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Original Article

Sexual dysfunction, depression, and anxiety in young women according to relationship status: an online survey

Disfunção sexual, depressão e ansiedade em mulheres jovens de acordo com o status de relacionamento: uma pesquisa on-line

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Abstract

Background: Sexual dysfunction is a common, still poorly understood problem among women. Being or not in a relationship seems to be a risk factor for sexual dysfunction.
Objectives: To evaluate the presence of sexual problems, anxiety, and depression in young women and to correlate findings with current relationship status (single, in a committed relationship, or married).
Methods: Data were collected trough an online survey from a total of 155 women aged between 20 and 29 years. Sociodemographic data were collected, and both the Hospital Anxiety and Depression scale and the Female Sexual Function Index were applied. Data were statistically analyzed using the chi-square and Kruskal-Wallis tests, and groups were compared in 2 x 2 matrices using the Mann-Whitney test.
Results: Single women showed a significantly higher prevalence of problems in the lubrication (45.3%), orgasm (53.1%), satisfaction (67.2%), and pain (50%) domains and also in total Female Sexual Function Index scores (60.9%) in comparison with the other groups. Additionally, significantly higher depression scores were found among single women (5.89±3.3) in comparison to those in a committed relationship (4.05±2.83). Anxiety scores were similar in all groups.
Conclusion: Our findings suggest that single women have a poorer sexual function and are more likely to have mood disorders in comparison to their peers involved in stable relationships.
Keywords: Prevalence, sexual dysfunction, anxiety, depression, female.

Resumo

Contexto: Disfunção sexual é um problema comum e ainda pouco compreendido entre mulheres. Estar ou não em um relacionamento parece ser um fator de risco para disfunção sexual.
Objetivo: Avaliar a presença de problemas sexuais, ansiedade e depressão em jovens mulheres e correlacionar os achados ao estado de relacionamento atual (solteiras, em relacionamento sério ou casadas).
Métodos: Dados foram coletados através de pesquisa on-line de um total de 155 mulheres com idade entre 20 e 29 anos. Foram coletados dados sociodemográficos, e a Escala Hospitalar de Ansiedade e Depressão e o Índice de Função Sexual Feminina foram aplicados. Os dados foram analisados através dos testes qui-quadrado e Kruskal-Wallis, e os grupos foram comparados dois a dois através do teste Mann-Whitney.
Resultados: Mulheres solteiras apresentaram uma prevalência significativamente maior de problemas nos domínios lubrificação (45,3%), orgasmo (53,1%), satisfação (67,2%) e dor (50%), e também no escore total do Índice de Função Sexual Feminina (60,9%), em comparação aos outros grupos. Além disso, foram observados escores estatisticamente superiores para depressão em mulheres solteiras (5,89±3,3) quando comparadas ao grupo relacionamento sério (4,05±2,83). Os escores de ansiedade foram similares em todos os grupos.
Conclusão: Nossos resultados sugerem que mulheres solteiras têm um pior funcionamento sexual quando comparadas a seus pares envolvidos em relacionamentos estáveis e são mais propensas a apresentar transtornos de humor.
Descritores: Prevalência, disfunção sexual, ansiedade, depressão, mulheres.

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Introduction

The first model proposed to explain the human sexual response cycle comprised four distinct phases: excitement, plateau, orgasm, and resolution.[1] Years later, another model emphasized the importance of desire in the human sexual response cycle.[2] This current model is a combination of previous models and comprises the following four phases: desire, arousal, orgasm, and resolution.[3]

Sexual dysfunctions are impairments in the sexual response cycle or the presence of pain associated with sexual intercourse.[3] Female sexual dysfunctions (FSD) can take the form of hypoactive sexual desire disorder, sexual aversion disorder, female sexual arousal disorder, female orgasmic disorder, dyspareunia, and vaginismus. In addition to these disorders, recently a new dysfunction called the persistent genital arousal disorder has also been described.[4] Some risk factors for sexual dysfunction cited in the current literature include age, level of education, emotional problems, stress, and a history of sexual abuse.[5]

Anxiety seems to play an important role in FSD, but the relationship between both conditions is not completely clear. For instance, sexual worries and fears seem to impair sexual arousal,[6] and nonsexual worries have been shown to affect sexual response.[7] One study also found that women presenting complaints of vaginismus showed higher anxiety scores than controls.[8]

The literature suggests that depression has a close relationship with FSD, increasing the risk for development of the latter. In depressed women, hypoactive sexual desire disorder seems to be the most frequent dysfunction.[9] Two studies conducted in Brazil reported the prevalence of any type of sexual dysfunction to be 28 and 49%, respectively.[10,11] Female orgasmic disorder presented rates between 18 and 29.3%,[10,12,13] and a prevalence of 26.7% was observed for hypoactive sexual desire disorder.[11] Moreover, it has been reported that only 18.8% of women seek professional help for sexual disturbances.[14]

During pregnancy, the sexual functioning of women was found to be reduced in the third trimester.[15] Women aged 40 to 65 years with at least 11 years of formal education showed the highest rates of sexual dysfunction among middle-aged women.[16] The risk factors cited were lower socioeconomic and educational levels, whereas the predictors of good sexual functioning were having a sex partner and general well-being.

Most studies evaluating sexual dysfunction focus on differences across ages groups, while other suggested risk factors remain inconsistently studied. In this sense, studying women with similar sociodemographic characteristics provides a possibility to understand how other factors possibly interact and influence sexual function.

The objective of the present study was to evaluate the presence of sexual problems, anxiety and depression in young women aged 20 to 29 years and to correlate results with different relationship statuses (single, in a committed relationship/dating, or married), so as to identify possible differences in sexual functioning.

Method

Participants and procedures

This study used an online questionnaire to collect data. An advertise describing study aims and researcher information was posted on social networks and sexuality forums and discussion groups. An internet link was provided, and any woman could access and answer the survey. Data were collected for 2 months (May and June 2011).

Inclusion criteria were being female and aged 20 to 29 years. Questionnaires with missing data and women who did not match the age criterion were excluded. A total of 169 questionnaires were completed, and 155 were included in the analysis after application of exclusion criteria.

The study was approved by the Research Ethics Committee of Universidade Federal do Rio de Janeiro (protocol no. 20-02/07). Participation was voluntary and anonymous, and all participants were informed of the objectives of the study before starting to answer the questionnaire.

Measures

Social demographics

Sociodemographic data were collected using the standardized questionnaire Hospital Anxiety and Depression (HAD) scale and covered sexual orientation, marital status, religion, education level, having children, practice of physical activities, use of alcohol and tobacco, and psychiatric treatment.

The HAD scale is a self-reported instrument comprising 14 items divided into two subscales: HAD-A, which evaluates anxiety symptoms, and HAD-D, for depressive symptoms.[13] Each subscale yields a separate score obtained by summing its items. The total HAD scale score is obtained by summing the final scores of each subscale. A cutoff point of 8 was used in each subscale to determine the presence or absence of depressive or anxiety disorder. The HAD scale has been translated to and validated in Brazilian Portuguese.[17-19]

Female Sexual Function Index (FSFI)

The FSFI is a 19-item scale that comprises six domains: desire, arousal, lubrication, orgasm, satisfaction, and

pain.[20] Each domain yields a score, obtained by summing individual item scores and multiplying the result by the domain factor. The total score is obtained by summing the final scores of all domains. The FSFI has also been validated for use in Brazilian populations.[21,22] A cutoff of ≤ 26 (total score) was used to determine the presence or absence of sexual dysfunction.[23] Assessment of each individual domain considered a score below 65% of the total domain (3.9 points) as suggestive of dysfunction in that particular domain.[24]

Data analysis

Sociodemographic data were analyzed using descriptive statistics and expressed as absolute values and percentages or as means and standard deviation (SD). Contingency tables were analyzed using the chi-square test, Fisher's exact test, and analysis of variance (ANOVA). Significance was set at $p < 0.05$.

Inter-group differences in the prevalence of sexual dysfunction, anxiety, and depression were determined using the chi-square and Kruskal-Wallis H tests. When a statistically significant difference was found using the Kruskal-Wallis test, 2 x 2 comparisons were performed using the Mann-Whitney test to identify the difference location. Again, significance was set at $p < 0.05$.

Results

The 155 women were divided into three groups, as follows: single (n = 64, 41.3%), in a committed relationship (n = 64, 41.3%), and married (n = 27, 17.4%). Mean age was 24.9±2.675 years. The majority of women were heterosexual (84.5%), had no religion (38.1%), no children (89.7%), and complete college education (81.3%). Most women had no history of psychiatric treatment (73.5%), rarely used alcohol (49.7%), did not use tobacco (90.3%), and did not practice physical activities (58.1%).

Descriptive data for all three groups (single, in a committed relationship, and married) are presented in Table 1 and reveal a similar distribution of most variables (education level, religion, practice of physical activity, use of alcohol and tobacco, and psychiatric treatment). The only variables showing statistically significant difference between the groups were age and having/not having children.

Table 1 – Descriptive data of subjects according to relationship status

	Single (n = 64)	In a committed relationship (n = 64)	Married (n = 27)	df	F or χ^2	p
Age, mean (SD)	24.72 (2.62)	24.55 (2.69)	26.15 (2.47)	2	3.77	0.02
Sexual orientation, n (%)				4	3.88	0.42
Heterosexual	51 (79.7)	55 (85.9)	25 (92.6)			
Homosexual	5 (7.9)	2 (3.1)	-			
Bisexual	8 (12.5)	7 (10.9)	2 (7.4)			
Religion, n (%)				8	12.5	0.13
No religion	21 (32.8)	31 (48.4)	7 (25.9)			
Catholic	17 (26.6)	18 (28.1)	11 (40.7)			
Protestant	8 (12.5)	2 (3.1)	5 (18.5)			
Spiritist	16 (25)	11 (17.2)	4 (14.8)			
Other	2 (3.1)	2 (3.1)	-			
Education level, n (%)				4	5.15	0.27
High school	3 (4.7)	3 (4.7)	3 (11.1)			
College	56 (87.5)	49 (76.6)	21 (77.8)			
Graduate studies	5 (7.8)	12 (18.8)	3 (11.1)			
Children, n (%)				2	32.76	< 0.01
Yes	2 (3.1)	3 (4.7)	11 (40.7)			
No	62 (96.9)	61 (95.3)	16 (59.3)			
Physical activity, n (%)				2	2.83	0.42
Yes	26 (40.6)	31 (48.4)	8 (29.6)			
No	38 (59.4)	33 (51.6)	19 (70.4)			
Alcohol use, n (%)				6	14.12	0.28
Never	8 (12.5)	8 (12.5)	6 (22.2)			
Rarely	29 (45.3)	32 (50)	16 (59.3)			
Regularly	18 (28.1)	23 (35.9)	5 (18.5)			
Frequently	9 (14.1)	1 (1.6)	-			
Tobacco use, n (%)				2	0.99	0.60
Yes	8 (12.5)	5 (7.8)	2 (7.4)			
No	56 (87.5)	59 (92.2)	25 (92.6)			
Psychiatric treatment, n (%)				4	1.35	0.85
Never	47 (73.4)	48 (75)	19 (70.4)			
Has been treated before	12 (18.8)	11 (17.2)	7 (25.9)			
Currently under treatment	5 (7.8)	5 (7.8)	1 (3.7)			

χ^2 = chi-square test; df = degrees of freedom; F = Fisher's exact test; SD = standard deviation.

Table 2 presents the total prevalence rates for anxiety, depression, each FSFI domain and the FSFI total score. Of the 155 subjects, 64 (41.3%) were considered to have sexual dysfunction. Because more than one domain may be affected in the same subject, the sum of rates exceeds 100%.

Table 2 – Prevalence of sexual dysfunction in the total sample

Domain	n	%
Anxiety	56	36.1
Depression	34	21.9
Desire	82	52.9
Arousal	57	36.8
Lubrication	47	30.3
Orgasm	61	39.4
Satisfaction	63	40.6
Pain	51	32.9
FSFI total score	64	41.3

FSFI = Female Sexual Function Index.

Results obtained with the HAD scale and the FSFI in each group are shown in Table 3. The following variables were additionally examined in women who reached the cutoff point for any of the variables assessed. Inter-group differences were described using the Kruskal-Wallis H test, because the assumptions of parametric tests were equivalent and did not meet the requirements for degrees of freedom or p values. The prevalence rates obtained for the different groups are also presented in Table 3.

Statistically significant differences were observed between the groups in all evaluated variables, except for the FSFI desire domain and anxiety, which were similar across the three groups. Table 4 presents the comparison of variables between different pairs of groups (2 x 2 comparison), in order to show where the differences are located.

According to Table 4, single women and those in a committed relationship showed statistically significant differences in almost all variables, except for anxiety and the FSFI desire domain. In the comparison of single vs. married women, results were similar for anxiety, desire, and depression, with no statistically significant differences. Finally, an inverse relationship was observed when comparing women in a committed relationship vs. married women, with similar characteristics overall and a statistically significant different only in the FSFI satisfaction domain.

Table 3 – Results obtained for HAD-A, HAD-D, FSFI domains, and FSFI total score, expressed as means and standard deviation, followed by n and percentage of subjects who reached the cutoff points, according to relationship status

	Single (n = 64)		In a committed relationship (n = 64)		Married (n = 27)				
	Mean ± SD	n (%)	Mean ± SD	n (%)	Mean ± SD	n (%)	df	χ^2	p
Anxiety	6.8±3.515	23 (35.9)	6.55±3.82	21 (32.8)	6.78±3.17	12 (44.4)	2	0.56	0.75
Depression	5.89±3.38	21 (32.8)	4.05±2.83	9 (14.1)	4.78±2.70	4 (14.8)	2	10.47	< 0.01
Desire	3.98±1.34	30 (46.9)	3.95±1.05	38 (59.4)	3.95±0.85	14 (51.9)	2	0.10	0.94
Arousal	3.16±2.31	32 (50)	4.49±1.41	17 (26.6)	4.5 ±0.94	8 (26.6)	2	9.30	0.01
Lubrication	3.38±2.55	29 (45.3)	4.91±1.48	12 (18.8)	4.92±1.29	6 (22.2)	2	10.56	< 0.01
Orgasm	3.01±2.44	34 (53.1)	4.38±1.69	15 (23.4)	4.16±1.57	12 (44.4)	2	8.91	0.01
Satisfaction	2.82±1.98	43 (67.2)	4.84±1.50	12 (18.8)	4.42±1.34	8 (29.6)	2	32.90	< 0.01
Pain	3.06±2.72	32 (50)	4.60±1.94	15 (23.4)	5.09±1.11	4 (14.8)	2	11.43	< 0.01
FSFI total score	19.43±11.19	39 (60.9)	27.20±7.57	16 (25)	27.06±5.31	9 (33.3)	2	16.57	< 0.01

χ^2 = chi-square test; df = degrees of freedom; FSFI = Female Sexual Function Index; HAD-A = Hospital Anxiety and Depression – Anxiety Symptoms; HAD-D = Hospital Anxiety and Depression – Depression Symptoms; SD = standard deviation.

Table 4 – Group comparison (2 x 2) for anxiety, depression, FSFI domains, and FSFI total score

	Single vs. in a committed relationship			Single vs. married			In a committed relationship vs. married		
	U	z	p	U	z	p	U	z	p
Anxiety	1940.50	-0.51	0.61	824.00	-0.35	0.77	786.00	-0.68	0.49
Depression	1384.50	-3.18	< 0.01	708.50	-1.35	0.17	712.00	-1.33	0.18
Desire	1986.50	-3.78	0.77	843.50	-0.18	0.86	846.00	-0.16	0.87
Arousal	1440.00	-2.92	< 0.01	653.50	-1.84	0.06	778.00	-0.75	0.45
Lubrication	1437.00	-2.96	< 0.01	597.00	-2.36	0.02	858.50	-0.05	0.96
Orgasm	1475.00	-2.75	< 0.01	632.00	-2.03	0.04	778.00	-0.75	0.45
Satisfaction	926.50	-5.38	< 0.01	471.00	-3.42	< 0.01	632.00	-2.04	0.04
Pain	1455.00	-2.93	< 0.01	563.00	-2.70	< 0.01	830.50	-0.30	0.76
FSFI total score	1254.50	-3.78	< 0.01	546.50	-2.76	< 0.01	775.50	-0.77	0.44

FSFI = Female Sexual Function Index.

Discussion

The groups selected for analysis showed similarity in most sociodemographic variables assessed, except for age and having or not having children. These two variables were slightly higher in the married group, which was an expected finding, as it is more likely to find married women among older individuals. The higher frequency of children among married women was also expected in comparison to the non-married groups. Because all three groups were quite homogenous for all other variables, possible differences could be explained by the different current relationship status of the participants.

A review of data collected in the World Mental Health surveys revealed prevalence rates for any type of psychiatric disorder ranging from 18.1 to 36.1%. Anxiety disorders were the most prevalent ones, with a 12-month rate ranging from 6.5 to 12.1%. Depression, in turn, showed prevalence rates from 3.4 to 6.8%.[25] Another study reported anxiety and depression prevalence rates of 6 and 4.5%, respectively.[26]

The present study assessed anxiety and depressive symptoms appearing over 1 month prior to the survey and found substantially high rates, namely, 36.1% for anxiety and 21.9% for depression. Even though the instrument used in our study does not allow to diagnose depressive or anxiety disorders, it suggests the presence of mood abnormalities among our respondents, especially in those with sexual complaints. Approximately 30% of the women in our sample was or had already been under psychiatric treatment, suggesting a higher risk of psychiatric disorders in the group assessed. The diagnostic confirmation of these disorders was beyond the scope of the present study.

A previous study assessing the relationship between marital status and mental illness reported that, overall, married people were more likely to have a better mental health and, consequently, a lower prevalence of psychiatric disorders.[27] Another study demonstrated higher rates of mental disorders among single people and in those who live alone.[28] Marital status was identified as a predictor of better mental health, even though this relationship may change as age progresses.[29]

An unexpected finding in our study was a higher, albeit not significant, prevalence of anxiety in married women (44.4%) vs. those not married (single, 35.9%; in a committed relationship, 32.8%). The literature suggests exactly the opposite, i.e., that married people tend to have a better mental health.[28,29] Depression was more prevalent in the single group (32.8%), which also showed the highest mean score in the HAD-D (5.89±3.38). When compared to women in a committed relationship, single women showed a statistically significant difference in depression scores (U [z = -3.18] = 1384.5; $p < 0.01$); this difference was not confirmed in the comparison between single and married women.

The rates of sexual dysfunction found in our sample are similar to those reported in previous epidemiological studies.[10-12,30-32] When analyzing FSFI scores for different domains, desire problems were more frequently identified, as also in a previous study.[11] Even though desire was the most prevalent problem in our sample, no statistically significant difference was found across the groups.

Desire problems were higher among married women (51.9%) and in those in a committed relationship (59.4%), but the difference was not statistically significant (U [z = -0.18] = 843.50; $p = 0.86$). This result could be explained from the perspective of a new model of female sexual response cycle. Women in a committed relationship have other motivations to engage in sexual intercourse rather than sexual desire, e.g., intimacy and emotional bonding with their partners; this is one of the reasons possibly behind the higher rates of desire problems in married and committed women vs. single women.[33]

In fact, married women and those in a committed relationship showed similar rates and scores in almost all FSFI domains, as observed in Table 4. The only exception was the satisfaction domain, where a statistically significant difference was observed (U [z = -2.04] = 632; $p = 0.04$). Single women also showed a statistically significant difference in this domain when compared to the other groups: single vs. committed, U (z = -5.38) = 926.5 ($p < 0.01$), and single vs. married, U (z = -3.42) = 471 ($p = 0.01$).

The orgasm domain showed high results in this study, with a prevalence rate as high as 53.1% among single women and 44.4% among married women; women in a committed relationship, in turn, showed a prevalence of 23.4%. These rates are higher than others previously published.[30,34,35] Another interesting finding was that the single group showed the highest prevalence rate but the lowest mean scores in the orgasm domain (3.01±2.44).

Single women also showed a higher prevalence of disturbances in the lubrication domain (45.3%), in addition to a statistically significant difference when compared to the other two groups. Other studies have reported lubrication problem rates ranging from 12.5 to 45.4%.[24,35,36]

Finally, sexual pain is a frequent problem among women, with rates ranging from 12.8 to 42.9%.[37,38] Previous studies have suggested that women aged 20 to 29 years are more likely to experience pain during sexual intercourse.[24,36] In this study, single women

reported a 50% prevalence rate for sexual pain, at a statistically significant difference when compared to the other groups (Table 4).

Some limitations of the present online-based study deserve to be discussed. First of all, our questionnaires were posted on forums, discussion groups, and communities focusing on female sexual function. As a result, anybody having access to the survey link could answer the questionnaire. No identification data were requested, in an attempt to avoid losses. Finally, another limitation was that only women with internet access could participate in the study. Although the internet has been increasingly reaching different strata, this could be an important determinant of the responses obtained.

Because the objective of the present study was to compare sexual function in women within the same age range and in with different relationship statuses, we decided not to exclude women with no sex partners. Single women tend to have more casual sex; therefore, we believe that an important body of data would be disregarded if only women with recent sexual activity had been included. In other words, our aim was to evaluate how the presence or absence of sexual life might impact mental health.

In sum, the results obtained in this study suggest that single women have a poorer sexual function when compared to women in the same age group and involved in either committed relationships or marriage; the latter two groups, in turn, seem to have similar levels of sexual functioning. These findings underscore the need to take into account the distinct characteristics of single women when planning strategies aimed at this population.

The findings also incite the discussion about risk factors associated not only with specific age groups, but also with other (biological, social, cultural) aspects that play important roles in human sexuality. Future studies investigating the association between relationship or marital status, quality of life, sexual function, and psychiatric disorders are needed to improve our understanding of other factors that may interfere with female sexual function. Also, studies focusing on current relationship patterns in different populations may shed some light on the mechanisms through which mood may affect or be affected by sexual functioning.

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