

The Sexual Function of Iranian Pregnant Women: a Systematic Review and Meta-analysis

Hora Ameri Ahmad¹, BSc;  Masoumeh Rostami², MSc; Sahar Dalvand³, PhD Candidate; Azam Rahmani⁴, PhD; Reza Ghanei Gheshlagh⁵, PhD 

¹Bahman Hospital, Iran University of Medical Sciences, Tehran, Iran

²Department of Nursing, Asadabaad Faculty of Medical Sciences, Asad abad, Iran

³Department of Epidemiology and Biostatistics, School of Public health, Tehran University of Medical Sciences, Tehran, Iran

⁴Nursing and Midwifery Care Research Center, School of Nursing and Midwifery, Tehran University of Medical Sciences, Tehran, Iran

⁵Spiritual Health Research Center, Research Institute for Health Development, Kurdistan University of Medical Sciences, Sanandaj, Iran

*Corresponding author: Reza Ghanei Gheshlagh, PhD; Pasdaran Ave, Kurdistan University of Medical Sciences, Sanandaj, Iran. Tel/Fax: +98 9144050284
Email: rezaghanei30@gmail.com

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Abstract

Context: Sexual function during pregnancy affects marital satisfaction of couples and increases empathy in the completion of pregnancy and women's self-confidence with reduction in fears. Studies on the sexual function of Iranian pregnant women have shown controversial results. The present study aimed to review the sexual function of Iranian pregnant women.

Methods: The international and national databases of Web of Science/ISI, PubMed, Scopus, MagIran, and SID databases using "sex", "sexuality", "sexual intercourse", "sexual function", "sexual dysfunction", and "pregnancy" without a time limit. We included all the papers published in Persian and English reporting the mean score of sexual function of pregnant women. Based on the pre-designed form, the required data included the name of the first authors, year of publication, sample size, research setting, questionnaire type, and methodological quality, which were extracted and recorded. Data analysis was performed in STATA version 14 using a meta-analysis method and random-effects models. The heterogeneity of the studies was evaluated utilizing the I² test.

Results: In total, 11 articles with the total sample size of 2,657 were reviewed. The highest and lowest standard scores of sexual function were reported in the first pregnancy trimester (58.92%; 95% CI: 54.08-63.75) and the third trimester (47.70%; 95% CI: 23.18-39.56), respectively. In addition, publication bias was significant in the first (P=0.001), second (P=0.009), and third trimesters (P=0.014).

Conclusion: The sexual function of women was found to reduce through pregnancy progress. Therefore, sexual function assessment and counseling on pregnancy care seem crucial for pregnant women.

Keywords: Sexual function, Pregnancy, Women, Systematic review, Meta-analysis

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1. Introduction

Pregnancy is a complicated psychological period and an emotionally stressful event, which imposes a physical and social burden on women. The pregnancy-associated changes and the subsequent responsibility may affect the health and sexual behavior of women (1, 2). Hormonal, psychological, physiological, and anatomical changes (for example, weight gain) have a substantial impact on the human sexual function and behavior (3, 4). Beliefs about sex relations, partner reaction to pregnancy, the idea of

parenthood, women's sexual identity and role, cultural norms and economic factors all affect sex life during pregnancy (5).

Numerous women believe that sexual problems may decrease the frequency of sexual intercourse or sexual pleasure in themselves or their partner, which is highly common in pregnancy (6). In the past, people used to believe that sexual intercourse during pregnancy might cause preterm labor (7); there is also other evidence claiming that there is no link between sexual intercourse and the adverse consequences of pregnancy (8).

While the lack of principles in sexual intercourse during pregnancy might lead to maternal and neonatal consequences, the medical science does not impose any restrictions on normal and healthy sexual activity in a normal, uncomplicated pregnancy, and healthy pregnant women, which allow women to have sexual relations during this period (9).

According to Bayrami and colleagues, continued sexual activities during pregnancy are not only harmless, but could also enhance self-discovery and the ability in sexual relations by strengthening marital relations and the truth of sexual activity (10). On the other hand, reduced sexual function may adversely affect self-confidence and interpersonal relations, thereby causing stress in women and their spouses.

In addition, a significant correlation has been suggested between sexual dysfunction and physical and emotional disorders (11). Overall, the proper recognition of these changes could minimize anxiety in pregnant women and their partners. It is absolutely crucial to ensure couples that sexual intercourse often causes no complications in pregnancy (12). Women's sexual function is considered to be a major challenge during pregnancy. To date, several studies have focused on the sexual function of pregnant women in Iran, proposing contradictory results (11, 13-22). To understand this problem, it is necessary to integrate the results of all these studies in order to estimate the pooled mean of sexual function in pregnant women. The present study aimed to provide an overview of the sexual function scores of Iranian pregnant women.

2. Methods

In this systematic review and meta-analysis, the standard sexual function scores of Iranian pregnant women were reviewed based on PRISMA (23). In the PICO, population (P) shows the articles that assess the sexual function of Iranian pregnant women and outcome (O) represents sexual function. Intervention (I) and comparison (C) indices were not applicable in the present study.

2.1. Search Strategy

To find related articles, the national databases of MagIran and SID and international databases of Scopus, PubMed, and ISI were searched by two researchers

independently. In general, two researchers independently performed the article search, article screening, and quality assessment of the retrieved articles. Any disagreements were resolved by applying the opinion of the corresponding author. Moreover, the reference list of selected studies was reviewed to access other related papers. The literature search was carried out using various keywords, including "sex OR sexuality OR sexual intercourse OR sexual function OR sexual dysfunction" AND "pregnancy OR caesarean section".

2.2. Article Selection and Data Extraction

The observational studies published in Persian and English reporting the sexual function scores of Iranian pregnant women were reviewed and analyzed. The exclusion criteria were the articles lacking the necessary data, interventional and qualitative studies, letters to the editor, reviews, and unavailable studies. Based on the pre-designed form, the required data included the name of the first authors, year of publication, sample size, research setting, questionnaire type, and methodological quality, which were extracted and recorded. Given the use of various questionnaires in the retrieved studies, raw scores were converted into standard scores via the following equation in order to compare the sexual function scores:

$$\text{Transformed Scale} = \left[\frac{(\text{Actual raw score}) - (\text{lowest possible raw score})}{(\text{possible raw score range})} \right] \times 100$$

In the formula above, actual raw score represents the raw scores obtained by summation, lowest possible raw score is the minimum possible raw value, and possible raw score range shows the difference between the maximum and minimum possible raw scores (24).

2.3. Methodological quality assessment

The methodological quality of the retrieved articles was evaluated using 10 items of the Strengthening of Reporting of Observational Studies in Epidemiology (STROBE) checklist, including the article type in terms of the title and abstract, research objective/hypothesis, study setting, inclusion and exclusion criteria, sample size, statistical methods, descriptive data, data interpretation, limitations, and funding. If any of these items are mentioned in the article, it will get a score of one; otherwise it will get a score of zero. Therefore, the final score of the methodological quality of each article

was within the range of 0-10 with the higher scores indicating the higher methodological quality. In addition, the scores within the range of 0-4, 5-7, and 8-10 were interpreted as low, moderate, and high quality, respectively (25).

2.4. Statistical Analysis

Since the scores of the sexual function had a normal distribution, the variance of each study was calculated based on normal distribution, as follows: $\text{var}(\bar{X}) = \sigma^2/n$

The weight of each study was inversely proportional to the variance. The sexual function mean score was evaluated with a 95% confidence interval (CI) and the I² statistic and the Cochran Q test were also used to assess the heterogeneity of the data. The random effects model was used for the I² statistic of higher than 75% or Cochran Q test probability value of lower than 0.05 ($P < 0.05$) (26); otherwise, the random effects model would be utilized. Furthermore, sensitivity analysis was performed to evaluate the stability of the study. A meta-regression model was also employed to assess the relationship between the sexual function scores and mean age of the women, publication year, and sample size. Funnel plots (27) and Egger's method (28) were used to examine the publication bias. Data analysis was performed in the Stata software version 14 and the significance level was set at 0.05.

3. Results

Based on PRISMA guideline in the first stage (identification), 251 articles were retrieved from national and international databases. There were 29 duplicate articles that were removed from the analysis. In the screening stage, after reviewing the abstracts, non-observational studies were excluded from the analysis. Out of the remaining 36 articles, six were excluded due to insufficient information and 19 articles were excluded, which were on non-pregnant women. In total, 11 articles with the overall sample size of 2,657 were selected for the current review (11, 13-22). Figure 1 depicts the process of searching, screening, and selecting the articles.

In a research by Davari-Tanha and co-workers, women's sexual function score was reported separately for each pregnancy trimester (13) while Abouzari Gazafroodi and colleagues, mentioned the results for nulliparous and multiparous women separately (20). In terms of quality, all the articles were excellent (Table 1). Further details are presented in Table 2.

The findings of this meta-analysis revealed that the standard scores of sexual functions in the first, second, and third trimesters were respectively 58.92% (95% CI: 54.08-63.75), 58.09% (95% CI: 53.97-62.21), and 47.70% (95% CI: 39.23-56.18). In five studies, the total score of sexual function was reported to be 48.27 (95% CI: 41.38-56.07) (Figures 2, 3 and 4).

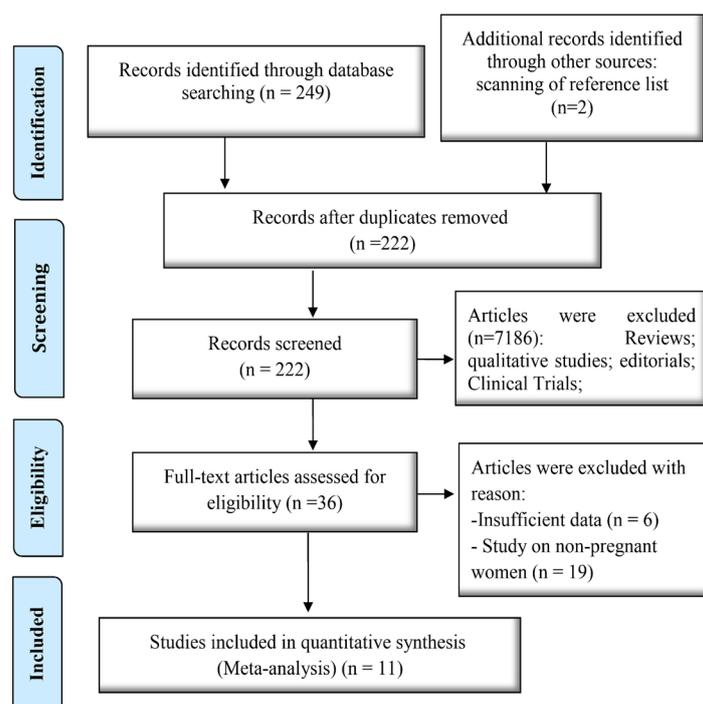


Figure 1: The figure shows the process of selecting selected articles.

Table 1: The methodological quality score of the selected articles

First Author	Title and Abstract	Objectives and Hypotheses	Research Setting	Inclusion Criteria	Sample Size	Statistical Methods	Descriptive Data	Analysis of Findings	Limitations	Funding	Total Score
Davari-Tanha (13)	+	+	+	+	+	+	+	+	-	-	8
Hajnasiri (15)	+	-	+	+	+	+	+	+	+	+	9
Bahrami-vazir (16)	+	-	+	+	+	+	+	+	+	+	9
Hajnasiri (14)	+	-	+	+	+	+	+	+	+	+	9
Bostani Khalesi (17)	+	+	+	+	+	+	+	+	+	-	8
Dadgar (11)	+	+	+	+	+	+	+	+	-	+	9
Nezal (19)	+	+	+	+	+	+	+	+	-	-	8
Jamali (218)	+	+	+	+	+	+	+	+	+	-	9
Arasteh (21)	+	-	+	+	+	+	+	+	-	+	8
Nik-Azin (22)	-	+	+	+	+	+	+	+	-	-	7
Abouzari Gazafroodi (20)	+	+	+	+	+	+	+	+	+	+	10

Table 2: The characteristics of the selected articles

First Author	Year	Sample Size	Place	Scale
Davari-Tanha (13)	2020	45	Tehran	FSFI
	2020	170	Tehran	
	2020	185	Tehran	
Hajnasiri (15)	2020	150	Qazvin	FSFI
Bahrami-vazir (16)	2019	136	Tabriz	FSFI
Hajnasiri (14)	2018	150	Qazvin	FSFI
Bostani Khalesi (17)	2018	123	Rasht	FSFI
Dadgar (11)	2018	241	Mashhad	FSFI
Nezal (19)	2018	300	Qazvin	SQOL-F
Arasteh (21)	2013	196	Sanandaj	FSFI
Jamali (18)	2013	257	Jahrom	FSFI
Nik-Azin (22)	2013	150	Tehran	FSFI
Abouzari Gazafroodi (20)	2012	346	Guilan	FSFI
	2012	208	Guilan	

FSFI: female sexual function index; SQOL-F: sexual quality of life-female

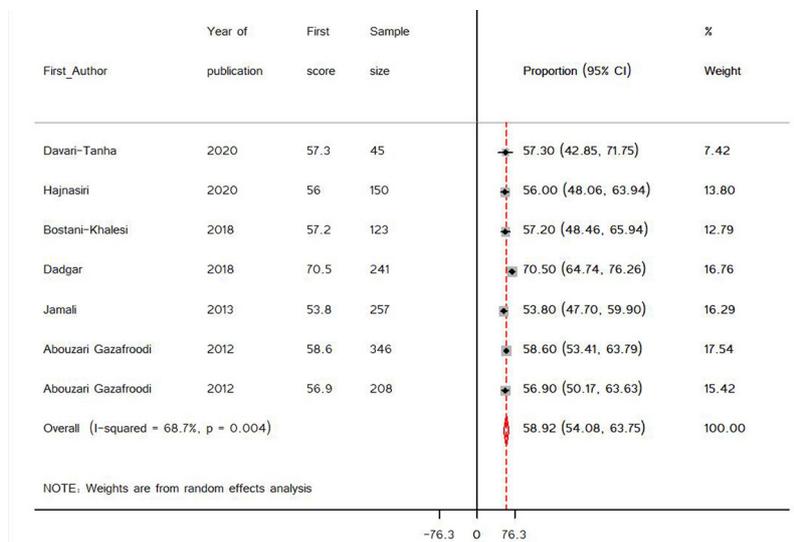


Figure 2: The figure shows pregnant women’s standard sexual function scores in the first trimester.

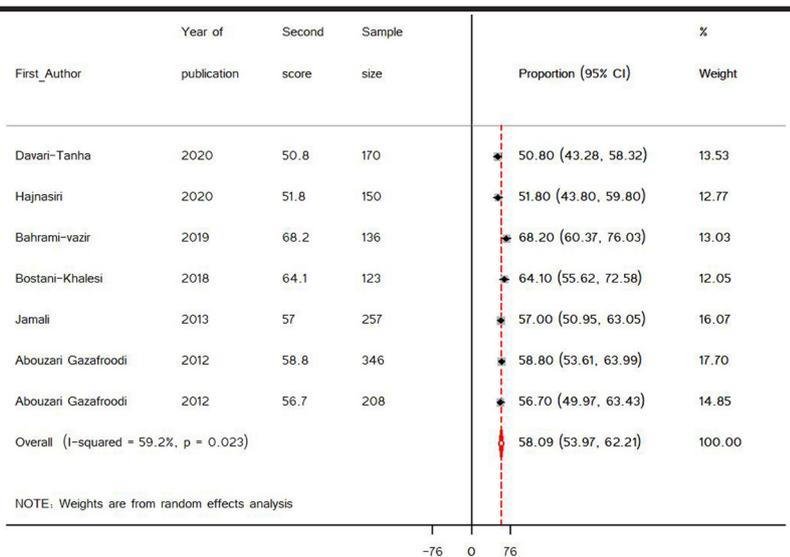


Figure 3: The figure shows the pregnant women’s standard sexual function scores in the second trimester.

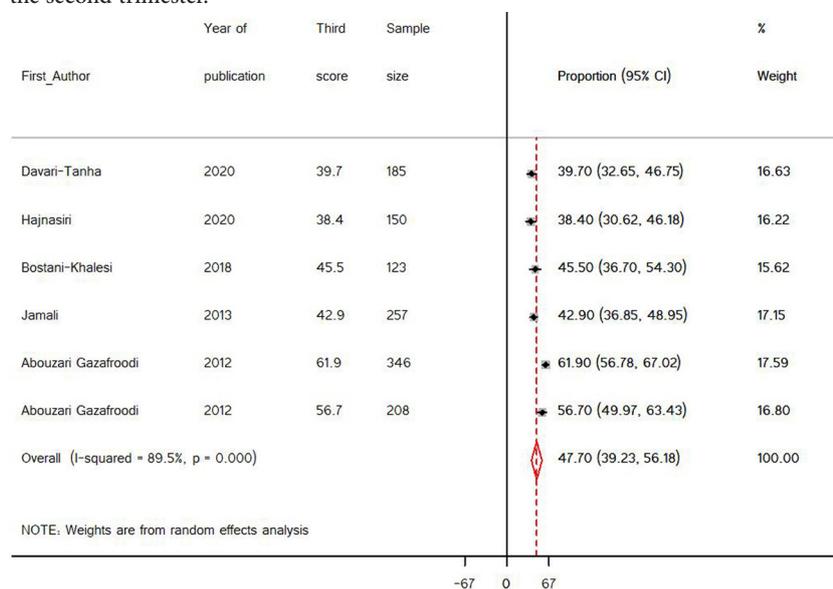


Figure 4: The figure shows standard sexual function scores of pregnant women in the third trimester.

Furthermore, the results of sensitivity analysis indicated that none of the reviewed studies alone had a significant effect on the shared estimation of the sexual function scores in the first, second, and third trimesters and on the total score. However, publication bias was considered significant in the first (P=0.001), second (P=0.009), and third trimesters (P=0.014).

4. Discussion

The present study revealed that the maximum and minimum sexual functions were in the first and third pregnancy trimesters, respectively. In addition, the sexual function score of women decreased with pregnancy progress. In the study by Corbacioglu Esmer and colleagues the mean score of sexual function in the

third trimester sharply reduced, which is consistent with the findings of the present study (29). Certain non-review articles have yielded the similar results. For instance, Aslan and colleagues conducted a research on pregnant women in Turkey and the total scores of the female sexual function index and its subscales were observed to be significantly higher in the first trimester, which could be attributed to physiological and psychological changes (30).

Corbacioglu Esmer and colleagues found that sexual function decreased in the third trimester compared to that in the first and second trimesters (29). According to the findings of Gal zka and colleagues in Poland (3), sexual desire and arousal, lubrication, orgasm, satisfaction, and pain significantly decrease with pregnancy progress. Moreover, Leite and colleagues

conducted a research in Mexico, reporting similar patterns of sexual function in women in the first and second trimesters. However, a significant decrease was observed in this regard in the third trimester (31). Our findings are in line with the results of the above-mentioned studies. Problems such as shortness of breath, weight gain, vaginal dryness, and back pain in the third trimester also seem to justify this finding.

In Egypt, Hashem and co-workers observed sexual dysfunction in 62% of women during pregnancy. Furthermore, the highest sexual function score was reported in the second trimester, which is inconsistent with our findings (32). This discrepancy could be attributed to unpleasant feelings, such as fatigue, nausea and vomiting, emotional changes, and fear of abortion in the first semester, as well as issues, for instance the shortness of breath, vaginal dryness, and back pain in the third trimester. The difference between the results of the two studies may also be on account of varied contexts in Iran and Egypt. In general, sexual issues are completely dependent on culture and could vary largely from one context to another. Another cross-sectional study was performed in Egypt in this regard whereas the current research was a meta-analysis and represented a higher level of scientific evidence. Studies have proposed various results regarding the differences in the sexual function of women in each trimester of pregnancy, with most findings attesting to the higher level of sexual function in the first trimester and its reduction in various dimensions with the progression of pregnancy (11, 13-22). In the United States, Pauls and colleagues reported decreased sexual function during pregnancy, which could not return to the state in the first trimester until six months postpartum (33).

Solberg and colleagues demonstrated that the main cause of decreased sexual function in the second and first pregnancy trimesters was pelvic pain and fear, respectively. In general, the individuals who performed sexual intercourse were mostly afraid of their spouse's infidelity and half of these subjects had negative feelings about continuing their sexual behavior. In addition, more than half of these women abstained from sexual intercourse during the eighth month of pregnancy (34). In another research, Erbil assessed women's sexual function only in the third pregnancy trimester in Turkey, reporting the reduction of all the female sexual function index subscales (except sexual desire) with increased gestational age. According to the literature, contraction,

fear of maternal and fetal damage, and diminished sexual desire could lead to a negative image of sexual relations due to fatigue, weakness, dyspareunia, premature rupture of membranes, or even placenta previa (35). In a research conducted by Seven and colleagues sexual intercourse was reported to decrease by 58.3%, 66.1%, and 76.5% in the first, second, and third trimesters, respectively (36). In another study, sexual function deteriorated in the third trimester, particularly in terms of sexual desire, arousal, and satisfaction. Hormonal and physical changes have been reported to be the most important influential factors in the occurrence of sexual dysfunction in pregnant women, which lead to the lack of attractiveness. Meanwhile, emotional and psychological changes have been shown to reduce interest in sexual intercourse (37). The publication bias was significant in all three trimesters of pregnancy; these should be interpreted with caution due to the limited number of the studies (less than 10 articles) and lack of power (38). One of the major limitations of the present study was that the articles did not contain some of the required data regarding the subject matter. In addition, the grey literature was not included in the analysis since there is a lack of Iranian websites, limiting access to these data.

5. Conclusion

According to the results of this meta-analysis, the maximum and minimum sexual function were observed in the first and third trimesters of pregnancy, respectively, and the score of women's sexual function decreased with the progression of pregnancy. Despite the growing rate of sexual dysfunction among pregnant women through the progression of pregnancy, there are insufficient educational materials in this regard and the misconceptions and changes in the attitudes toward sexual relations are among the other challenges. Our findings could be used as strong scientific evidence for healthcare staff and health policymakers to provide interventions at the policy and educational levels in order to bridge the information gaps and eliminate the misconceptions in this regard, thereby improving the quality of women's sexual life during pregnancy. At the policy level, it is recommended that the quality of sexual life and pregnancy care counseling be investigated and the awareness and empowerment of healthcare staff be promoted.

Conflict of interest: None declared.

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