; means of 3.79 ± 2.7 and 4.9 ± 2.4 , respectively). But Table 2 shows that the mean scores for “being dominated” actually varied from a low of 1.96 (cluster 4, “low-intensity”) to a high of 5.28 (cluster 2, “high-intensity”) among predominantly female clusters. Similarly (although to a lesser extent), among predominantly male clusters, the mean intensity of “watching two women having sex” varied from 4.50 (cluster 6, “low-intensity”) to 6.39 (cluster 5, “high-intensity”).

Finally, the mean intensity of the most intense normophilic SF (receiving oral sex, both genders) did not differ significantly from that of the most intense paraphilic SF (i.e., being dominated for women; watching two women having sex for men) in four clusters. Among predominantly female clusters, receiving oral sex vs. being dominated did not differ in clusters 1 (“variable-intensity;” means of 5.47 ± 2.2 vs. 5.03 ± 2.0 , respectively, effect size of 0.12) and 2 (“high-intensity;” means of 5.03 ± 2.2 vs. 5.28 ± 2.2 , respectively, effect size of 0.10, in the opposite direction). Likewise, among predominantly male clusters, mean intensities of receiving oral sex vs. watching two women having sex did not differ significantly in clusters 3 (“variable-intensity;” 5.89 ± 1.46 vs. 5.91 ± 1.42 , respectively, effect size <0.10) and 5 (“high-intensity;” 6.51 ± 1.0 vs. 6.39 ± 1.2 , respectively, effect size <0.10).

Discussion

Defining and evaluating healthy sexual interests is of great importance for general, psychiatric, and forensic practices. According to the DSM-5, a sexual interest is anomalous if its intensity is equal or superior to that of a “normophilic” sexual interest. The first goal of this study was to describe subgroups of persons recruited in the general population based on the nature and intensity of their SF. A second goal of this study was to test the validity of the DSM-5 paraphilia definition in assessing and comparing the intensity of “normophilic” and “paraphilic” SF between these subgroups. When

the whole sample is considered, the most intense “normophilic” SF (receiving oral sex) is statistically more intense, on average, than the most intense “paraphilic” SF [4], in accordance with the DSM-5 definition. Looking at subgroups of persons, however, generates more nuanced conclusions. In the present study, four clusters of participants reported a most intense “paraphilic” SF that was in fact statistically as intense as their most intense “normophilic” SF. Thus, 851 persons or 57% of this sample have met the DSM-5 definition of paraphilia (again, not to be confounded with a paraphilic disorder). Interestingly, these clusters did not simply regroup persons with specific socio-demographic factors generally associated with higher diversity of sexual practices (e.g., being male, younger, bi-or homosexual orientation, with a higher educational attainment; see the introduction). For instance, half of “paraphilic” clusters were predominantly women. These results illustrate the importance of considering subgroups of persons in the definition paraphilic sexual interest, at least for SF.

The seemingly negative association between educational attainment and intensity of SF in this study is noteworthy. Contrarily to expectation, the highest mean educational level was attained by the most conservative cluster (cluster 4), whereas the most variant cluster (cluster 5) reached the lowest educational level on average. However, educational attainment interacted with gender in this study. That is, when predominantly female clusters and predominantly male clusters are considered separately, mean educational levels across subgroups remain stable, while significant differences in SF intensity and diversity still emerge between subgroups in both genders (in other words, predominantly female clusters received, on average, more years of education than predominantly male clusters). Therefore, differential educational attainment in this study was not due to SF intensity and diversity difference as much as to gender.

Overall, these data suggest that significant portions of persons recruited in non-clinical context report paraphilic SF according to the DSM-5 definition. Also, these persons do not necessarily present with socio-demographic characteristics usually associated with a higher diversity of sexual practices. Importantly, fantasies, interest, and behavior are not synonymous in general sexology. Therefore, although these conclusions might be limited to the realm of fantasies, the definition of paraphilia should not include fantasy as a sufficient criterion.

In view of these results, one suggestion would be that the definition of paraphilic sexual interests be improved. In doing this, it would be beneficial to go back to basics and consult older definitions of paraphilia. Fifteen years ago, for instance, Seto and Barbaree [18] defined paraphilia as a “preferred activity *highly* atypical for individuals who preferred sexually mature people” with preferred defined as “consistently needed for sexual gratification” (p.198). Similarly, the DSM-III correctly stressed that “For example, women’s undergarments and imagery of sexual coercion are sexually exciting for many men; they are paraphiliac only when they become necessary for sexual excitement” (p.267). The essence of this definition (pathological rigidity and necessity) has been gradually lost over time. Besides, the current notion of greater or equal intensity is vague, unfounded, and difficult to assess in clinical practices.

In addition, focusing on “atypical” or “anomalous” behaviors may be unnecessary and stigmatizing. Not only will any definition of sexual “normality” or “normophilia” be controversial, but it is unnecessary in order to diagnose a disorder involving sexual preference or arousal. If a sexual interest induces psychological suffering, distress, or significant impairment, it is a disorder, whatever the nature of the interest. If a sexual behavior involves a non-consenting partner, it is an illegal act (e.g., rape, sexual interactions with a child, voyeurism, exhibitionism, frotteurism, necrophilia, bestiality). It is important to remember that not so long ago, oral sex, today’s most popular SF in both genders, was considered as an example of a gross and deviant behavior committed by helpless men suffering from a masochistic disorder [19].

It is also worth noting that equating SF with manifestations of sexual interest is erroneous, at least for women. More than 30 years ago, Master, Johnson, and Kolodny [20] stressed that: “most women who are aroused by fantasies that portray ‘unusual’ sex practice such as rape or sadomasochistic sex indicate that they have no interest whatsoever in acting out the fantasy. In contrast, men appear to be somewhat more adventuresome” (pp. 271–2).

More recently, qualitative analyses have confirmed this notion: a majority of women reporting a forced-sex or physically submissive fantasy stress that they would never wish to realize it [4]. Thus, although a given SF might be arousing, it is not necessarily indicative of a sexual interest. In fact, considering SF as sexual interest might be danger-

ous for the numerous women (and men) who have forced-sex fantasies [21]. These SF are not necessarily wishes. The International Classification of Disorders (ICD) taskforce leans toward adopting SF as a sufficient criterion in their upcoming paraphilic disorder diagnosis (see the beta version of the ICD-11 in [22]). In this case, however, SF is associated with sexual arousal, not sexual interest, and is limited to paraphilic disorders, not paraphilia (i.e., is accompanied by impairment, distress or action).

Finally, particularly interesting was cluster 1 (predominantly women, variable SF intensity), which generally favored normophilic SF, except for a subset of paraphilic themes, all related with sadomasochistic themes (Figure 1). We previously stressed the relatively high rate of women (and men) who endorsed sadomasochistic SF from the same sample [4]. This study further suggests that for certain subgroups of persons, intensity of paraphilic SF, especially those with sadomasochistic themes is as high as that of normophilic SF. We previously hypothesized that these persons with both normophilic and sadomasochistic SF are more satisfied with their sex life than average. Although the present study could not test that hypothesis, it was recently supported from another, nearly representative sample of the Quebec population [23]. More investigations are warranted concerning the intriguing link between sadomasochism fantasy or practice and good mental health [24].

Results of this study should be interpreted in view of its limits, however. First, the sample was recruited online and it was not representative of the general population. The refusal rate is unknown, and it is clear that volunteers in sex studies have more experience and they are more open toward sexuality than persons who refuse to participate in such studies [25,26]. Therefore, the actual number of persons with paraphilic fantasies report herein might be inflated. Still, intensity comparisons between normophilic and paraphilic fantasies within each cluster hold true. Second, the content validity of the original [11] and this version of the Sexual Fantasy Questionnaire [4] was not assessed, so it remains possible that some items did not measure precisely what they were intended to measure. However, construct validity of questionnaires about sexual fantasies is rarely assessed because they evaluate overt, observable simple behaviors. Finally, DSM-5 stipulates that paraphilic SF are intense and persistent. Although most SF are persistent and no definition of persis-

tence is provided in the DSM-5, it remains possible that intense paraphilic SF were not persistent. The notion of persistence should be considered in future studies.

Overall, although the distinction between paraphilia and paraphilic disorders in the DSM-5 is a step in the good direction, this study suggests that the definition of paraphilia is too inclusive. Paraphilic themes such as voyeurism, fetishism, and masochism are too common, at least in the realm of fantasies, to be qualified as atypical, let alone anomalous.

Acknowledgments

The author wishes to thank Amélie Cossette, BSc, for her help with the survey data collection; Julie Meloche from Stats Solution, Inc., for her help with the statistical analyses; and all respondents who provided us with invaluable insights about SF. This study was supported in part by a team grant to the Groupe de Recherche sur les Agressions Sexuelles (GRAS, Jean Proulx, Director) from the Fonds de Recherche Québécois sur la Société et la Culture (FRQSC).

Corresponding Author: Christian C. Joyal, PhD, Université du Québec à Trois-Rivières, Québec, Canada. Tel: 819-376-5011 ext. 3559; Fax: 819-376-5195; E-mail: christian.joyal@uqtr.ca

Conflict of Interest: The author(s) report no conflicts of interest.

References

- 1 American Psychiatric Association. Diagnostic and statistical manual of mental disorders. Fifth edition. Washington: American Psychiatric Association; 2013. 991 pp.
- 2 Joyal CC. How anomalous are paraphilic interests? *Arch Sex Behav* 2014;43:1241–3.
- 3 Leitenberg H, Henning K. Sexual fantasy. *Psychol Bull* 1995;117:469–96.
- 4 Joyal CC, Cossette A, Lapierre V. What exactly is an unusual sexual fantasy? *J Sex Med* 2015;12:328–40.
- 5 Laumann EO, Gagnon JH, Michael RT, Michaels S. The social organization of sexuality: Sexual practices in the United States. Chicago: University of Chicago Press; 1994. 750 pp.
- 6 Bajos N, Bozon M. Enquête sur la sexualité en France: Pratiques, Genre et Santé [Survey on Sexuality in France: Practices, Gender and Health] La Découverte: Paris. 2008, 609 pp.
- 7 Bhugra D, Rahman Q, Rahul B. Sexual fantasy in gay men in India: A comparison with heterosexual men. *Sex Relat Ther* 2006;21:197–207.
- 8 Chandra A, Mosher WD, Copen C, Sionean C. Sexual behavior, sexual attraction, and sexual identity in the United States: Data from the 2006–2008 National Survey of Family Growth. *Natl Health Stat Report* 2011;36:1–36.
- 9 Gagnon JH, Simon W. The sexual scripting of oral genital contacts. *Arch Sex Behav* 1987;16:1–25.
- 10 Kinsey AC, Pomeroy WB, Martin CE. Sexual behavior in the human male. Bloomington: Indiana University Press; 1948. 804 pp.
- 11 Wilson GD, Lang R. Sex differences in sexual fantasy patterns. *Pers Indiv Differ* 1981;2:343–6.
- 12 Wilson GD. Measurement of sex fantasy. *J Sex Marital Ther* 1988;3:45–55.
- 13 Greenacre MJ. Correspondence analysis in practice. 2nd edition. London: Chapman and Hall/CRC; 2007. 296 pp.
- 14 Greenacre MJ, Blasius J. Multiple correspondence analysis and related methods. London: Chapman and Hall/CRC; 2006. 608 pp.
- 15 Cattell RB. The scree test for the number of factors. *Multivariate Behav Res* 1966;1:245–76.
- 16 Greenacre MJ. Clustering the rows and columns of a contingency table. *J Classification* 1988;5:39–51.
- 17 Cohen J. Statistical power analysis for the behavioral sciences. 2nd edition. NJ: Erlbaum: Hillsdale; 1988. 590 pp.
- 18 Seto MC, Barbaree HE. Paraphilias. In: Van Hasselt VB, Hersen M, eds. Aggression and violence: An introductory text. New York: Pearson; 2000:198–213.
- 19 Krafft-Ebing RV. *Psychopathia sexualis*. New York: Putnam; 1886/1965. 506 pp.
- 20 Masters WH, Johnson VE, Kolodny RC. Masters and Johnson on sex and human loving. New York: Little, Brown & Co.; 1982. 621 pp.
- 21 Critelli JW, Bivona J. Women's erotic rape fantasies: An evaluation of theory and research. *J Sex Res* 2008;45:57–70.
- 22 World Health Organization, WHO. International Classification of Diseases (ICD) beta draft. 2015. Available at: <http://apps.who.int/classifications/icd11/browse/l-m/en> (accessed 5 May 2015).
- 23 Joyal CC, Carpentier J. Paraphilic interests and behaviors of the adult general Population: A provincial bi-modal survey. Poster to be presented at the 34th Annual ATSA Meeting, October 15th, Montreal, 2015.
- 24 Wismeijer AA, Assen MA. Psychological characteristics of BDSM practitioners. *J Sex Med* 2013;10:1943–52.
- 25 Bogaert AF. Volunteer bias in human sexuality research: Evidence for both sexuality and personality differences in males. *Arch Sex Behav* 1996;25:125–40.
- 26 Strassberg DS, Lowe K. Volunteer bias in sexuality research. *Arch Sex Behav* 1995;24:369–82.