

# Factors associated with the sexual function of pregnant women: a cross-sectional study

## Fatores associados à função sexual de gestantes: estudo transversal

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### Abstract

**Objective:** To identify factors associated with the domains of sexual function and psychophysical correlates of pregnant women at habitual risk. **Materials and methods:** A cross-sectional, quantitative study carried with 354 pregnant women at usual risk in the interior of Ceará, Brazil. A form and the Sexuality in Pregnancy Questionnaire were used for data collection. **Results:** There was a reduction in all domains of sexual function and of the psychophysical correlates of lubrication and sexual satisfaction, when compared to the pre-pregnancy period. Only the psychophysical correlate pain/sexual discomfort increased during pregnancy and was significant by gestational trimester. Variables related to sexual behavior and symbolic aspects influenced the changes observed. Schooling positively influenced sexual desire and orgasm intensity. No variables associated with reduced sexual pain/discomfort were identified. **Conclusions:** Factors related to sexual behavior, symbolic aspects (perception) and education were associated with changes in the domains of sexual function and psychophysical correlates of pregnant women at habitual risk.

**Keywords:** Sexual Behavior. Sexuality. Women's health.

### Resumo

**Objetivo:** Identificar fatores associados aos domínios da função sexual e correlatos psicofísicos de gestantes de risco habitual. **Materiais e Métodos:** Estudo transversal, quantitativo realizado com 354 gestantes de risco habitual do interior do Ceará, Brasil. Utilizou-se para coleta de dados um formulário e o Questionário de Sexualidade na Gestação. **Resultados:** Houve redução em todos os domínios da função sexual e dos correlatos psicofísicos lubrificação e satisfação sexual, quando comparados ao período pré-gravídico. Apenas o correlato psicofísico dor/desconforto sexual aumentou na gravidez e apresentou significância por trimestre gestacional. Variáveis relacionadas ao comportamento sexual e aspectos simbólicos influenciaram nas alterações evidenciadas. A escolaridade influenciou positivamente no desejo sexual e intensidade do orgasmo. Não foram identificadas variáveis associadas à redução da dor/desconforto sexual. **Conclusões:** Fatores relacionados ao comportamento sexual, aspectos simbólicos (percepção) e escolaridade associaram-se às alterações nos domínios da função sexual e correlatos psicofísicos de gestantes de risco habitual.

**Palavras-chave:** Comportamento sexual. Sexualidade. Saúde da mulher.)

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## Introduction

Pregnancy, as a biological event, is a phase of the life cycle in which women experience hormonal, physical, functioning of organic systems, emotional and role changes that may affect their well-being, social, labor, marital and sexual relationships, which can have repercussions on the reduction or absence of sexual practices and positions that can affect the sexual response during this period.<sup>1-3</sup>

The sexual response results from a set of internal and external factors involved in the exercise of sexuality and the sexual act that trigger the stimulation of sexual domains (desire, arousal, and orgasm) and their respective psychophysical correlates (lubrication, sexual satisfaction, and pain/discomfort), culminating in local and systemic physiological changes that prepare the body for sexual activity.<sup>4</sup> However, the physiological sexual response may or may not occur depending on stimulating or inhibitory factors.<sup>4</sup>

During pregnancy, there is a greater vulnerability to the onset or worsening of emerging or preexisting sexual difficulties with the potential to cause negative changes in sexual function,<sup>5</sup> since the latter is influenced by affective and psychological aspects, clinical conditions, biological, sociocultural, and religious factors.<sup>2,4,6</sup>

Studies on the subject have evaluated changes in sexual function during pregnancy<sup>3,7-10</sup> or have focused specifically on some of the domains and psychophysical correlates.<sup>11-14</sup> However, there is a lack of knowledge regarding the investigation of factors associated with changes in the domains and psychophysical correlates of sexual function in pregnant women at usual risk.

The identification of factors associated with changes in the domains of sexual function and psychophysical correlates contributes to the understanding

of aspects involved in sexual behavior during pregnancy, which can favor approaches by health professionals aimed at clarifying doubts and adaptations for the promotion of sexual health during prenatal care.<sup>1</sup> Thus, this study aimed to identify factors associated with the domains of sexual function and psychophysical correlates of pregnant women at usual risk.

## Resources and Methods

### Sample and type of study

This is a cross-sectional study with a quantitative approach designed according to the recommendations described in The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE).

The study population was 4,350 pregnant women registered in the Prenatal, Childbirth, Puerperium, and Childbirth Monitoring and Evaluation System (SISPRENATAL-WEB).

The final sample was composed of 354 pregnant women, with 118 women per gestational trimester.

The formula for the finite population was used for sample calculation. The proportion of unfavorable outcomes in the population (50%), confidence level (95%), and margin of error (5%) were considered. A conservative sample size of 353 women was obtained. Stratified proportional sampling by gestational trimester was adopted.

To define the stratified proportional sampling, we adopted the classification of gestational trimesters according to the weeks of gestational age (GA) as recommended by the Brazilian Ministry of Health: first trimester (1st to 13th week), second trimester (14th to 27th week) and third trimester (28th week to term).

## Research design

Data collection occurred from February to September 2016 in three municipalities of the Cariri Metropolitan Region, the interior of Ceará, Brazil. The estimated population for the year 2016 in the three municipalities where data collection occurred was 457,256 inhabitants.

The participants were approached in the waiting room of two reference services for the performance of ultrasound and prenatal consultation associated with the Unified Health System, in the Basic Health Units (BHU) on prenatal consultation days or during home visits.

For data collection, a form was used that contained variables of sociodemographic, affective-sexual, and reproductive characterization and the Questionnaire of Sexuality in Pregnancy (QSP)<sup>(15)</sup>.

The QSP is a semi-structured instrument that assesses the sexuality of pregnant women, consisting of 29 questions divided into four parts: anamnesis, sexual behavior, sexual response/sexual function, and symbolic aspects (perception) in the pre-pregnancy and gestational periods<sup>(15)</sup>. In this study, we analyzed questions from the QSP that refer to sexual response/sexual function. Most of the response options for the items related to sexual response/sexual function were on a scale from 0 to 10 and of the Likert type.

The form was filled out by the researcher and trained collaborators using individual interviews in a place that allowed privacy during the approach and the QSP for being self-applicable was answered by the pregnant woman in the presence of the researchers.

## Inclusion and Exclusion Criteria

Pregnant women registered in SISPRENATAL-WEB assisted by the Family Health Strategy (FHS) teams in the

three municipalities where the research was carried out were included.

A total of 760 pregnant women were assessed for eligibility, 406 were excluded by the following criteria: age less than 20 years (n=160), follow-up in high-risk prenatal care (n=113), saturation of the trimester stratum (n=94), no sexual partner (n=20), incomplete completion of the data collection instruments (n=10), illiterate (n=6), physical disability and/or discomfort that made reading and/or completion of the data collection instruments impossible (n=2) and psychiatric disorder (n=1).

## Procedures

The variables were classified and grouped according to their characteristics and organized in Microsoft Office Excel spreadsheet version 2010®. Data analysis was performed using the statistical software RStudio (version 386 3.2.4)<sup>(16)</sup> using descriptive and inferential statistics.

To identify the distribution of the variables, the Shapiro-Wilks test was applied; if normality was not identified, non-parametric tests were used.

For bivariate analysis, Pearson's chi-square test was used to analyze each of the domains of sexual function and psychophysical correlates with the periods (pre-gestational, gestational and per gestational trimester). To identify the intervening factors in each domain of sexual function and psychophysical correlates, the association of each one of them with all the variables of the form and the GSP was analyzed, using Pearson's chi-square test and Mann-Whitney's U test, being considered as a parameter of statistical significance p less than 0.05.

The data were presented descriptively and in tables, with the variability of the qualitative variables represented by frequency distributions and the quantitative variables by central tendency and dispersion values.

The study followed the recommendations of Resolution 466/2012, which regulates the ethical and legal precepts of research with human beings, and was approved by the Research Ethics Committee under Opinion No. 1,397,129 and Certificate of Ethical Consideration Submission No. 52707215.8.0000.5055.

The participants were informed about the objectives of the study and invited to participate by signing the Free and Informed Consent and Post-Enlightened Consent Terms.

## Results

The women were 20 to 35 years old (average of 26.9 years and SD ± 4.3), mostly living in urban areas (n=309; 87.3%), with a monthly family income of up to one minimum wage (R\$880.00,

current value at the time) (n=227; 64.1%), complete high school (n=152; 42.9%), Catholic (n= 293; 82.8%), heterosexual (n=353; 99.8%) and married (n= 153; 43.2%). The coitarcia occurred from 10 to 34 years of age (mean= 17.7 years of age) and the number of sexual partner(s) ranged from one to 16 (mean= 2.2).

Regarding obstetric aspects, multigestas, multiparous, and unaborted women predominated (n=304; 85.9%). The variable regarding the number of miscarriages showed less variability in values (SD ± 0.4). GA ranged from four weeks to 41 weeks and one day (mean= 22 weeks and two days).

Data regarding the domains of sexual function and psychophysical correlates of women compared to the pre-pregnancy and pregnancy periods are described in table 1.

Table 1 - Comparison of the domains of sexual function and psychophysical correlates in the pre-pregnancy and gravidic periods. Barbalha, Crato and Juazeiro do Norte, Ceará, Brazil, 2016

Variables	Increased		Same		Decreased		NA		Association by period	Association by gestational trimester
	n	%	n	%	n	%	n	%	p	p
Sexual Desire	22	6.2	88	24.9	243	68.7	-	-	p<0.0001	p=0.6681
Sexual Arousal	28	8.0	100	28.2	226	63.8	-	-	p<0.0001	p=0.6791
Lubrication	36	10.2	124	35	192	54.2	2.0	0.6	p<0.0001	p=0.5941
Orgasm Intensity	22	6.2	121	34.2	180	50.8	31	8.8	p<0.0001	p=0.7343
Sexual satisfaction	22	6.2	132	37.3	200	56.5	-	-	p<0.0001	p=0.6351

There was a predominance of decreased sexual domains (desire, arousal, orgasm) and psychophysical correlates (lubrication and sexual satisfaction). Although 303 (85.5%) women reported that they had never felt orgasm, 28 (7.9%) reported not knowing if they had and only 23 (6.6%) reported having experienced

orgasm. Contradictorily, 323 (91.2%) women answered about the intensity of orgasm.

An increase in the frequency of pain/discomfort during sexual intercourse during pregnancy was evidenced, as shown in Table 2.

Table 2 - Comparison of the psychophysical correlate pain or discomfort in the pre-pregnancy and pregnancy periods. Barbalha, Crato and Juazeiro do Norte, Ceará, Brazil, 2016

Pain or discomfort	Pregnancy				Trimesters					
	Before		During		1st		2nd		3rd	
	n	%	n	%	n	%	N	%	n	%
Always	07	1.9	26	7.3	06	5.0	10	8.5	10	8.5
Most of the times	20	5.6	34	9.6	16	13.5	09	7.6	09	7.6
Sometimes	30	8.47	43	12.1	08	6.7	16	13.6	19	16.1
Rarely	138	39.9	162	45.8	46	39.9	56	47.4	60	50.8
Never	159	44.9	87	24.6	40	33.9	27	22.9	20	17.0
Did not answer	-	-	02	0.6	02	1.6	-	-	-	-
Total	354	100	354	100	116	100	118	100	118	100

A statistically significant association between the frequency of pain or discomfort during intercourse was identified when comparing the pre-pregnancy and gestational periods (<0.0001) and between gestational trimesters (p=0.01697).

Results of the analysis of factors associated with the domains of sexual function and psychophysical correlates of usual risk pregnant women are described in table 3.

Table 3 - Factors associated with the domains of sexual function and psychophysical correlates of pregnant women at usual risk. Barbalha, Crato and Juazeiro do Norte, Ceará, Brazil, 2016

Variables	Positive Associations	p	Negative associations (p<0.0001)
Sexual desire	Education	0.0003999	Sexual disposition of the pregnant woman Frequency of sexual practices Frequency of orgasm Sexual life
	Preliminary sexual activities	0.0265	
	Pain or discomfort	0.01545	
Sexual arousal	Preliminary sexual activities	0.004861	Sexual disposition of the pregnant woman Frequency of sexual intercourse Frequency of orgasm Sexual life
	Pain or discomfort	0.01382	
Lubricationo	Partner's sexual disposition	0.0181	Sexual disposition of the pregnant woman Frequency of orgasm Sexual life
	Frequency of sexual practices	0.000167	
	Pleasurable sexual practices	0.0007258	
Orgasm Intensity	Education	0.008302	Frequency of orgasm
	Sexual disposition of pregnant	0.007386	

	woman		
Sexual satisfaction	Preliminary sexual activities	0.0001357	
	Frequency of sexual practices	0.01761	
Pain or discomfort	Sexual disposition of partner	0.0006171	Sexual disposition of the pregnant woman
	Preliminary sexual activities	0.01077	Frequency of sexual practices
	Pleasurable sexual practices	0.04783	Frequency of orgasm
			Sexual life
Pain or discomfort	Preliminary sexual activities	0.0402	
	Sexual desire	0.01037	
	Sexual arousal	0.0001753	–
	Orgasm Intensity	0.0298	
	Sexual life	0.003598	

## Discussion

In the present study, changes in sexual function were identified when comparing the pre-pregnancy and gestational periods, and no significant changes were evidenced by gestational trimesters, except for the psychophysical correlate pain or discomfort.

In addition, a reduction was evidenced in all domains of sexual function and in the psychophysical correlates sexual lubrication and satisfaction. These alterations have been documented in the scientific literature for different reasons, according to the characteristics of the populations under study.

These findings corroborate studies<sup>10,16</sup> that showed that there is an alteration in sexual function when comparing the pre-pregnancy and gestational periods and that there is a reduction in most domains of sexual function.<sup>9-10,16-18</sup> However, they diverge from the majority of studies<sup>3, 7, 9-10, 17-18</sup> that point out that alterations in the domains of sexual function are frequent and increase with the progression of gestation. These changes can be justified by the multiplicity of changes that involve pregnancy and the multifactorial etiology of the occurrence of changes in female sexual function.<sup>5-6,19</sup>

The literature points to a reduction in spontaneous female sexual desire and eroticism during pregnancy,<sup>12-13,20</sup> with a higher proportion in the first and third

trimesters<sup>3</sup> and less in the second trimester<sup>12</sup> or shows a progressive reduction with increasing gestational age.<sup>3,7,17</sup>

During pregnancy, sexual desire can be affected by nausea, dizziness, and anxiety,<sup>3</sup> as well as by the dilemma experienced by women between being a mother, maternal desexualization, and the need for role readjustments.<sup>5,12</sup> However, inhibition of this domain is not an absolute predictor for the maintenance or reduction of sexual activity<sup>13</sup> as it can be induced by erotic sexual stimuli, trigger lubrication, obtain or not orgasm, and achieve sexual satisfaction,<sup>13</sup> especially in stable, non-conflictual long-term relationships.<sup>2,20</sup>

The increased vascularity of the pelvic region, especially in the labia minora and clitoris<sup>21</sup> associated with satisfactory stimulation in erogenous zones contributes to sexual arousal during pregnancy.<sup>23</sup> However, a woman's receptivity to sexual stimuli may be impaired by physical and psychological factors associated with pregnancy changes and feelings related to the exercise of sexuality<sup>1,21-22</sup> that may culminate in reduced interest in sexual relations<sup>1,21</sup> and reduced sexual arousal<sup>13,9,16-17</sup> progressive with increasing gestational age.<sup>3,7,9,17</sup>

Physiologically, the thickening of the vaginal mucosa, the increase in sex hormones, vaginal elasticity and secretion, the hypertrophy of the underlying smooth



muscles, and vulvo-vaginal vasocongestion during pregnancy favor increased lubrication<sup>3,5,23</sup> with an apex in the third trimester.<sup>5</sup>

However, corroborating the findings, studies have shown a gradual reduction<sup>10</sup> in this psychophysical correlate as pregnancy progresses.<sup>3,7,17</sup> Inadequate vaginal lubrication influences dyspareunia<sup>7,14,23</sup> and, consequently, reduces sexual desire<sup>16</sup> and arousal.<sup>22</sup>

The release of oxytocin during sexual arousal can increase uterine contractions favoring women's perception of the occurrence of orgasm,<sup>24</sup> the understanding of the orgasmic phenomenon has been limited in the scientific literature as women have difficulty in understanding its meaning or prejudice to admit pleasure during intercourse,<sup>9</sup> corroborating the divergence of answers about presence, frequency, and intensity of orgasm obtained in this study.

Furthermore, corroborating the results presented, the frequency and intensity of orgasm decrease during pregnancy when compared to the pre-pregnancy period<sup>9,16</sup> and differed as to its progression with advancing gestation,<sup>3,9,17</sup> since there was no statistical significance of this variable by gestational trimester.

Although sexual practices and positions are affected by changes in the domains of sexual function during pregnancy,<sup>1</sup> maintaining interest and engaging in sexual activities with the partner, regardless of the experience of female orgasm, represents an indicator of sexual satisfaction,<sup>20,25</sup> which is not strictly associated with pleasure as it may result from the woman feeling loved.<sup>25</sup> On the other hand, when relationships are restricted to the physical aspect, disregarding the affective, emotional, and intimacy needs, and may result in sexual dissatisfaction.<sup>26</sup>

Corroborating the findings of the study, it was evidenced that during pregnancy there is a progressive reduction in sexual satisfaction with advancing

gestational age<sup>3,9,17</sup> and when compared to the pre-pregnancy period.<sup>9, 16</sup>

The findings of the study showed a relationship between pregnancy and the psychophysical correlate pain or discomfort with association with the gestational trimesters. This change corroborates the literature that points to a higher incidence in the third trimester<sup>6,14</sup> due to discomfort in sexual positions, subjective perception of reduced interest and sexual satisfaction from the partner, and uterine contractions by orgasm.<sup>14</sup>

The indication of caresses, preliminary sexual practices, and the use of artificial lubricants is recommended during the puerperium to reduce pain during penetration.<sup>23</sup> Considering that there is a reduction in preliminary sexual activities during pregnancy<sup>1</sup> it is suggested that this may also be an orientation during pregnancy in view of the maintenance of sexual activity, reduced lubrication, and increased pain or discomfort evidenced in the findings.

Changes in sexual function during pregnancy can affect the quality of life, which requires establishing therapeutic relationships with professionals to evaluate experiences around sexuality<sup>3</sup> and counsel the couple during prenatal care, based on effective communication and co-participation.<sup>8,27</sup>

This approach becomes relevant for recognizing alterations, building adaptive strategies in the face of difficulties experienced,<sup>28</sup> providing counseling and support,<sup>26</sup> promoting sexual and marital satisfaction with a view to improving the sexual response and quality of life of pregnant women.<sup>29</sup>

Studies have shown that sex education<sup>3,12,30</sup> carried out by trained professionals in individual or couple approaches<sup>12</sup> contributes to better responses of desire, arousal, lubrication, orgasm, and sexual satisfaction, since the access to knowledge and attitudes related to physical and psychological alterations and changes that can affect sexual function

helps to promote adaptive behavior during pregnancy.<sup>30</sup>

Although this study advances the production of knowledge by comparing the sexual function of women in the pre-pregnancy and gestational periods and identifying factors associated with changes in the domains and psychophysical correlates of sexual function, we point out as limitations the cross-sectional design.

It is suggested that longitudinal, prospective studies be conducted to evaluate sexual function and that include the concomitant approach of the partner, clinical studies that evaluate the effect of educational interventions on factors associated with the domains of sexual function and psychophysical correlates, and qualitative studies that analyze subjective aspects involved in changes in sexual function during the pregnancy cycle.

The knowledge of factors associated with alterations in the domains of sexual function and psychophysical correlates enables health professionals to investigate and approach during prenatal consultations in order to guide couples about the possibilities of alterations in sexual behavior.

Furthermore, given the alterations evidenced in the sexual function, there are subsidies for health professionals during clinical care in sexual health during prenatal care to pay attention to the need to investigate sexual dysfunction or inadequacy of the woman and/or her partner and, through interprofessional

articulation, analyze the need for referral to sexual therapy.

## Conclusion

The results showed that factors related to sexual behavior, symbolic aspects (perception) and schooling were associated with a reduction in the desire, arousal and orgasm domains and in the psychophysical correlates, sexual lubrication and satisfaction, with no statistical significance by gestational trimesters.

However, this pattern in the findings was not evidenced in the psychophysical aspect of sexual pain or discomfort since there was an increase and statistical significance by gestational trimester. Moreover, this variable presented itself exceptionally in the inferential statistical analysis as it influenced positively on sexual desire and arousal, which requires further investigation into its occurrence and influence during pregnancy.

Although pregnancy is a physiological event, women experience changes during this period due to the action of multiple sociodemographic factors, sexual behavior, and symbolic aspects that affect (negatively or positively) the domains of sexual function and psychophysical correlates and, consequently, can influence sexual activity.

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