



## Evaluation the Anxiety Status of Pregnant Women in the Third Trimester of Pregnancy and Fear of Childbirth and Related Factors

Tayebbeh Nekoe<sup>1</sup> and Mohammad Zarei<sup>2\*</sup>

<sup>1</sup>Department of Midwifery, Quchan Branch, Islamic Azad University, Quchan, Iran.

<sup>2</sup>Faculty Member of Nursing Department, Shirvan Nursing Faculty, North Khorasan University of Medical Sciences, Bojnurd, Iran.

### Authors' contributions

This work was carried out in collaboration between both authors. Author TN designed the study, wrote the protocol, and wrote the first draft of the manuscript. Author MZ managed the literature searches, analyses of the study performed. Both authors read and approved the final manuscript.

### Article Information

DOI: 10.9734/BJMMR/2015/19784

#### Editor(s):

(1) Chan Shen, Department of Biostatistics, MD Anderson Cancer Center, University of Texas, USA.

#### Reviewers:

(1) Ndie Elkenah Chubike, Department of Nursing Science, Ebonyi State University, Nigeria.  
(2) Anonymous, Hungary.

Complete Peer review History: <http://sciencedomain.org/review-history/10300>

Original Research Article

Received 26<sup>th</sup> June 2015  
Accepted 14<sup>th</sup> July 2015  
Published 24<sup>th</sup> July 2015

### ABSTRACT

**Aims:** The present study has been conducted with the aim of evaluating the anxiety status of pregnant women in the third trimester of pregnancy and fear of childbirth and related factors.

**Methodology:** This longitudinal study was conducted in 2014 on 186 pregnant women attending health centers of Quchan city for receiving routine prenatal care. Demographic questionnaire, Glomberg questionnaire for the fear of birth and marital satisfaction-right (Grimes) and Spielberg State and Trait questionnaire were used on 3 occasions in the third quarter for data collection. Data were analyzed using the statistical package SPSS (version 20), analysis of variance test, T-test and one-way analysis of variance (ANOVA). P value of less than 0.05 was considered significant.

**Results:** According to the results, 47.2% of mothers suffered from moderate and severe anxiety and 43.5% suffered from covert moderate and severe anxiety. Average anxiety in pregnant women in the third round was more than the first and second round and this difference was statistically

\*Corresponding author: Email: [m.zarei51@yahoo.com](mailto:m.zarei51@yahoo.com);

significant ( $F=10.33$ ,  $P<0.002$ ). In addition, there was a statistically significant correlation between age, educating level, employment status, abortion record, marital satisfaction and fear of childbirth ( $P<0.05$ ), but there was no statistically significant correlation between factors such as number and type of delivery ( $P<0.05$ ).

**Conclusion:** The results further indicated that maternal anxiety and trait increases with pregnancy age. Therefore, health care providers' awareness of changes to mental health status of pregnant women is very important for the formulation of appropriate policies and measures to promote mental health during pregnancy.

*Keywords: Anxiety; pregnancy; childbirth; overt anxiety; covert anxiety.*

## 1. INTRODUCTION

Because of creating permanent changes in women's lives and new children responsibilities, pregnancy causes a lot of mental conflicts and feeling so double integration in pregnant women is a natural trend of this period. However, in some women these feelings are more intense and lead them to childbirth anxiety and pregnancy related anxiety [1]. Consequently, it provides a unique opportunity for the development of anxiety and depression which are considered to be the most common mental disorders in pregnancy. Anxiety during pregnancy can cause serious consequences such as premature birth, low birth weight, fetal distress and some neonatal abnormalities such as stenosis pyloric [2].

Moreover, the pregnant woman anxiety affects her and causes negative perceptions of labor, unnecessary fears about the child birth and becoming mother, or self-medicate with alcohol or activity limitation and the increase is unnecessary cesarean [3]. Fear and anxiety causes the release of catecholamines followed by long-term ineffective delivery pains, improper functioning of the muscles of the uterus, irritability, restless of children [4].

Anxiety as part of human life is considered to be an adaptive response and is a state that every man experiences as a result of pressure or stress, but sometimes anxiety doesn't fit with the place and time and leads to the appearance of warning and destructive symptoms [1]. Anxiety is one of the most common neuropsychiatric diseases disorders in which some psychiatrists and psychoanalysts search for most of the mental disorders [5]. Several studies have examined the psychiatric disorders including anxiety during pregnancy and have reported different prevalence of anxiety. For example, the prevalence of anxiety in Sweden is 22% [6], in Bangladesh 23% [7], Pakistan 22.2% [8], in

Brazil 13.1% (overt anxiety), and 21.3% (covert anxiety) [9] and in Iran, Babol 23.3% (overt anxiety) [10], the Lar 38% (overt anxiety) and 23% (covert anxiety) [11], 33% in Sarri (overt anxiety) and 22% (covert anxiety) [12] and in Qom 22.2% (covert anxiety) and 32.5% (overt anxiety) [13] and in Bandar Abbas 42.6% (overt anxiety) 45.3% (covert anxiety) [14] have been reported.

Many women suffer from fear and anxiety during pregnancy which is more likely due to the concerns about the health of the fetus, changes in marital relations and problems in accepting new role of mother. Such anxiety during that third trimester is more concerned with childbirth, which may be due to the formation of the physical changes related to pregnancy and child birth that seems to be an out of control process [4]. According to the World Health Organization, teenage pregnancy, unwanted pregnancy, previous history of child death or recurrent miscarriage, first time being pregnant, pregnancy due to rape, poor and improper relationships with family members and women whose marriage is not registered or been separated is among the risk factors in the development of anxiety during pregnancy [14].

Some researchers believe that the high level of anxiety in pregnant women in the first quarter declines in these end quarter but in the third trimester of pregnancy and by getting closer to the delivery time goes back to the original level [5]. Some researchers believe that level of anxiety is only high in the third trimester have reported no differences between the first trimester anxiety [15] and the second trimester anxiety and some have also reported more anxiety in the second and third trimester [16]. In contrast to the above studies, Babanazari et al. [5] have considered anxiety levels in the first trimester to be below the second trimester. Despite the relatively high prevalence of anxiety disorders in women of childbearing age, less

attention has been given to such disorders during pregnancy [17]. Unfortunately, despite the increased public awareness and planning of worthwhile measures to improve the physical health of pregnant women, not much attention has been paid to pregnant women mental health during pregnancy while physical health depends on mental health and maternal mental health guarantees family and child health, which will be born soon. Therefore, testing anxiety pregnancy and evaluating the anxiety changes of pregnancy and clinical factors associated with it is necessary.

The present study has been conducted with the aim of evaluating the anxiety status of pregnant women in the third trimester of pregnancy and fear of childbirth and related factors.

## **2. MATERIALS AND METHODS**

In the current longitudinal study, mothers who were on 29-32 weeks of pregnancy based on the first day of the last menstrual period or by ultrasound in the first trimester referred to health centers of Quchan city in 2014 for receiving routine prenatal care, were selected by convenience sampling method. The sample size in this study was obtained by regarding the 95% reliability and accuracy of 0.05, and through using the formula for sample size of 186 patients. Given the lengths of the selection procedure and calculation of probable loss of sample, 240 mothers were considered among which 186 patients were studied at the end of the study. Research environment constituted of all health centers in Quchan city (8 units).

Thus, the researcher continually visited these centers on all days of the week except holidays from the start of office hours to its end (in rotation) and for the first stage of filling the questionnaire started sampling from the pregnant women who were referring for receiving prenatal care. Inclusion criteria into this study included: Iranian nationality, no history of mood disorder known or thought, not taking anti-depressants and anti-anxiety drugs, not having a chronic disease and high-risk pregnancy, single pregnancy and being in 29-32 pregnancy week. It is worth mentioning that the questionnaire of demographic, fear of delivery and marital satisfaction was only completed in the first time (29-32 weeks) by self-reporting and if necessary by interviewing the samples.

In the present study, maternal anxiety on three occasions (29-32 weeks, 33-36 weeks and 37-42

pregnancy weeks) were measured over time and the relationship between average anxiety on three occasions with individual maternal variables and marital satisfaction and fear of childbirth were investigated. Mothers with complete or incomplete questionnaires or mothers who were absent in the third phase of completing the questionnaires were excluded from the study. Sampling continued from mid-April to late October 2014.

Data collection tool of this study included a demographic questionnaire, marital status questionnaire, fear of childbirth questionnaire and Spielberg State and Trait Inventory questionnaire. After stating the purpose and importance of the study to the subjects and receiving the written consent of the participants, first the demographic questionnaire was completed which included information on pregnancy age, age, occupation and education level of the mother, planned or unplanned pregnancy, number of births and history of abortion.

In anxiety literature, there is a distinction between overt and covert forms of anxiety; covert anxiety is the overall talent of responding to many of the situations with high level of anxiety. On the other hand, overt anxiety is more specific and refers to a person anxiety at a particular moment. Spielberg State and Trait questionnaire are that included of two parts of overt anxiety measurement and covert anxiety.

The questionnaire contains 40 questions from which 20 short questions are related to overt anxiety and 20 questions related to covert anxiety and each question has four options and to each option a score between 1-4 is allocated and is measured on a scale of 20 to 80. This questionnaire has been used in several studies to determine maternal anxiety [14]. For determining the reliability of the instruments the Cronbach's alpha formula was used and 0.91 reliability was obtained.

To measure fear, Terhy Saissto fear of childbirth questionnaire was used. This questionnaire was developed in 2001 by Saissto et al. and then in 2007 at the University of Helsinki of Finland its reliability was confirmed by calculating alpha coefficient ( $\alpha = 0.72$ ). The questionnaire contained 11 closed answer questions of two sets of values and the minimum value of zero and a maximum of 11 points, the score 6 or more is representative of fear of Childbirth [18,19].

Golombok Rust Marital status questionnaire (GRIMS): To assess marital satisfaction, Golombok questionnaire-Rust was applied [1]. The questionnaire explored the relationship between a couple and contains 28 multiple-choice questions. The options are scored from zero to three. Therefore, the total score is between zero and 84. High score indicates the deterioration of marital status. Based on the scores of less than 33 were divided into satisfied groups and scores more than 34 were divided into dissatisfied groups [5].

Interfering factors such as non-Iranian nationality, history of mood or thought disorders or unknown way of thinking and antidepressant consumption, history of infertility before the pregnancy, stillbirths, severe adverse events such as losing a loved one, or serious medical conditions that were newly diagnosed during pregnancy that patients with these events were excluded.

Data were analyzed using SPSS (version 20) and descriptive statistics such as indicators of frequency distribution, mean and standard deviation were used. For evaluating average maternal anxiety for the three stages of analysis of variance with repeated measures, the relationship between maternal overt and covert anxiety with type of pregnancy, employment status, maternal history of abortion, fear of childbirth and marital satisfaction, t-test was used and for analyzing the relationship between other factors such as education, maternal age, parity with maternal overt and covert anxiety, one-way ANOVA was applied and Tukey's test was applied to compare average anxiety.

In the current study, for protecting participants' privacy, the researcher used codes and assured them that they are free to opt out of further cooperation in the process of the investigation. Level of significance was set at less than 0.05.

### 3. RESULTS AND DISCUSSION

The mean age of subjects was 26.6±4.76 and they were between the age range of 16-44. 44.6 percent were nulliparous women. In most cases pregnancy was wanted (79.9) and 79.6% of them didn't have history of abortions. 25.4% have a college education and 25.2% are employed. Based on the obtained scores, overt and covert anxieties were grouped on 3 levels of mild (20-42), medium (43-52) and severe (more than 53). 88 pregnant women (47.3%) suffered from

moderate to severe overt anxiety and 83 mothers (44.5%) in the group had moderate to severe covert anxiety (Table 1).

**Table 1. Distribution of absolute and relative intensity of overt and covert anxiety scores of pregnant women in the third trimester of pregnancy**

Grade severity	Overt anxiety	Covert anxiety
Mild	98 (52.7%)	103 (55.5%)
Moderate	49 (26.4%)	46 (24.7%)
Sever	39 (20.9%)	37 (19.8%)
Sum	186 (100.0%)	186 (100.0%)

ANOVA with repeated measures for comparing the mean anxiety score for each measure indicated a statistically significant difference between average overt and covert anxiety on three occasions (F=10.33, P=0.002). Tukey test was applied for ranking the statistical differences and it showed that the highest average score of anxiety is in the third round (37-42 pregnancy week) and the least anxiety is in the first time (weeks 29-32), and this difference is statistically significant (P=0.011).

Based on the results of analysis of variance for individual variables such as maternal age, education level, number of deliveries, there was a significant relationship between maternal age and education level of the mother with mean of maternal overt and covert anxiety (P=0.01), but there was no significant relationship between number of births and maternal overt and covert anxiety (P=0.023).

In addition, that-test was also used for other individual maternal variables and the results indicated a significant relationship between being employed and the number of previous abortions with mean of overt and covert anxiety, but there was no relationship with the intentionally or unintentionally delivery (Table 2).

The results of analyzing the frequency of overt moderate and severe anxiety (47.2) and covert moderate and severe anxiety (43.5%) are consistent with other studies conducted in Bandar Abbas 42.6% (overt anxiety) and 45.3% (covert anxiety) [14] and Alipour et al. [13] study (2010) in Qom, %40.4 covert anxiety. According to the World Health Organization, the prevalence of mental disorders in pregnant women is about 12.5 – 42 percent [20].

A factor in predicting gestational age was maternal anxiety. With regard to the fact that

19.3 percent of mothers were less than 20 years and 5.7 percent over 35 years of age, mothers under 20 years of age had the highest mean score of anxiety in both dimensions. According to the results of the analysis of variance, the lower the maternal age is, the higher pregnancy anxiety is ( $P=0.01$ ). This finding fits with Green et al. [21], Glazier et al. [22], Niazi et al. [23] and suggests that getting pregnant at a young age is one of the factors threatening the mental health of the women since mothers who are still dependent on their relatives and are unable to meet their own needs will undoubtedly face with the problem of meeting their children needs. This leads to dual feelings to the child and they will experience anxiety and psychological distress [24]. In Cheung et al. study maternal anxiety and age were inversely related meaning that younger mothers had less anxiety while in others studies higher maternal age were linked to pregnancy anxiety and depression [25]. With regard to the impact of the number of previous births, no relationship was found between overt and covert anxiety and parity [5,8].

The results of the present study were used to investigate the relationship between the level of anxiety in the third quarter with education level and they showed that mothers with a college education had the lowest mean score of anxiety which are consistent with Babanazari et al. [5], Green et al. [21], Glazier et al. [22] but the results are not in harmony with Niazi et al. [23] and Sadeghi et al. [14] who didn't find a significant relationship in this field and the results obtained by Nasreen et al. [7] who considered higher education with higher anxiety. In Bazrafshan et al. [11] and Alipur et al. studies [13], women with less education experienced higher overt and covert anxiety during pregnancy. Given the findings of this study it can be said that higher education through the medium of a series of intermediaries improves mental health in every period of life. Higher education increases emotional and cognitive and intellectual skills for coping with stress and life difficulties, expand one's social net works and reduces the risk of psychiatric disorders such as anxiety in different life situations [20]. It is worth mentioning that more knowledge and information, sometimes prepare the ground for increased anxiety, as ignorance of a phenomenon can causes anxiety. This could be the reason for disagreement between these findings and that of other studies. In the present study, there was a significant relationship between working women and housewives mean anxiety score ( $p=0.023$ ) which

are in agreement with the findings of Claesson et al. [6] and Nasir Amiri et al. [10]. They believe that working women experience less anxiety compared to housewives which is consistent with the present study. While in the study of Babanazari et al. [5], Sadeghi et al. [14] and Alipur et al. [13] no relationship was found between employment status and pregnancy anxiety [16].

Being employed and conflicts between working and the new role of the motherhood, can disrupt the mother's mental balance.

Further more, there was a significant relationship between history of abortion and maternal anxiety in both overt and covert forms ( $P=0.01$ ). In Bazrafshan et al. [11] and Kurki et al. [26] studies similar results were found in Finland. In Nasreen et al. [7], Babanazari et al. [5] and Sadeghi et al. [14] studies, the relationship between the frequencies of abortion and anxiety were measured, the frequency of abortion was not significantly associated with maternal overt and covert anxiety. This is while some other studies showed that history of repeated abortion is among the risk factors in pregnancy anxiety outbreak [8,27].

In the present study, 79.9 percent of mothers had wanted pregnancy and in harmony with the results of Babanazari et al. [5] and Sadeqi et al. [14] no significant relationship was found between the wanted and unwanted pregnancy.

It is worth mentioning that in this study, 44.6 of women were nulliparous and the remaining had at least the experience of one childbirth which is in agreement with the results of Nasreen et al. research that 28% of mothers were nulliparous [7], Foruzandeh et al. [16], Sadeghi et al. [14] and Babanazari et al. [5] were consistent.

This study showed that marital satisfaction was the strongest predictors of maternal anxiety during this period, that is the group with higher marital satisfaction had lower pregnancy anxiety mean. This relationship emphasizes the very important role of husbands on alleviating or worsening pregnancy anxiety. This finding is consistent with research findings of Glazier et al. [22], Johnson et al. [28], Babanazari et al. [5]. The stressing relationship or being abused by a spouse may increase the risk of mental health problems for women during pregnancy. A poor marital relationship is the most consistent predictor variables of anxiety and other mental

health problems during pregnancy. Therefore, one of the most important factors in women adaptation with emotional stress is the emotional support of marital partner during pregnancy and a secure marital environment. Lack of attachment to the family and in general the presence of disorders in a marital relationship can increase anxiety and a version of pregnancy which can lead to poor health in pregnant women [5].

The present study aimed to investigate the relationship of anxiety with fear of childbirth in the third quarter and showed that the overt and covert mean score in women who have a fear of childbirth was significantly higher and a significant correlation was obtained. Saisto et al. [18] and Poikkeus et al. [29] and Alipur et al. [13] study reported a significant relationship between anxiety during pregnancy and childbirth, which confirms the results of the present study. Among

the limitations of the study these points can be noted. That is in this study, for measuring fear of childbirth and anxiety only self-report questionnaires of anxiety and fear of childbirth were used and the scores obtained from the questionnaires only determined the likelihood that these individuals were prone to fear of childbirth and anxiety and for future studies it's better to investigate the clinical investigation and diagnosis of the secures simultaneously. The second point is that the long questionnaires took a lot of time from pregnant women and given the physical conditions of them during this period, some of them refused to complete exams. Due to this limitation, in future studies shorter form of the pregnancy anxiety questionnaire should be used in. Also, given that only city inhabitants were studied and the examined women were in a quite narrow age-group, thus the effect of older age could not be determined.

**Table 2. Analyzing the relationship between individual maternal variables and overt and covert anxiety in the third trimester of pregnancy**

	Variables	Prevalence (n)	Prevalence (%)	Overt anxiety mean±SD	Covert anxiety mean±SD	p value
<b>Age</b>	≤20	36	19.3	46.37±8.83	45.67±9.13	
	21-25	52	27.9	43.37±7.32	44.34±6.81	
	26-30	58	31.1	41.14±5.83	42.24±8.78	0.021*
	31-35	20	10.7	41.56±5.89	42.12±6.87	0.01**
	≥35	14	7.5	41.87±10.33	42.17±10.42	
<b>Education</b>	Primery	72	38.7	44.47±12.73	45.75±11.93	0.004*
	Mid school	43	23.1	44.68±11.03	45.46±12.09	0.012**
	High school	16	8.6	41.97±9.24	42.07±11.53	
	Callege	55	25.4	39.97±12.23	38.14±11.83	
<b>Employment status parity</b>	Housewive	133	74.7	46.54±12.86	45.37±6.23	0.003*
	Employed	47	25.3	41.53±11.17	34.26±5.08	0.023**
	0	83	44.6	40.64±12.89	39.09±8.87	0.71*
	1	56	30.1	40.27±9.05	41.18±10.28	0.28**
	2	24	12.9	43.56±9.63	44.98±10.07	
<b>History of abortion pregnancy</b>	≥3	18	9.7	49.09±14.98	48.58±12.84	
	Yes	38	20.4	45.67±13.43	46.08±11.03	0.01*
	No	148	79.6	46.06±12.53	47.17±11.15	0.006**
	Wanted	148	79.5	44.87±12.53	45.08±11.85	0.45*
<b>Marital satisfaction fear of childbirth</b>	Unwanted	38	20.5	44.27±6.13	43.73±7.04	0.18**
	Yes	123	66.1	32.17±12.07	33.63±10.52	0.002*
	No	63	33.9	47.15±10.09	46.97±11.67	0.029**
	Yes	49	26.4	48.07±13.15	47.47±11.05	0.005*
	No	137	73.6	34.17±8.37	33.85±10.84	0.042**

\* Overt anxiety

\*\* Covert anxiety

#### 4. CONCLUSION

Given the relevance of some demographic factors (education, employment status, history of abortion, marital satisfaction and fear of childbirth) of this study with maternal anxiety and overt and covert anxiety levels of pregnant women and higher anxiety during the third trimester of pregnancy, it is recommended that during pregnancy, from the very beginning of the study mothers mental status should be screened with other accredited questionnaires so that in the case of anxiety, methods of adjustment and coping with anxiety be taught to pregnant women for improving their mental health.

#### ETHICAL APPROVAL

All authors hereby declare that all experiments have been examined and approved by the appropriate ethics committee and have therefore been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki.

#### COMPETING INTERESTS

Authors have declared that no competing interests exist.

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