

## Prevalence of sexual dysfunction in women resident of a capital city in the Brazilian western Amazon

Prevalência de disfunção sexual em mulheres residentes em uma capital da Amazônia ocidental brasileira

Prevalencia de disfunción sexual en mujeres residentes de una capital de la Amazonia occidental brasileña

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### ABSTRACT

**Objective:** To determine the prevalence of sexual dysfunction in non-pregnant, pregnant, and postpartum women, and its association with potential risk factors. **Methods:** Cross-sectional study composed of 419 women, who attend public health units, from April to August 2019, in Rio Branco, Acre. The volunteers were subjected to a self-report questionnaire previously validated at national level: The Sexual Quotient-Female version. **Results:** Based on the total number of responses, 35.6% of the participants had sexual dysfunction. Of those, almost half of the volunteers (42%) were unemployed ( $p = 0.003$ ). In the sexual desire and orgasm domains, the average score was higher among women during pregnancy (2.8203) (3,4844) than in the puerperal women (2.3454) (2,0912), respectively ( $p < 0,05$ ). Regarding pain, 30.1% answered "always" for its incidence during sexual intercourse. Age alone does not influence the sexual function of the participants, ( $r < 1$  and  $p > 0.05$ ). **Conclusion:** The present study unveiled an important percentage of sexual dysfunction, predominantly in the pain subdomain. In addition, a significant difference was found in the sexual desire and orgasm domains, with higher scores found in pregnant women compared to puerperal women. Another fact was the higher percentage of sexual dysfunction in unemployed women.

**Keyword:** Sexual dysfunction, Amazon, Women, Pregnant, Puerperal women.

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### RESUMO

**Objetivo:** Determinar a prevalência das disfunções sexuais em mulheres não gestantes, gestantes e puérperas e sua associação com potenciais fatores de risco. **Métodos:** Estudo transversal composto por 419 mulheres, que frequentavam unidades de saúde pública, no período de abril a agosto de 2019, em Rio Branco, Acre. As participantes responderam a questionários de auto respostas já validado a nível nacional, o Quociente Sexual-versão Feminina. Foram calculadas prevalências, médias e possíveis associações por meio do teste qui-quadrado e t de Student. **Resultados:** Do total da amostra, 35,6% das participantes apresentaram disfunção sexual. Dentre estas, quase a metade da amostra (42%) estavam desempregadas ( $p=0,003$ ). Nos domínios desejo e orgasmo, a média dos valores foi maior para as gestantes (2,8203) (3,4844) comparado às puérperas (2,3454) (2,0912), respectivamente ( $p < 0,05$ ). Com relação à dor 30,1% das mulheres, a apresentavam "sempre" durante o ato sexual. A idade não parece influenciar de forma isolada na função sexual das participantes, ( $r < 1$  e  $p > 0,05$ ). **Conclusão:** O presente estudo evidenciou importante disfunção sexual, predominante no subdomínio dor. Além disso, constatou-se diferença significativa nos domínios desejo e orgasmo, sendo encontrados valores superiores para gestantes em comparação com puérperas. Outro dado foi de maiores porcentagens de disfunção sexual em mulheres desempregadas.

**Palavras-chave:** Disfunção sexual, Amazônia, Mulheres, Gestantes, Puérperas.

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## RESUMEN

**Objetivo:** Determinar la prevalencia de disfunción sexual en mujeres no embarazadas, gestantes y posparto y su asociación con posibles factores de riesgo. **Métodos:** Estudio transversal compuesto por 419 mujeres, que asistieron a unidades de salud pública, de abril a agosto de 2019, en Rio Branco, Acre. Los participantes respondieron cuestionarios de auto-respuesta ya validados a nivel nacional, la versión Sexual Quotient-Female. La prevalencia, las medias y las posibles asociaciones se calcularon mediante la prueba de chi-cuadrado y la prueba t de Student. **Resultados:** Del total de la muestra, el 35,6% de los participantes presentaba disfunción sexual. Entre estos, casi la mitad de la muestra (42%) estaban desempleados ( $p = 0,003$ ). En los dominios de deseo y orgasmo, los valores medios fueron mayores para las gestantes (2.8203) (3.4844) en comparación con las puérperas (2.3454) (2.0912), respectivamente ( $p < 0.05$ ). En cuanto al dolor, el 30,1% de las mujeres lo presenta "siempre" durante las relaciones sexuales. La edad no parece influir en la función sexual de los participantes de forma aislada ( $r < 1$  y  $p > 0,05$ ). **Conclusión:** El presente estudio mostró una importante disfunción sexual, predominante en el subdominio del dolor. Además, se encontró una diferencia significativa en los dominios de deseo y orgasmo, encontrándose valores más altos para las gestantes en comparación con las puérperas. Otro hallazgo fue el de mayores porcentajes de disfunción sexual en mujeres desempleadas.

**Palabras clave:** Disfunción sexual, Amazonia, Mujeres, Embarazadas, Postparto.

## INTRODUCTION

Historically, the relationship between humans and their own sexuality used to develop naturally, without moral judgments of promiscuity or profanity. The emergence of clans, feuds and states led to the creation of rules of conduct, governed by religion and socially accepted cultural customs. Among these rules, marriage was instituted as the way of preserving the assets of different family groups across generations, and sex became something sinful and socially accepted only after marriage. The social scenario and female role in society has been dramatically changing since the end of the World War II, including increase in female freedom and Independence (CANO MAT, et al., 2000).

Moreover, studies of social behavior conducted by philosophers, such as Sigmund Freud, also contributed to view sexuality as a matter of health and social well-being (CANO MAT, et al., 2000). In 1966, Masters and Johnson, based on anatomical features, created the classic linear progression of human sexual response, which consists of: arousal, plateau, orgasm and resolution. In 1979, Kaplan added "desire" prior to "arousal", as he understood that a good sexual response encompasses more than anatomical factors. Regarding the female response to sex, in 2000, Basson proposed a cyclical model, emphasizing the importance of emotional interactions in the role of stimulating the persistence of sexual practice (MERNONE L, et al., 2019.)

Currently, the World Health Organization understands sexual health as a state of physical, emotional, mental, and social well-being in relation to sexuality. (WHO, 2006). Therefore, sexual dysfunction represents a disorder in one or more phases of the sexual response cycle. Since sexual dysfunction (SD) is classified according to psychic, organic, and pathophysiological aspects, caused by external causes, biological and due to unknown causes. This classification is governed worldwide by the WHO and the American Psychiatric Association (ABDO C, et al., 2006)

SD is a topic of interest, discussed and investigated around the planet. A cohort study of Leister N (2015) listed 21 different instruments for assessing SD in women widely used around the world. Establishing a prevalence of SD at global level is a difficult task, due to the differences in parameters in the various instruments, but also due to the small number of studies on the subject. In an effort to measure SD, questionnaires were elaborated and applied in different locations, accounting for the particular aspects of each country and for specific events of the woman's reproductive cycle, such as pregnancy, women who have recently given birth, women in fertile age and at the end of the reproductive phase, the climacteric (AMIDU N, et al., 2010; LEWIS RW, 2011; ABU ALI RM, et al., 2009; ABDO C, et al., 2004; PACAGNELLA RC, et al., 2008; LEITE APL, et al., 2007; BORGES VLF, et al., 2009).

Even that some studies have proposed to compare different groups of women at different stages of their reproductive cycle, studies on the subject are still scarce. Women sexuality and SD is a sensitive subject across society, and most patients and professionals who assist them report a certain discomfort in discuss the subject. (LIMA AC, et al., 2013; ORJI EO, et al., 2002; TRUTNOVSKY G, et al., 2006; VETTORAZZI J, et al., 2013).

In order to overcome the exposed problem and analyze the prevalence of SD in women assisted by three public health units in Rio Branco, Acre, in the western Brazilian Amazon region, we used self-report questionnaires in which women from three main groups: non-pregnant (NP), pregnant (P) and puerperal women (PW) answered questions about their sexuality.

## METHODS

### Study design and participants

The sampling pool consisted of 419 women interviewed in the period of April to August 2019. Women were divided into three groups, according to the health care unit they attended: a public maternity unit, a medium complexity health unit and a primary care unit.

Women who did not complete the sexual function questionnaire, in abstinence of sexual intercourse in the last 6 months, with mental illness or severe systemic disease, and with a sexual partner with severe systemic disease were excluded.

The study was approval by the Ethics in Research Committee of *Fundação Hospitalar do Estado do Acre* (FUNDHACRE), under protocol number 97698816.8.0000.5009. All research participants were provided informed consent and only answered the questionnaire after agreeing to it and signing it.

In order to better characterize and select possible risk factors in the studied population, socioeconomic and demographic variables were evaluated, such as: age in years, education (illiteracy, elementary school, high school, college and graduate degree); marital status (single, married, common-law marriage, divorced and widowed); working hours (unemployed, housewives, full time and part time workers); contraceptive method, infection with sexually transmitted infections (STIs) and comorbidities; habits (smoking and alcoholism).

### Outcome measures

The research has a quantitative and qualitative character, carried out through a descriptive cross-sectional study. Sexual function was analyzed using the Sexual Quotient - Female Version (SQ-F) questionnaire, validated in the national territory. The use of this method is justified on accessibility and easily understood language, adapted to Brazilian demands.

This instrument consists of 10 questions, with a scale ranging from 0 to 5 for each question (0= never, 1= rarely, 2 =sometimes, 3= half of the times, 4= most of the times, 5= always). The questionnaire assess all phases of the sexual response cycle, from desire to orgasm.

The questions were divided into the following domains: sexual desire and interest (questions 1, 2 and 8), respectively: spontaneously thoughts about sex (question 1), interest (question 2 ) and involvement (question 3) during relationships; sexual foreplay (question 3); personal excitement and attunement with the partner (questions 4 and 5, respectively); comfort (questions 6 and 7), respectively: vaginal relaxation (question 6) and pain during intercourse (question 7); orgasm and satisfaction (questions 9 and 10, respectively).

The overall sexual satisfaction index is calculated by multiplying the sum of the values of the ten questions multiplied by two. In question seven, the total score of the question is calculated by subtracting from 5 the value marked by the participant (0 to 5) (**Table 1**) (ABDO C, et al., 2006).

$$Q^*_{total} = 2x (Q1 + Q 2 + Q 3 + Q 4 + Q 5 + Q 6 + [5-Q 7] + Q 8 + Q9 + Q 10)$$

\*Q= questão

**Table 1** - Measures of sexual function.

Total score of questions (Q total)	GSI*
82-100 points	Good to excellent
62-80 points	Regulate the good
42-60 points	Unfavorable to regulate
22-40 points	Bad to unfavorable
0-20 points	Null to bad

**Legend:** \*GSI: Global Satisfaction Index.

**Source:** Fagundes JR, et al, 2020. Extracted from ABDO C, et al., 2006.

The cut-off point for sexual dysfunction was set at 60 points (ABDO C, et al., 2006). Values of  $p < 0.05$  were considered statistically significant and the statistical analysis of the data obtained was performed with the Statistical Package for the Social Sciences® (SPSS) version 17.0 for Windows.

## RESULTS

The participants consisted of 419 women, of whom 20 (4.7%) were excluded based on self-reported absence of sexual intercourse in the last 6 months. From a total of 399 women, 134 (33.6%) were non-pregnant (NP), 128 (32.1%) were pregnant (P) and 137 (34.3%) were puerperal women (PW), with an average age of 27.8 years ( $SD \pm 9.4$ ). Regarding their marital status, 108 (27.1%) reported being single, while 264 (66.1%) were married or in a common-law marriage. Others 17 reported being widowed or divorced (4.3%) or did not report their marital status: 10(2.5%).

About education, 140 (35.1%) had complete elementary school, 169 (42.4%) finished high school, and 79 (19.8%) holds a college degree. Still, 11 (2.8%) did not report their educational level. More than one third of the participants, 150 (37.6%) reported being unemployed, 50 (12,5%) were only housewives and 88 (22.1) other type of occupation. Among the employees, 52 (13%) works part-time and 55 (13.8%) full-time. Only 4 (1%) women reported being retired.

Smoking did not interfere with female sexual function in this study. However, it was noteworthy that, in the group of pregnant women, there were reports of tobacco ( $N = 6$ ) and alcoholic drinks ( $N = 15$ ) consumption, which are known be harmful to the fetus development. There were no reports of illicit drug use. As for comorbidities, 7 (5.5%) were known to be diabetic, while 10 (7.8%) were unable to report. Only 3 (2.3%) women reported current sexually transmitted infections.

When asked about the use of birth control methods at the time of conception, 71 (56.2%) of the pregnant women reported the use of some contraceptive method at the time of conception. From those, 37 (51.6%) used methods considered to be effective as the combined oral contraceptive pill (30.5%), hormonal injectable contraceptives (11.7%), or condoms (8.6%). Only 6 reported using low-efficiency contraceptive methods such as fertility wareness (3.9%) and withdrawal (0.8%). Regarding sexual activity in general, 142 (35.6%) women show some degree of sexual dysfunction, as shown in **Table 2**.

**Table 2** - Sexual dysfunction between groups.

--	No		Yes	
	N	%	N	%
NP*	86	64,2	48	35,8
Pregnant	89	69,5	39	30,5
PW**	82	59,9	55	40,1
<b>Total</b>	<b>257</b>	<b>64,4</b>	<b>142</b>	<b>35,6</b>

**Legend:** \*NG: Não Gestantes; \*\*PW: Puerperal women. **Source:** Fagundes J, et al., 2020.

In the individual analysis of the most prevalent responses and their score by domain, 119 (29.8%) reported that "sometimes" they feel desire. Regarding foreplay, the majority (55.1%) of the participants prefer to have them "always" before the sexual intercourse.

Arousal and harmony with the partner were present “most of the time” for 109 (27.3%) of women, while 107 (26.8%) reached orgasm “most of the time” obtaining satisfaction to the point to encourage them to have sex with their partners at other times. However, the majority 328 (82.2%) “sometimes” felt discomfort during the sexual act of penetration, and the pain was present “always” in 126 (30.1%) of cases, according to **Table 3**.

**Table 3** - Participants' responses according to domains.

Domains	Never		Rarely		Sometimes		Half of the times		Most of the times		Always	
	n	%	n	%	n	%	n	%	N	%	n	%
Desire	28	7	78	19,5	119	29,8	114	28,6	49	12,3	11	2,8
Excitement	17	4,3	42	10,5	39	9,8	92	23,1	109	27,3	100	25,1
Foreplay	9	2,3	27	6,8	8	14,5	20	5,0	65	16,3	220	55,1
Orgasm	16	4	49	12,3	67	16,8x	101	25,3	107	26,8	59	14,8
Confort	10	2,5	25	6,3	59	14,8	74	18,5	160	40,1	71	17,8
Pain	20	4,8	23	5,5	20	4,8	106	25,3	104	24,8	126	30,1

**Source:** Fagundes J, et al., 2020.

Comparing the “non-pregnant (NP), “pregnant” (P) and “puerperal women” (PW) groups, some differences were evident. Namely, the mean score of the desire domain was higher in pregnant women (2.8203), followed by non-pregnant (2.6443) and puerperal women (2.3625), with statistical difference only between P and PW groups ( $p = 0.003$ ); (IC95%: 0,13-0,81).

Regarding foreplay domain, P and NP obtained similar averages (4.00 and 3.99 respectively), whereas the puerperal women obtained the lowest average between groups (3.77). Regarding the excitation domain, pregnant women and puerperal women had a higher average (3.6289 and 3.5693, respectively) in relation to non-pregnant (3.4179), as well as in relation to the orgasm domain, where pregnant women have the best average responses (3.4844) when comparing to puerperal women (2.0912) and non-pregnant (2.1828), with statistical difference only between P and PW groups ( $p = 0.040$ ); (IC95%: 0,01-0,8).The average values for the confort domain were: 3.5373; 3.6602 and 3.7117 for non-pregnant, pregnant and puerperal women, respectively.

Regarding the pain subdomain, the puerperal women were the group with the highest average response values (3.80), followed by pregnant (3.48) and non-pregnant (3.43). However, the difference between groups regarding to foreplay, arousal and confort was not statistically significant ( $p > 0.05$ ). Age was also different between groups with non-pregnant women, averaging 5.22 years older than pregnant women and 6.69 years older than puerperal women ( $p < 0.001$ ).

Despite the difference, age alone does influence the sexual function of the participants with a negligible correlation strength between such variables in all the domains studied ( $r < 1$  and  $p > 0.05$ ). This suggests that the higher score in the responses of pregnant women must be explained by factors other than the fact that they are younger. Moreover, the socioeconomic condition has been shown to influence the sexual function of the interviewees, demonstrating that unemployment alone has an important negative impact on sexual function in general and in all domains analyzed, as shown in **Table 4** and **Table 5**.

**Table 4** - Sexual dysfunction X Work activity.

--	Sexual dysfunction				p
	No		Yes		
	n	%	N	%	
Employed	87	58	63	42	0,003*
Unemployed	83	77,6	24	22,4	
Others	87	61,3	55	38,7	
<b>Total</b>	<b>257</b>	<b>64,4</b>	<b>142</b>	<b>35,6</b>	-

**Legend:** \*statistical relevance : $P < 0,05$  in the chi square test.

**Source:** Fagundes J, et al., 2020.



**Table 5** - Sexual dysfunction by domains X Work activity.

Domains	Average responses by domains		
	Unemployed	Employed	P*
Desire	2,38	2,91	0,069
Excitement	3,37	3,93	0,003
Foreplay	3,68	4,23	0,000
Orgasm	3,10	3,46	0,229
Comfort	2,92	3,18	0,040

**Legend:** \*statistical relevance :P<0,05in the chi square test.

**Source:** Fagundes J, et al., 2020.

## DISCUSSION

Understanding the sexual response cycle and how sexual dysfunction occurs in women is an essential information for health professionals who deal with this public. Therefore, this type of study provides, at least in part, material for the development and application of tools in counseling and psychological treatment of diverse causes of sexual dysfunction in a specific and designed way for each case.

The profile of women in the present study is majority composed of adult women, married or in a long-term relationship, predominantly with education up to high school. Additional, just over a third of the women were unemployed.

Our study shows that 35.6% of women, in general, had some kind of SD. Analyzing their answers in the different domains of the questionnaire, in 55.1% of the cases, the foreplay encourages women in this study to continue the sexual act. When asked about the frequency they feel desire, the most common answer was "sometimes". However, the domain that was unanimously harmful to sexual function was "comfort": 82.2% feel discomfort during intercourse at some point, of which, 30.1% "always" feel pain. Therefore, dyspareunia and desire disorders were found to be the two main causes of SD. Similar data was found in a study carried out in Brazil by ABDO C, et al. (2004) which evaluated 1219 women and found that 49% had at least one sexual dysfunction, with dysfunctions of desire, dyspareunia and orgasm being the most common.

Comparing the "non-pregnant" (NP), "pregnant" (P) and "puerperal women" (PW) groups, one of the most statistically relevant data were in relation to the desire and orgasm domains. The mean score of the desire domain was higher in pregnant women (2.8203) in relation to puerperal women (2.3625). This was a predicted data due to the maternal physical, biological, and psychological transformations, and the changes in the dynamics of the family nucleus, in which the center of relationship becomes the new member, and not the couple's intimacy (VETTORAZZI J, et al., 2013).

Another important fact observed was the average age of NP women, being the highest among groups, followed by pregnant and, finally, by puerperal women. However, this data had no influence or relevance in the analysis of sexual function, showing negligible correlation strength in all domains. This data corroborates the existence of other factors of greater importance to explain the superiority of the responses of the P in relation to the NP, for example.

Observing the subdomain pain under an inverse perspective (the highest values were the worst results), puerperal women were the group that presented the highest average response values, followed by pregnant women and, finally, by the non-pregnant women. However, the average of values for this subdomain reached a score superior than 2, which reveals that pain is present in all groups analyzed. Therefore, this finding reveals that most women are not being treated for the underlying causes of dyspareunia, which raises the question about the quality of the health services and their availability.

Evidently, lower averages were expected for puerperal women, with this group having the highest number of pain complaints. This group is affected in countless ways, from the route of birth and birth injuries, to the act of breastfeeding, milk leakage during intercourse, hormonal and psychological changes, sleep deprivation, domestic violence, and even postpartum depression (LEISTER N, 2015). A bibliographic review of LEISTER N (2015) shows a return of sexual function in pregnancy patterns only after 3 months of postpartum.

However, the expected data regarding the NP and P, worst values for pregnant women, were not confirmed in the sample, as well as other analyzes between these population results (PRADO D, et al., 2013). Both groups had very similar averages in almost all domains, with NP responses slightly lower score than those of the P women. It is important to note that the age was not a significant correlate factor in this study, as previously mentioned. However, this data can be explained also by non-hormonal or physical factors, such as unemployment and worsening quality of life.

Comparing the groups according to the foreplay domain, the puerperal women obtained the lowest average among the groups, as expected according to the predicted changes evidenced in this period, such as hormonal and psychological changes, change of identity (also becoming a mother), routine of care for the new family member, among others, are factors that interfere in the reestablishment of sexual function (LEISTER N, 2015).

Regarding the excitation domain, pregnant women and puerperal women presented a higher average in relation to non-pregnant women. With regard to orgasm, another statistically relevant data was found, pregnant women had the highest average among groups, which contributes to the fact that pregnant women feel less pain during penetrations than puerperal women and reaching a higher average in relation to orgasm. This data corroborates with another study accomplished in Portugal that concluded: despite the decline in some variables of sexual function, sexual satisfaction during pregnancy is similar to pre-pregnancy states (PAULETA JR et al., 2010).

A study with a meta-analysis of 59 other studies showed a decrease in sexual function in women during pregnancy due to hormonal changes, changes in body perception (they felt less attractive), discomfort to position themselves during intercourse, periods of more somnolence, nausea and malaise associated with pregnancy, among other factors (PAULETA JR et al., 2010). Another study, accomplished in Brazil, used the same questionnaire (Q-FSF) and found unfavorable values in all domains in pregnant women compared to non-pregnant women (PRADO D, et al., 2013).

In this work, however, the domains presented, with regard to foreplay, arousal, and comfort, were not statistically relevant. However, with regard to the domains desire and orgasm and the employment variable, significant data were found.

Among the population studied, a socioeconomic data stood out in relation to SD, of the 399 participants, more than one third of the sample (37.6%) reported being unemployed. This data showed a significant association with more sexual dysfunction in all variables of the questionnaire, corroborating with previous studies that suggested this correlation (ABDO C, et al., 2004; HAYES et al., 2008).

An interesting fact is that more than half of the pregnant women reported using some type of contraceptive method at the time of conception, and most of these methods are considered to be effective. This led us to question the quality of their use and the increase in unwanted pregnancy. The most used methods were: combined oral (30.5%), injectable hormonal contraceptives (11.7%), or condoms (8.6%). This data is worrying and shows the misuse of contraceptive methods, even in women predominantly with a level of education where better knowledge of the ways of using these methods is expected.

A review of the use of contraceptive methods in adolescents showed that, among the groups that had a higher level of education, the use of contraceptives was impaired due to the dissociation between theoretical and practical knowledge, requiring higher quality information on the use of these methods (MENDONÇA RCM e ARAUJO TME, 2010).

In summary, some limitations in our study must be recognized. The analyzed women were recruited in specific health units and do not represent the total population, the sample size was small and due to the nature of this study and the fact that it is dependent on the responses of the interviewees and their possible bias of memory, which may interfere with the results. Furthermore, studies about SD is done in different parts of the world with specifications, often different, and, therefore, do not yet have standardized questionnaires. Which makes it difficult to create a parameter for the universal diagnosis of SD. Therefore, a suggestion for future work is to conduct new research in larger populations.

Finally, the results of this study show risk conditions for SD and can help health professionals to understand sexuality and its nuances. Therefore, sexuality and the way it is expressed undergo constant changes and it is necessary to capacitate these professionals for the purpose to address several doubts remove risk factors or help women to deal with them.

## CONCLUSION

The sexual profile of women in this study pointed to an important dysfunction in the female population of Rio Branco, mainly in relation to the presence of general dyspareunia and reduction in the domains of desire and orgasm prevalent in the post-pregnancy state. It is important to point out the strong association of SD with unemployment and raise a question about the quality of life of these women, making it necessary to further investigate the factors that lead to these results.

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