

WOMEN'S SEXUAL HEALTH

Fear-Related Reasons for Avoiding Sexual Intercourse in Early Pregnancy: A Cross-Sectional Study



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ABSTRACT

Introduction: Several studies have reported women's worry that sexual intercourse may harm the course of pregnancy. This worry might lead to avoidance of sexual intercourse during pregnancy.

Aim: To assess if fears about harming the pregnancy are associated with avoidance of sexual intercourse during pregnancy.

Methods: A cross-sectional study was conducted on 250 Vietnamese pregnant women in the first or second trimester who visited our hospital for antenatal care. We explored 5 types of fears including miscarriage/preterm labor, premature rupture of membranes, bleeding, infection, and injury to the fetus. Fears were measured by modified questions from the Reasons For Not Engaging in Sexual Activity During Pregnancy questionnaire. Using the total fear score, pregnant women were categorized into having low, moderate, and high fear.

Main Outcome Measure: Not having sexual intercourse during the past 4 weeks.

Results: 72 (28.8%) pregnant women had no sexual intercourse for the past 4 weeks. All types of fear were considered important among pregnant women; the more important fears were infection and injury to the fetus. In multivariable regression analysis, the prevalence of not having sexual intercourse was higher in both women who had moderate (adjusted prevalence ratio = 2.84, 95% CI 1.42–5.67) and high fear (adjusted prevalence ratio = 4.39, 95% CI 2.28–8.44).

Conclusion: Avoidance of sexual intercourse was common among Vietnamese pregnant women and was associated with the fears about harming the pregnancy. This can be a target in the health education programs for pregnancy couples. **Thanh C. Phan, Long B. Hoang, Thanh K. Tran, et al. Fear-Related Reasons for Avoiding Sexual Intercourse in Early Pregnancy: A Cross-Sectional Study. Sex Med 2021;9:100430.**

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Key Words: Sexual Intercourse; Avoidance; Fears; Adverse Pregnancy Outcomes

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INTRODUCTION

Decrease in and avoidance of sexual activities, and particularly sexual intercourse, are common among women during pregnancy.^{1–8} They could be explained by biological, sociocultural and psychological changes in pregnant women.^{3,9–13} Bodily changes (nausea, vomiting, fatigue, increased body size, breast pain, and urinary problems)¹⁴ and their psychological impact can affect women sexual function and decrease their sexual activities during pregnancy.¹³ Demographic characteristics and obstetric history may also be associated with changes in sexual activities. While older age, shorter duration of relationship, multiparity, and previous abortion have been shown to be associated with decreased sexual intercourse and sexual dysfunction of pregnant women, findings on education were mixed.^{5,10,11,15,16}

Fears about negative consequences of sexual activities and sexual intercourse during pregnancy are common⁷ and have a pivotal role in determining the sexual behaviors of the couples.^{5,17} Injury to the fetus is most commonly feared (31.4%), followed by miscarriage (17.5%) and preterm labor (12.5%).¹² These fears may result in reluctance to engage in sexual activities¹⁸ and sexual dysfunction during pregnancy.^{19,20}

Studies have been done to dissect the relationship of pregnancy, fear, and sexual activities.^{3,16,19,21} However, these studies often used a single question about female concerns²⁰ or close-ended (Yes/No) questions.^{9,21,22} This setup does not allow the researchers to fully capture the broad spectrum of fear, and thus, cannot correctly depict the impacts of fear on changes in sexual activities during pregnancy. The Reasons For Not Engaging in Sexual Activity During Pregnancy (RFNS) questionnaire, developed by Jaimie and colleagues (2017), was designed to resolve these problems.²⁰ The questionnaire asks pregnant women to rate the importance of the reasons for not engaging in sexual activities on a scale from 1 (unimportant) to 7 (extremely important). The fears include preterm labor, bleeding, infection, and injury to the fetus, and are asked from both the perspectives of the pregnant women and their partner. This helps explore multiple aspects of fears in a wider range of intensity.

In Vietnam, a country heavily influenced by the Eastern traditions, the topic of sexual activity remains gender-sensitive and can only be shared privately between intimate partners.²³ Although more studies on female sexual function and sexual activities have been done in Vietnam recently,^{23,24} they largely focused on women in reproductive age and those with infertility but not pregnant women. The body of evidence on sexual activities, especially sexual intercourse, during pregnancy in Vietnam is very scarce. Therefore, we conducted this study to (i) describe the prevalence of not having sexual intercourse among Vietnamese pregnant women and (ii) determine if fears are associated with avoidance of sexual intercourse using the RFNS questionnaire.

MATERIALS AND METHODS

Participants

A cross-sectional study was conducted on Vietnamese pregnant women who visited the National Hospital of Obstetrics and Gynecology (NHOG) for antenatal care between November and December 2020. The outpatient department at NHOG has 8 examination rooms, but due to logistic issues, we only implemented recruitment of participants at 2 rooms; therefore, we could not screen all pregnant women who visited NHOG during the study period, and this was thus convenience sampling. We recruited pregnant women in the first (under 14 weeks of gestation) and second (14–26 weeks) trimesters who were currently living with their husbands/partners and had no signs or symptoms of threatened abortion, vaginal bleeding, or fetal congenital anomalies. We excluded women who received in vitro fertilization or had an indication for abortion (requests from patients

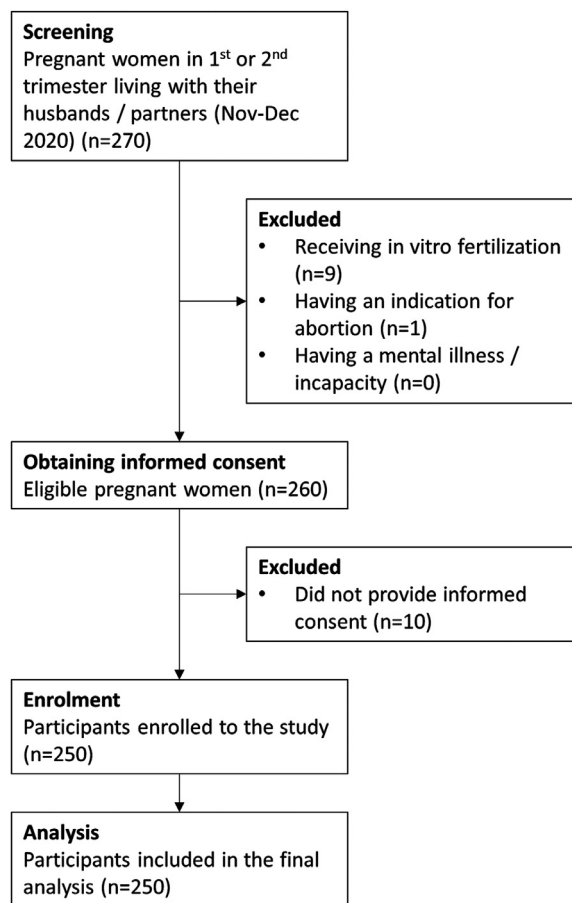


Figure 1. Flow diagram for participant selection.

who had fetal congenital anomalies, patients with cardiovascular problems who were advised to terminate pregnancy). Illiterate women or women with mental illness or incapacity were also excluded from the study (Figure 1).

A study doctor and a study nurse at the study clinics were in charge of screening the pregnant women. If a woman was determined to be eligible, the study nurse would invite her to participate in the study. Study procedures only started after informed consent had been provided. Participants would then be invited to a private room for interview. The interview was conducted verbally by a study nurse who would also review participants' medical charts to confirm certain data (such as history of pregnancy). Because the interview involves multiple terms about sexual activities (sexual activity, sexual intercourse, non-intercourse sexual activity, etc.), our study nurses were trained to distinguish these terms and explain to the participants during the interview.

The information regarding their participation as well as answers are kept confidential. Only members in the study team have the right to access data and are not allowed to share the data with people who are not involved in the study without the principal investigator's permission. This study was ethically approved by the Hanoi Medical University Institutional Review Board (Approval No. 68/GCN-HDDDNCYSH-DHYHN dated

March 27th, 2020) and administratively approved by the participating NHOG.

Instruments

Participants were administered a questionnaire collecting sociodemographic, clinical information, frequency of sexual intercourse, fears, and sexual function. The frequency of sexual intercourse was used to determine the primary outcome (not having sexual intercourse) and would be described in detail in the Main outcome measure section.

Fears that sexual intercourse was harmful to pregnancy were measured by the RFNS questionnaire.^{9,21,25} While the original questions ask about reasons for avoiding any types of sexual activities (including sexual stimulation, oral sex, vaginal or anal intercourse) in the past 4 weeks, we modified the questions so that they would only focus on sexual intercourse (sexual activities that involve vaginal penetration). The original questionnaire explores the reasons from the perspective of both pregnant women and their partner. In our study, we only used the questions that evaluate the fear from the perspective of the pregnant women themselves. The reasons that were evaluated included miscarriage/preterm labor, premature rupture of membranes, bleeding, infection, and injury to the fetus. In each question, pregnant women rate the importance of the reasons on a scale from 1 (unimportant) to 7 (extremely important). The author of the RFNS proposed to sum up the scores of individual questions and use the overall score to quantify the fear-based reasons for not having sexual intercourse²⁰; this method has not been externally validated so far. Nonetheless, we used the method for the first 5 questions, summing up the individual scores, and dividing the total scores into tertiles. Women in the lowest tertile were classified as having low fear, and women in the highest tertile were classified as having high fear.

Sexual function was evaluated by the Female Sexual Function Index (FSFI) questionnaire.²⁶ The questionnaire includes 19 questions covering 6 domains: desire, arousal, lubrication, orgasm, satisfaction, and pain.²⁴ Participants are asked to rate their sexual experience during the past 4 weeks on a numeric scale representing “not at all” or “never” to “very” or “always.” The total score of each individual domain is multiplied by the domain factor. Both the domain scores and total FSFI score have cut-offs to determine whether one might have decreased sexual function in a certain domain or overall. The cut-offs for desire, arousal, lubrication, orgasm, and satisfaction are 4.28, 5.08, 5.45, 5.05, and 5.04, respectively.²⁶ We did not use the cut-off for pain because this domain was used to determine the primary outcome (see Main outcome measure).

We also collected demographic and socioeconomic data of both the pregnant women and their husbands/partners as well as data regarding the history of pregnancy. Bodily changes after pregnancy included genital discomfort, nausea and vomiting, discomfort due to increased body size, painful

and uncomfortable erected nipples, urinary retention/dysuria, and fatigue.

MAIN OUTCOME MEASURE

Our primary outcome was not having sexual intercourse during the past 4 weeks. This primary outcome was defined based on 2 sources in our questionnaire. One single question specifically asked, “In the past 4 weeks, how often did you have sexual intercourse (vaginal penetration).” The second source was from the FSFI. According to the FSFI questions, pregnant women who did not have sexual intercourse will score zero (0) for the “Pain” domain. Therefore, “not having sexual intercourse” in our study was defined as a “Not at all” answer to the single question plus a total score of 0 for the “Pain” domain. Interviewers were trained to detect conflicts in answers and resolve by discussing with the participants to ascertain the primary outcome.

STATISTICAL ANALYSES

Data was collected into a paper case report form, then entered into an electronic Access database (Microsoft Access, Microsoft Corporation, USA), and cleaned and analyzed using Stata version 14.0 (StataCorp LLC, USA).

All characteristics were described in percentage, mean (standard deviation, SD), or median (interquartile range, IQR), and were compared between pregnant women who did and did not have sexual intercourse using the chi-square test, *t*-test, or Wilcoxon rank-sum test where appropriate.

Multiple regression models were used to explore the factors that are associated with our outcome of interest (not having sexual intercourse). Covariates included in the models were chosen based on their biological plausibility and through literature review; we did not only limit to variables that were found statistically significant in univariable analysis, nor used stepwise regression for variable selection. We also explored the possible differences between pregnant women in the first and second trimester by adding a covariate for trimester and some interaction terms between trimester and fear and other physical factors. Because the prevalence of not having sexual intercourse was >10%, we used log-binomial regression instead of logistic regression. However, our log-binomial regression model failed to converge; therefore, we used Poisson regression with robust variance estimation to approximate log-binomial regression and estimate the prevalence ratio (PR) of associated factors.^{27–29} We chose the report the model with best fit and parsimony based on the Akaike information criterion (AIC).

RESULTS

Between November and December 2020, a total of 250 pregnant women were recruited, in which 72 (28.8%) of them did not have sexual intercourse for the past 4 weeks. The mean (SD)

Table 1. Characteristics of study participants, compared between women who did and did not have sexual intercourse

Characteristics	Having sexual intercourse (n = 178)	Not having sexual intercourse (n = 72)	P value
<i>Pregnant women</i>			
Age (y), mean (SD)	28.0 (4.4)	28.0 (5.4)	.97
Education (college or above), n (%)	119 (66.9)	45 (62.5)	.61
Gestational age (wk), median (IQR)	15.0 (13.0–18.0)	15.5 (12.0–18.2)	.70
Currently in the first trimester, n (%)	82 (46.1)	35 (48.6)	.82
<i>Obstetric history</i>			
Primi-/Multiparous, n (%)	118 (66.3)	40 (55.6)	.15
Ever had an abortion, n (%)	69 (38.8)	30 (41.7)	.78
Ever had a preterm labor, n (%)	2 (1.1)	1 (1.4)	1.00
Ever had Cesarean section, n (%)	40 (22.5)	17 (23.6)	.98
Ever had vaginal delivery, n (%)	82 (46.1)	24 (33.3)	.89
<i>Complaints during pregnancy</i>			
Genitalia discomfort, n (%)	4 (2.2)	2 (2.8)	1.00
Nausea and vomiting, n (%)	110 (61.8)	57 (79.2)	.013
Discomfort due to increased body size, n (%)	7 (3.9)	5 (6.9)	.34
Erected and painful nipples, n (%)	16 (9.0)	7 (9.7)	.95
Urinary problems, n (%)	3 (1.7)	3 (4.2)	.36
Fatigue, n (%)	108 (60.7)	49 (68.1)	.34
<i>Changes in sexual function (FSFI)</i>			
Desire score, median (IQR)	3.6 (3.0–4.2)	2.4 (2.4–3.6)	<.001
Arousal score, median (IQR)	3.6 (3.0–4.5)	0.0 (0.0–2.7)	<.001
Lubrication score, median (IQR)	5.1 (4.5–6.0)	0.0 (0.0–3.8)	<.001
Orgasm score, median (IQR)	4.0 (3.2–4.9)	0.0 (0.0–2.3)	<.001
Satisfaction score, median (IQR)	4.4 (3.6–5.2)	3.2 (2.4–4.0)	<.001
Decreased desire, n (%)	153 (86.0)	67 (93.1)	.18
Decreased arousal, n (%)	146 (82.0)	68 (94.4)	.020
Decreased lubrication, n (%)	111 (62.4)	66 (91.7)	<.001
Decreased orgasm, n (%)	134 (75.3)	68 (94.4)	.001
Decreased satisfaction, n (%)	127 (71.3)	61 (84.7)	.040
<i>Husband/partner</i>			
Age (y), mean (SD)	31.2 (5.7)	32.0 (5.4)	.285
Education (college or above), n (%)	90 (50.6)	47 (65.3)	.048
<i>Relationship</i>			
Duration (y), median (IQR)	4.0 (1.0–7.0)	4.0 (1.0–6.5)	.783
Sleeping with children, n (%)	87 (48.9)	34 (47.2)	.923
Satisfied with relationship with husband/partner, n (%)	137 (77.0)	58 (80.6)	.651

IQR = interquartile range; SD = standard deviation.

Differences in categorical variables were tested by the chi-squared test. Differences in continuous variables were tested by the *t*-test or Wilcoxon rank-sum test where appropriate. *P* values in bold are statistically significant.

age of participants was 28.0 (4.7) years. The median (IQR) gestational age was 15.0 (13.0–18.0) weeks; 117 (46.8%) were in the first trimester and 158 (63.2%) were multiparous. Nausea/vomiting and fatigue were the most common complaints (66.8% and 62.8%, respectively), while genitalia discomfort (2.4%), discomfort due to increased body size (4.8%), erected and painful nipples (9.2%), and urinary problems (2.4%) were much less common. Women who did not have sexual intercourse had significantly higher proportions of nausea/vomiting (79.2% vs 61.8%) and decreased sexual function in 4 domains arousal (median domain score [IQR] 0.0 [0.0–2.7] vs 3.6 [3.0–4.5]),

lubrication (0.0 [0.0–3.8] vs 5.1 [4.5–6.0]), orgasm (0.0 [0.0–2.3] vs. 4.0 [3.2–4.9]), and satisfaction (3.2 [2.4–4.0] vs 4.4 [3.6–5.2]). Other characteristics were comparable between the 2 groups (Table 1).

All 5 types of fear were considered important among pregnant women (Table 2) and appeared to be highly correlated to each other (Appendix A, Table A.1). The types of fear that were considered more important were infection and injury to the fetus. Women who did not have sexual intercourse rated the importance of all types of fear significantly higher than women who had sexual intercourse. Also, the proportion of the high fear

Table 2. Types of fear related to sexual intercourse during pregnancy assessed by the RFNS questionnaire, compared between women who did and did not have sexual intercourse

	Having sexual intercourse (n = 178)	Not having sexual intercourse (n = 72)	P value
Individual type of fear, median (IQR)			
Q1. Concern about miscarriage/preterm labor	3.0 (1.0–4.8)	5.0 (3.0–7.0)	<.001
Q2. Concern about premature rupture of membranes	3.0 (1.0–4.0)	5.0 (3.0–6.0)	<.001
Q3. Concern about bleeding	3.0 (1.0–5.0)	5.0 (3.0–6.0)	<.001
Q4. Concern about infection	4.0 (2.0–5.0)	5.0 (3.0–6.0)	<.001
Q5. Concern about causing harm or injury to the baby	3.5 (2.0–5.0)	5.0 (4.0–6.2)	<.001
Fear category, n (%)			
Low (total score = 5–12)	77 (43.3)	9 (12.5)	<.001
Moderate (total score = 13–23)	61 (34.3)	26 (36.1)	
High (total score = 24–35)	40 (22.5)	37 (51.4)	

IQR = interquartile range.

Differences in categorical variables were tested by the chi-squared test. Differences in continuous variables were tested by the Wilcoxon rank-sum test. *P* values in bold are statistically significant.

category was significantly higher in women who did not have sexual intercourse (51.4% vs 22.5%, $P < .001$).

After adjusting for decreased desire (based on the FSFI score of the desire domain), age (>30 years), education (college or above), parity (primi-/multiparous), nausea/vomiting, partner's age (>30 years), and partner's education (college or above), the prevalence of not having sexual intercourse was higher in both women who had moderate (adjusted PR = 2.84, 95% CI 1.42–5.67) and high fear (adjusted PR = 4.39, 95% CI 2.28–8.44) (Table 3). Decreased desire, a history of giving birth, and nausea/vomiting were not associated with higher prevalence of not having sexual intercourse. While the prevalence not having sexual

intercourse was lower in women with higher education (adjusted PR = 0.55, 95% CI 0.37–0.81), it was higher in women who had partners with higher education (adjusted PR = 2.34, 95% CI 1.49–3.67).

In the model that added the trimester covariate, the PRs of fear categories were similar to the model without the trimester covariate. When adding the interaction terms between trimester and fear, the PRs of fear categories changed remarkably; however, all interaction terms were not significant, and the goodness of fit of the interaction models did not increase compared to the non-interaction model (Appendix A, Table A.2).

Table 3. Factors associated with not having sexual intercourse during pregnancy (n = 250)

Characteristic	Unadjusted PR (95% CI)	Adjusted PR (95% CI)
<i>Pregnant woman</i>		
Fear (ref: Low)		
Moderate	2.86 (1.42–5.74)	2.84 (1.42–5.67)
High	4.59 (2.34–8.90)	4.39 (2.28–8.44)
Decreased desire	1.83 (0.80–4.18)	1.51 (0.72–3.19)
Age >30 y	1.23 (0.83–1.83)	1.65 (1.03–2.64)
College or above	0.87 (0.59–1.30)	0.55 (0.37–0.81)
Primi-/Multiparous	0.73 (0.49–1.07)	0.69 (0.47–1.01)
Nausea and vomiting	1.89 (1.14–3.13)	1.59 (0.96–2.65)
<i>Husband/partner</i>		
Age >30 y	1.20 (0.80–1.79)	1.10 (0.70–1.73)
College or above	1.55 (1.02–2.35)	2.34 (1.49–3.67)

PR = prevalence ratio; CI = confidence interval; ref = reference group.

Adjusted prevalence ratios were estimated using a Poisson regression model with robust variance including all covariates in the table. Estimates in bold are statistically significant.

DISCUSSION

In this study, we described the prevalence of not having sexual intercourse during pregnancy in Vietnamese pregnant women in the first and second trimester. Our study found that nearly 30% of the participants avoided sexual intercourse. This proportion is similar to the results reported in Hong Kong Chinese women¹ but relatively higher than those in Europe, the United States, and Canada (10%–14%).^{6–8} This contrast suggests that culture may be a factor that determines the prevalence of this behavior since Vietnam and China share the Eastern traditions, which have a more conservative attitude toward sensitive (and possibly tabooed) topics such as sexual activities.⁵

The fear that sexual intercourse might negatively impact on pregnancy was common among the pregnant women in our study. These types of fear, as the reason for refraining from sexual intercourse, have also been reported in previous studies.^{20,21,30,31} However, this might be true in every culture, and women in countries had reported more positive attitudes toward sexual activity during pregnancy.^{5,20,30,32} Polish couples believed that sexual activity during pregnancy is a new way to experience

sexual satisfaction and helps to improve their self-esteem as well as the couple's relationship.³² Nigerian women believed that sexual activities during pregnancy could support fetal wellbeing.³⁰

We found a higher prevalence of avoiding sexual intercourse among women with higher amounts of fear; this association remained significant even after adjusting for other socio-demographic and medical factors. Our results agree with previous reports on fear-based reasons for sexual abstinence.^{5,11,31,33} These findings suggest that fear that sexual intercourse results in negative pregnancy outcomes might be an important factor that determines the sexual behaviors of pregnant women. The magnitude of association changed after adding interaction terms between trimester and fear. Although the interaction terms were not significant, we could not exclude the possibility that our study was underpowered for an interaction analysis. More studies need to be done to explore the causal relationship between fears and avoidance of sexual intercourse during different periods of pregnancy and whether addressing fear can improve the sexual experience of pregnant women as well their pregnancy outcome. If the findings are favorable, recommendations can be made to maternity care providers that the fears and concerns of their pregnant clients need to be discussed and addressed. Communicating and counseling about sexual wellbeing is a viable way to demystify convictions and taboos and reduce the disengagement of sexual activities.^{34,35}

Our study is the first study in Vietnam that examines avoidance of sexual intercourse among Vietnamese pregnant women and the factors associated with it. Instead of describing the fear related to sexual intercourse as a binary variable, we utilized the RFNS questionnaire to explore fear as a continuum. Our findings have shown some interesting relationships between avoidance of sexual intercourse during pregnancy and the fears that sexual intercourse could result in harmful pregnancy outcomes.

However, our results should be interpreted within certain limitations. First, our study was conducted at a central hospital in a big city of Vietnam, which might have a different patient profile compared to district or provincial health centers, especially centers in rural and distant areas. Second, we did not collect data on frequency of sexual activity and sexual dysfunctions before pregnancy. Therefore, it is impossible to ascertain that the women started avoiding sexual intercourse after pregnancy. Third, we were not able to collect all factors that are potentially associated with not having sexual intercourse. For example, we did not ask about the women's concern that orgasm might harm their pregnancy or whether the pregnant women had received advice on sexual intercourse during pregnancy from any sources.

CONCLUSIONS

Avoiding sexual intercourse during pregnancy was common in Vietnamese pregnant women and was associated with the-fear that sexual intercourse could result in adverse pregnancy outcomes. Fear can be a target in the health education strategies for

the pregnancy couples to promote sexual wellbeing during the prenatal period.

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APPENDIX A

Table A.1 and Table A.2

Table A.1. Correlation among types of fear assessed by the RFNS questionnaire

Type of fear	Q1	Q2	Q3	Q4	Q5
Q1. Concern about miscarriage/ preterm labor	1.00				
Q2. Concern about premature rupture of membranes	0.91	1.00			
Q3. Concern about bleeding	0.75	0.75	1.00		
Q4. Concern about infection	0.62	0.61	0.66	1.00	
Q5. Concern about causing harm or injury to the baby	0.80	0.75	0.68	0.65	1.00

Pearson's correlation coefficients are presented in the table. All coefficients were statistically significant (P values $<.001$ after adjustment for multiple comparisons using Bonferroni's correction).

Table A.2. Different regression models on the factors associated with not having sexual intercourse during pregnancy (n = 250)

Characteristic	Model A	Model B	Model C	Model D
<i>Pregnant woman</i>				
Fear (ref: Low)				
Moderate	2.84 (1.42–5.67)	2.85 (1.43–5.69)	3.38 (1.36–8.37)	3.43 (1.38–8.50)
High	4.39 (2.28–8.44)	4.41 (2.29–8.50)	3.34 (1.31–8.52)	3.39 (1.34–8.61)
Second trimester		0.91 (0.64–1.29)	0.80 (0.23–2.80)	1.10 (0.14–8.63)
Fear-second trimester interaction				
Moderate			0.70 (0.18–2.78)	0.71 (0.18–2.84)
High			1.68 (0.43–6.58)	1.60 (0.41–6.21)
Decreased desire	1.51 (0.72–3.19)	1.52 (0.72–3.23)	1.60 (0.75–3.44)	2.45 (0.59–10.1)
Decreased desire-second trimester interaction				0.47 (0.10–2.18)
Age >30 y	1.65 (1.03–2.64)	1.65 (1.03–2.63)	1.53 (0.96–2.44)	1.48 (0.94–2.33)
College or above	0.55 (0.37–0.81)	0.53 (0.36–0.80)	0.61 (0.41–0.93)	0.62 (0.41–0.95)
Primi-/Multiparous	0.69 (0.47–1.01)	0.69 (0.47–1.02)	0.68 (0.47–0.99)	0.68 (0.47–0.99)
Nausea and vomiting	1.59 (0.96–2.65)	1.59 (0.96–2.64)	1.53 (0.92–2.55)	1.19 (0.60–2.37)
Nausea/vomiting-second trimester interaction				1.68 (0.60–4.67)
<i>Husband/partner</i>				
Age >30 y	1.10 (0.70–1.73)	1.10 (0.70–1.72)	1.17 (0.76–1.82)	1.23 (0.79–1.89)
College or above	2.34 (1.49–3.67)	2.37 (1.51–3.73)	2.40 (1.53–3.78)	2.34 (1.49–3.67)
AIC	305.0	306.9	308.4	311.2

AIC = Akaike information criterion; Ref = reference group.

Adjusted prevalence ratios were estimated using a Poisson regression model with robust variance including all covariates in the table. Estimates in bold are statistically significant.