**Original Article**
The relationship between the Wealth Index and Pregnancy-Related Anxiety in each trimester of pregnancy and their effect on sexual dysfunction

Farzane Alidost¹, Mahrokh Dolatian*,² Jamal Shams³, Malihe Nasiri⁴, Hadi Reisabdollahi⁵, Mona Pakzad⁶, Fatemeh Afsahi⁷

**Abstract:**
**Introduction:** Sexual relationships change due to the physical and psychological changes occurring during pregnancy. Physical, emotional and economic anxieties in pregnancy often affect the couple’s marital relationship and their sexual responses to each other and can thus adversely affect their overall relationship and the family’s mental health. The present comparative study was conducted to examine the relationship between the wealth index and pregnancy-related anxiety in each trimester of pregnancy and their effect on sexual dysfunction.

**Methods:** This cross-sectional study was conducted on 450 pregnant Iranian women in 2016. Data were collected using the Female Sexual Function Index (FSFI), the Pregnancy-Related Anxiety Questionnaire, the Wealth Index and a demographic questionnaire. Data were analyzed in SPSS-23.

**Results:** As gestational age increased, sexual dysfunction increased too. The highest degree of sexual dysfunction was reported in the first and third trimesters. Sexual arousal disorders were reported in all the trimesters and dyspareunia was reported in the second trimester. The greatest pregnancy concerns were reported in the third trimester. As the age of the subjects and their spouse increased, the prevalence of sexual dysfunction also increased and the level of pregnancy-related concerns decreased. A higher wealth index was associated with a reduced pregnancy-related anxiety. Sexual dysfunction was less observed in those with higher levels of education (P<0.05).

**Discussion and Conclusion:** The wealth index can affect sexual performance through the mediating effects of pregnancy-related anxiety.

**Keywords:** Pregnancy-related anxiety; sexual dysfunction; the Wealth Index; trimester of pregnancy

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**Introduction**

Sexual function is considered part of women’s health and is an essential component of life and a multidimensional phenomenon that is affected by many psychological and biological factors. Normal sexual functioning is integral to healthy mental functioning. Sexual dysfunction is defined as a chain of psychosexual disorders that manifest as sexual desire disorder, sexual arousal disorder, orgasmic dysfunction and dyspareunia. The disorder can develop in any individual or after a period of normal functioning and can be generalized or localized and general or specific. Female Sexual Dysfunction (FSD) is one of the most common problems that affects approximately 40-45% of women. Implementing the FSFI has shown that FSD affects 31.5% of Iranian women, with orgasmic disorder, inhibited sexual desire, sexual arousal disorder and dyspareunia being the most common sexual dysfunction problems, in respective order.

Several risk factors are associated with female sexual dysfunction and sexual satisfaction, including mental health, partner’s sexual functioning, personality factors, duration of acquaintance with the sexual partner, infertility, medication therapy, chronic diseases, pelvic surgeries, cancer, pregnancy and the postpartum period.

Factors such as the socioeconomic status of the couple and their families and their family relationships can cause marital conflicts and reduce marital satisfaction. Economic pressures construe one of the factors that can cause conflict among couples and affect their sexual activity. According to Amido et al (2010), economic status plays a major role in the incidence of sexual dysfunction, which is the reason why sexual dysfunction is more likely in people with lower incomes.

Sexual feelings fluctuate throughout life, such as in the transition from pregnancy to the postpartum period. Pregnancy is associated with changes in sexual function that make up a psychosocial crisis. Sexual functioning often decreases during pregnancy and remains low in many women during the postpartum period too. Pregnancy is associated with specific tensions and concerns. Pregnant women worry about managing and adapting to the dramatic physical signs of pregnancy, changes in appearance, changes in personal relationships, the stages of labor and delivery, newborn’s health and potential medical complications and this greater source of stress makes women more prone to stress in life than men. Any type of stress, emotional disturbance or lack of knowledge about physiology and sexual function can have a negative effect on sexual functioning. Today, stressful life events such as marital conflicts, occupational problems and worries about the difficulties of pregnancy are known to contribute to the mental changes experienced by pregnant women. Abd Aziz was showed that stressful circumstances may alter the normal cortisol mechanisms resulting in marked increases in plasma levels.

Since pregnancy involves major changes in both physical and mental health, just as is the case in any other crisis in life, improving mothers’ health depends on understanding these changes and their interactions, which create different clinical taboos in different individuals, and despite the advances in the management of the physical problems of pregnancy, mental health problems remain a major issue in the health of pregnant women. Given the important role of pregnancy-related anxiety as one of the factors affecting sexual functioning, the present comparative study was conducted to examine the relationship between the wealth index and pregnancy-related anxiety in each trimester of pregnancy and their effect on sexual dysfunction.

**Methods**

This cross-sectional study was conducted in 2016 on 450 Iranian pregnant women admitted to select hospitals for receiving prenatal care services. The inclusion criteria consisted of age 15-45, reading and writing literacy, Iranian nationality, the pregnancy being wanted, the pregnancy not being high-risk according to obstetric definitions, no medical restrictions on intercourse during pregnancy, living with the partner, no history of alcohol consumption, smoking or use of medications affecting sexual desire (such as antidepressants and blood pressure medications) and no history of known physical or mental diseases.

**Measures**

Data were collected using a demographic form, a wealth index, the Female Sexual Function Index (FSFI) and the Pregnancy-Related Anxiety Index.
Table 1. The mean and standard deviation of participants’ demographic characteristics in the study

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>27.6</td>
<td>5.41</td>
</tr>
<tr>
<td>Spouse’s age</td>
<td>32.26</td>
<td>5.71</td>
</tr>
<tr>
<td>Education (per Year)</td>
<td>10.25</td>
<td>3.91</td>
</tr>
<tr>
<td>Husband’s education</td>
<td>10.13</td>
<td>3.32</td>
</tr>
<tr>
<td>Wealth Index</td>
<td>3.95</td>
<td>1.02</td>
</tr>
</tbody>
</table>

Table 2. Pregnancy-related anxiety by trimester

<table>
<thead>
<tr>
<th>Pregnancy-related anxiety</th>
<th>First trimester</th>
<th>Second trimester</th>
<th>Third trimester</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>mean</td>
<td>26.71</td>
<td>25.83</td>
<td>28.55</td>
<td>27.08</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>19</td>
<td>15.32</td>
<td>19.15</td>
<td>17.95</td>
</tr>
</tbody>
</table>

The results also indicate that sexual dysfunction increases with gestational age (Table 3).

Table 3. The prevalence of sexual dysfunction by trimester

<table>
<thead>
<tr>
<th>sexual dysfunction</th>
<th>First trimester</th>
<th>Second trimester</th>
<th>Third trimester</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>22.74</td>
<td>23.18</td>
<td>19.94</td>
<td></td>
</tr>
<tr>
<td>Standard deviation</td>
<td>11</td>
<td>11.20</td>
<td>10.37</td>
<td></td>
</tr>
</tbody>
</table>

The sexual dysfunction analysis in the trimesters revealed the highest sexual dysfunction in the domain of arousal in the first and third trimesters, in the domain of pain in the second trimester and in the domain of arousal throughout the entire period of pregnancy (Table 4).

Table 4. The prevalence of sexual dysfunction in terms of each domain by trimester

<table>
<thead>
<tr>
<th>Frequency</th>
<th>First Trimester</th>
<th>Second Trimester</th>
<th>Third Trimester</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent</td>
<td>Frequency</td>
<td>Percent</td>
<td>Frequency</td>
<td>Percent</td>
</tr>
<tr>
<td>Satis-</td>
<td>Yes</td>
<td>37</td>
<td>25.5</td>
<td>21.4</td>
</tr>
<tr>
<td>No</td>
<td>108</td>
<td>74.5</td>
<td>114</td>
<td>78.6</td>
</tr>
<tr>
<td>Pain</td>
<td>Yes</td>
<td>63</td>
<td>43.4</td>
<td>64</td>
</tr>
<tr>
<td>No</td>
<td>82</td>
<td>56.6</td>
<td>81</td>
<td>55.9</td>
</tr>
<tr>
<td>Orgasm</td>
<td>Yes</td>
<td>61</td>
<td>42.1</td>
<td>60</td>
</tr>
<tr>
<td>No</td>
<td>84</td>
<td>57.9</td>
<td>85</td>
<td>58.6</td>
</tr>
<tr>
<td>Desire</td>
<td>Yes</td>
<td>59</td>
<td>40.7</td>
<td>50</td>
</tr>
<tr>
<td>No</td>
<td>86</td>
<td>59.3</td>
<td>95</td>
<td>65.5</td>
</tr>
<tr>
<td>Arousal</td>
<td>Yes</td>
<td>69</td>
<td>47.6</td>
<td>63</td>
</tr>
<tr>
<td>No</td>
<td>76</td>
<td>52.4</td>
<td>82</td>
<td>56.6</td>
</tr>
<tr>
<td>Lubrication</td>
<td>Yes</td>
<td>51</td>
<td>35.2</td>
<td>51</td>
</tr>
<tr>
<td>No</td>
<td>94</td>
<td>64.8</td>
<td>94</td>
<td>64.8</td>
</tr>
</tbody>
</table>

4- The Female Sexual Function Index (FSFI):

This 19-item questionnaire evaluated female sexual function in six domains, including desire (items 1-2), arousal (items 3-6), lubrication (items 7-10), orgasm (items 11-13), satisfaction (items 14-16) and pain (items 17-19). Each item was scored from 1 to 5 in the desire domain and from 0 to 5 in the arousal, lubrication, orgasm, satisfaction and pain domains. The score of each domain was calculated by summing the scores of the items and multiplying the value by the coefficient of the domain.
The relationship between the Wealth Index and Pregnancy-Related Anxiety in each trimester of pregnancy and their effect on sexual dysfunction

Table 5. The correlation between sexual dysfunction and the other independent variables in each trimester

<table>
<thead>
<tr>
<th></th>
<th>First Trimester</th>
<th>Second trimester</th>
<th>Third Trimester</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Age</td>
<td>Spouse’s Age</td>
<td>Education</td>
</tr>
<tr>
<td>Age</td>
<td>1</td>
<td>787. <strong>0</strong></td>
<td>0.053</td>
</tr>
<tr>
<td>Spouse’s Age</td>
<td>0.009</td>
<td><strong>0.675</strong></td>
<td><strong>0.503</strong></td>
</tr>
<tr>
<td>Education</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Husband’s Education</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Wealth Index</td>
<td><strong>0.251</strong></td>
<td>-0.074</td>
<td><strong>-0.247</strong></td>
</tr>
<tr>
<td>Stress</td>
<td>1</td>
<td>0.017</td>
<td>0.017</td>
</tr>
<tr>
<td>Sexual Dysfunction</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Age</td>
<td>0.721 **</td>
<td>0.024-</td>
<td>0.046</td>
</tr>
<tr>
<td>Spouse’s age</td>
<td>0.045-</td>
<td><strong>0.646</strong></td>
<td><strong>0.443</strong></td>
</tr>
<tr>
<td>Education</td>
<td>1</td>
<td><strong>0.447</strong></td>
<td>0.063</td>
</tr>
<tr>
<td>Husband’s education</td>
<td>1</td>
<td><strong>0.447</strong></td>
<td>0.138</td>
</tr>
<tr>
<td>Wealth Index</td>
<td>1</td>
<td>0.138</td>
<td>1</td>
</tr>
<tr>
<td>Stress</td>
<td>1</td>
<td><strong>0.041-</strong></td>
<td>0.015</td>
</tr>
<tr>
<td>Sexual Dysfunction</td>
<td>1</td>
<td></td>
<td><strong>0.041-</strong></td>
</tr>
</tbody>
</table>

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

The score of sexual desire ranged from 1.2 to 6 and the scores of the other domains ranged from 0 to 6. Higher scores indicated a better sexual function. Based on this questionnaire, a total score equal to or less than 26.5 was taken to indicate a case of FSD24. Mohammadi et al. confirmed the reliability and validity of the FSFI for assessing female sexual function in Iran in 200825.

**Procedure**

After the research project was approved, permissions were obtained from the authorities of the School of Nursing and Midwifery of Shahid Beheshti University of Medical Sciences and the university officials, and a letter of introduction was obtained after receiving the ethics code (SBMU2.REC.1394.91) from the Joint Committee on Ethics of the Schools of Nursing and Midwifery and Pharmacy. The subjects were selected through random sampling. Four hospitals (Shohada-e Tajrish, Taleghani, Baharloo and Arash hospitals) were selected from three regions in Tehran, Iran, and quotas were allocated to those visiting each hospital and the researcher randomly selected different days of the week to visit each hospital. The researcher then visited the prenatal clinics of the selected hospitals, presented the introduction letter and permissions to the authorities and obtained their permission too. The patients were then evaluated in terms of their...
eligibility criteria and informed consent forms were obtained from the eligible candidates and they were briefed on the study objectives and were ensured of the confidentiality of their data and the voluntary nature of participation. The samples then completed the data collection instruments. A total of 150 eligible pregnant women participated in the study from all three trimesters of pregnancy. After collecting the questionnaires, data were analyzed using descriptive indices and Pearson’s correlation test.

Results

The study was conducted on 450 samples whose demographic information is presented in Table 1.

The results of the study on the amount of pregnancy-related anxiety in the trimesters suggested a higher mean score of pregnancy-related anxiety in the third trimester than in the first and second trimesters (Table 2). In the first and third trimesters, pregnant mothers were most concerned about their own health and least about their maternal-fetal attachment. In the second trimester, they were mostly concerned about childbirth and least about maternal-fetal attachment.

In the first trimester of pregnancy, the subjects’ age had a significant negative correlation with sexual dysfunction; that is, an increased age was associated with a lower score in the FSFI and thereby an increased degree of sexual dysfunction. The spouse’s age also showed a significant negative correlation with sexual dysfunction. The wealth index also showed a significant negative correlation with pregnancy-related anxiety. In the second trimester, the level of pregnancy-related anxiety decreased with the age of the subjects and their spouse. In the third trimester, an increase in the age of the subjects and their spouse decreased the level of pregnancy-related anxiety and increased sexual dysfunction. Sexual dysfunction was also reduced as the subjects’ level of education increased (Table 5).

Discussion

According to the findings of the present study, an increased gestational age increased pregnancy-related anxiety and the highest level of anxiety was observed in the third trimester. Women experience severe fatigue in the first trimester and the increase in their estrogen levels makes their mood unstable. Nausea, vomiting and fear of abortion cause problems, but most women gradually get used to them. The second trimester of pregnancy is more rewarding for women, because they feel comfortable and excited when the problem of nausea and vomiting are relieved and their previous strength is restored and as they begin to feel the movements of the fetus. The last trimester of pregnancy is more demanding and distressing. The pain and fears of childbirth are closely associated with the pregnant woman’s anxiety in this trimester.

Sexual dysfunction increased with gestational age. In a study by Bayrami et al., 66.3% of women had sexual dysfunction in the first trimester, 50.7% in the second trimester and 69.2% in the third trimester, and sexual desire disorder was the most common sexual dysfunction in all three trimesters. Shishehgar et al. (2014) reported a 68% prevalence of sexual dysfunction in the first trimester and a 72% prevalence in the third trimester, which were both significantly higher than in the second trimester (51%). Naldoni et al. similarly argued that sexual function reduces linearly during pregnancy from the first trimester to the third.

In the first trimester of pregnancy, factors such as fatigue, nausea, vomiting, dyspareunia and changes in the woman’s mental image are possible causes that reduce the pregnant woman’s sexual desire. In the second trimester, since the pregnant woman is more emotionally stable than in the previous trimester and because she experiences vascular changes in the pelvis and her feelings of nausea have disappeared, the quality of orgasm increases for her. Moreover, psychiatric disorders and anxiety decrease in this period, and this reduction may have a positive effect on sexual function. Kardi et al was shown religiosity, spirituality and the meditation practice have significant effects to the physical and mental health. In the third trimester, concerns about childbirth and fetal health and the discomfort created by an enlarged stomach are exacerbated. In this period, the sexual activity of many couples is reduced or completely stopped and the couple’s marital and sexual relationship is thus disrupted. Feeling physically unattractive, especially to the spouse, and an altered mental body image can lead to an unenjoyable sexual intercourse. The progression of pregnancy thus gradually decreases sexual desire, the frequency of intercourse, the frequency of orgasm and sexual satisfaction in most women.

Sexual dysfunction was mostly observed in the
domain of arousal in the first and third trimesters
and in the domain of pain in the second trimester.
In a study by Shishehgar et al. (2014), sexual desire
decreased in the first trimester, fluctuated in the
second and again declined in the third trimester.
Sexual arousal, lubrication and orgasm decreased
significantly in the third trimester. Sexual satisfaction
was significantly lower in the first trimester than in
the second and third trimesters, but dyspareunia was
more frequent in the second trimester than in the first
and third trimesters.

The subjects’ mean age was 27.6 years in this study.
In the first and third trimesters, sexual dysfunction
increased with the age of the subjects and their
spouses. Mohammadi et al. (2008) suggested age as
a risk factor that increases the prevalence of sexual
problems. Similarly, Hosseini (2010) suggested
that sexual desire and the frequency of intercourse
gradually decrease with age and lead to a reduced
satisfaction and increased sexual dysfunction. Age
also affects the sexual response cycle and the
physiology of marital relationships and creates
hormonal changes. As a result, sexual desire and
the frequency of intercourse decrease and ultimately
lead to a reduced marital satisfaction.

In the first trimester of pregnancy, pregnancy-related
anxiety decreased with an increase in the wealth
index. Dolatian et al (2014) also showed that a higher
socioeconomic status reduces pregnant women’s
anxiety. Bradley and Corin (2002) explained the
relationship between socioeconomic status and
well-being by a number of processes –most notably
the access to material and social resources and the
response to the tensions imposed through different
sources. The socioeconomic status of the individual
might affect anxiety and the chance of coping with
stress and difficult life conditions as a long-term
source. Nonetheless, social inequality in health can
be explained indirectly by way of stress. The results
of the study by Yousefnezhad et al. Also showed
a positive relationship between mental distress,
including depression and economic pressures.

In the third trimester of pregnancy, an increase in the
subjects’ level of education reduced the incidence of
sexual dysfunction. Women with higher education
complain less about the lack of sexual pleasure
and experience lower sexual anxiety and higher
marital satisfaction compared to women with lower
education, which may be due to their increased
knowledge, which can cause greater marital and
sexual satisfaction.

**Conclusion**

Since certain demographic characteristics and
the wealth index were found to affect pregnancy-
related anxiety, it appears that pregnancy-related
anxiety is indirectly related to sexual dysfunction.
Since pregnancy is a risky and stressful period in
women’s life, and considering that sexual desire
and function are part of women’s health, efforts to
reduce pregnancy-related anxiety and enable the
continuation of sexual activity during this period
are an undeniable necessity for achieving marital
satisfaction.

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