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Türkiye'nin Doğusundaki Gebelerde Gebeliğe İlişkin Anksiyete ile Fetüsün Cinsiyeti ve Yaşayan Çocukların Cinsiyeti Arasındaki İlişki

Association of Pregnancy-related Anxiety with Gender of Fetus and Gender of Living Children in Pregnant Women in East of Turkey

Mesude DUMAN[1]

Yeter DURGUN OZAN[2]

[1]Doç. Dr., Dicle Üniversitesi, Atatürk Sağlık Bilimleri Fakültesi, Hemşirelik Anabilim Dalı, Diyarbakır, TÜRKİYE

[2]Doç. Dr., Dicle Üniversitesi, Atatürk Sağlık Bilimleri Fakültesi, Hemşirelik Anabilim Dalı, Diyarbakır, TÜRKİYE

Yazışmadan sorumlu yazar: Mesude Duman; mesudeduman@hotmail.com

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Özet:

Amaç: Gebelikte psikosoyal sorunların önemli bir bölümü cinsiyet ayrımcılığından kaynaklanan cinsiyet tercihi nedeniyle ortaya çıkmaktadır. Bu çalışmada fetüsün cinsiyeti ve yaşayan çocukların cinsiyeti ile gebeliğe bağlı anksiyete arasındaki ilişkinin belirlenmesi amaçlanmıştır.

Yöntem: Bu kesitsel çalışma, Türkiye'nin doğusunda bir üniversite hastanesinin kadın doğum polikliniklerinde 588 sağlıklı multipar gebe üzerinde yapılmıştır. Verilerin toplanmasında Tanımlayıcı Özellikler Formu ve Gebelik ile İlişkili Anksiyete Ölçeği -R2 kullanılmıştır. Veriler, tanımlayıcı istatistikler (sayı, yüzde, aritmetik ortalama ve standart sapma), ANOVA analizi, bağımsız örnekler t-testi, Pearson korelasyon katsayısı ve Çoklu Doğrusal regresyon analizi kullanılarak değerlendirilmiştir.

Bulgular: Çalışmada yaşayan erkek çocuğun varlığı, yaşayan çocukların cinsiyeti, gebelik yaşı ve fetüsün cinsiyetinin gebeliğe bağlı anksiyete için önemli yordayıcıları olduğu belirlendi (R=0,352, R^2=0,124, F=7,398, p<0,001). Araştırmamızın sonucunda fetüsün cinsiyeti ve yaşayan çocukların cinsiyetinin gebeliğe bağlı anksiyete için önemli bağımsız yordayıcılar olduğu belirlenmiştir.

Sonuç: Bu çalışmada erkek çocuk sahibi olma isteği ve erkek çocuk sahibi olma ile gebelik ile ilişkili anksiyete arasında ilişki tespit edilmiştir. Kadınların gebelik kaygısı üzerinde etkili olan cinsiyet tercihi gibi kültürel faktörlerin doğum öncesi bakım hizmetleri kapsamında değerlendirilmesi ve hemşireler/ebeler tarafından uygun müdahalelerin etkin ve bütüncül olarak sunulması ile bebek ve anne üzerindeki olumsuz etkiler önlenebilir.

Anahtar Kelimeler: Anksiyete; cinsiyet; fetüs; gebelik

Abstract:

Objective: This study aimed at determining the relationship between the gender of fetus and gender of living children and pregnancy related anxiety.

Method: This cross-sectional study, was conducted in the obstetrics polyclinics of a university hospital in the Eastern Turkey. The study was conducted on 588 healthy multipara pregnant women. The Descriptive Properties Form and Pregnancy Related Anxiety Questionnaire-R2 were used in data collection. The data was assessed using descriptive statistics (number, percentage distribution, arithmetic average and standard deviation), ANOVA analysis, independent samples t-test, Pearson correlation coefficient and Multiple Linear regression analysis.

Results: In the study, it was determined that presence of living son, gender of living children, gestational age and gender of fetus were important predictors for the pregnancy-related anxiety (R=0.352, R^2=0.124, F=7.398, p<0.001). It was determined that gender of fetus and gender of living children were important independent predictors for the pregnancy-related anxiety.

Conclusions: In this study, the relationship of desire to have a son and having a son with pregnancy related anxiety was determined. Negative effects on the baby and mother can be prevented by evaluating cultural factors such as gender preference, which is effective on women's pregnancy anxiety, within the scope of antenatal care services and by providing appropriate interventions by nurses/midwives in an effective and holistic manner.

Key Words: Anxiety; fetus; gender; pregnancy

Introduction

The social role of gender determined by the society for women and men has damaging influence on women's health in a number of ways.[1] An important part of psychosocial problems during pregnancy occurs due to gender preference that arise from gender discrimination.[2, 3] Gender discrimination generally results in the abortion of the girl fetus or in reluctance to have a girl child; in other words, parents want to have a son due to continue their family name or to protect their legacy.[4, 5] Depending on the traditions or expectations in their region, parents' preferences for a specific gender valid in Turkey.[6, 7] In many parts of Turkey, having a son can be regarded as a factor that reinforces the status of the woman within the family.[1, 4]

In literature, studies demonstrate that gender discrimination is associated with high level of anxiety during pregnancy as a cultural factor.[3, 8] However, most of the studies investigating the factors that influence anxiety in pregnancy conducted in literature used scales that measure the general anxiety levels.[9-12] These scales were not effective or efficient to determine Pregnancy-related anxiety (PrA). PrA refers to anxieties related to pregnancy, birth, baby health.[13-16] PrA is likely to cause damaging consequences for the mother's health as well as for the child health.[2, 17-20] It is pointed out that anxiety experienced especially during pregnancy may continue after birth and result in postpartum depression for the mother and in posttraumatic stress disorders.[17, 20] It was additionally reported that the PrA can cause obstetric outcomes such as premature birth, prolonged labor, increases in the use of analgesia, as well as mood-state disorders such as lower newborn birth weight, lower apgar score, depressive mood, and anxiety.[17, 20, 21]

Considering the fear of having a child with an undesired gender and the importance of pregnancy-related anxiety for the mother and infant's health, the psychological states of pregnant women should be determined. Health proffesionals' knowledge of cultural factors likely to be influential on the woman's PrA such as gender preference will help define the

problem in its early stages and remove the negative effects of the problem on the health of the woman, her baby and of her family. In this respect, the present study aimed to investigate whether PrA changes depending on gender discrimination. In addition, determining the relationship between the probably PrA during pregnancy and gender discrimination is important for all researchers in the field, health institutions, families and for other interested specialists.

Aim of study

This study aimed at determining the relationship between the gender of fetus and gender of living children and pregnancy related anxiety.

Material and Methods

Type of the study

This study was designed as a correlational descriptive study. It was conducted in the obstetrics polyclinics of a university hospital in the Eastern Turkey.

Population and sample of the study

The population of the study was comprised of healthy pregnant women, who applied for monitoring to the mentioned obstetrics polyclinics of a university hospital in the Eastern Turkey between 15 July 2018 and 15 January 2019. Considering the possibilities of refusing to participate and providing missing information during the data collection, all healthy multipara pregnant women, who met the inclusion criteria, were invited to volunteer for the study. The study was concluded with 588 healthy multipara pregnant women, who volunteered to participate and filled the data collection forms. The inclusion criteria of the study for the healthy pregnant women were determined as to be over 18 years, to be under 35 years, to have singleton pregnancy for 16 weeks and over, to be pregnant on her own volition, to know the gender of the fetus, to have no diagnosed psychological problems or depressive symptoms. The exclusion criteria were determined as to have a history of a premature birth, to

have a history of abortion, to have a history of stillbirth, to be pregnant through the infertility treatment, to have a pregnancy complication, to gain excess weight in pregnancy, to smoke, and to be exposed to teratogenuos (infection, radiation, medicines, cigarette etc.) during pregnancy.

Data Collection Tools

Descriptive Properties Form: The women's sociodemographic characteristics, such as age, education, occupation, economic status and obstetric characteristics (i.e., number of children, pregnancy week, gender of the fetus, number of pregnancies,) features were determined using a form.

Pregnancy-Related Anxiety Questionnaire (PRAQ-R2): It was developed by Van den Bergh (1990) and revised by Huizink et al., in 2016 in order for being applied to all pregnancies without considering the parity.[19] The adaptation of the questionnaire to Turkish was conducted by Derya and colleagues (2018).[22] PRAQ-R2 is a five point likert type scale, which was developed to measure the anxiety levels that women experience concerning their pregnancy. The questionnaire included 11 items with three subscales: "fear of giving birth", "worries about bearing a handicapped child" and "concern about own appearance". The items are assigned scores ranging between 1 and 5, and the lowest and highest scores for multipara women are 10 and 50.A higher score to be obtained via the scale refers to a higher level of PrA. There is no cut-off point in the questionnaire. According to the measurements in different weeks of pregnancy for the multipara women, the Cronbach Alpha reliability coefficients were found to range between 0.71-0.85. [22] In this study, the Cronbach Alpha coefficient value of the questionnaire was determined as 0.92.

Data Collection

This study was conducted in accordance with the revised Helsinki Declaration. At the beginning of the questionnaire, the participants were informed that they could withdraw from

the study at any time. In addition, the participants were informed about the study process, and they were ensured that their personal information would be kept confidential. In the study, the study data were collected using the face-to-face interview method held by the researchers with the pregnant women.

Evaluation of Data

The study data was evaluated using the SPSS 15.0. The data was assessed using descriptive statistics, ANOVA, independent samples t-test, Pearson correlation coefficient and Multiple Linear regression analysis.Multiple regression analysis with enter method was performed to identify the predictors of pregnancy related anxiety, which were entered as dependent variables, and with family income, gender of fetus, presence of living son,presence living daughter, gender of living children, gestational age, gravidity, number of live births, number of living children, number of living sons, and number of living daughters, which were entered as independent variables.

Before composing the enter linear regression model, standardized residual for variables and multicollinearity for independent variables were examined.[23] Variance inflation factor (VIF) was tested in multicollinearity assessment and no multicollinearity was found among independent variables. Since the gender of fetus, presence of living sons and presence of living daughters were categorical variables, they were included in the regression analysis as dummy variables.[24] Since the variables of “Gender of living children” and “family income” were ordinal categorical variables. And variables of “gender of living childeren” and “family income” were accepted as numerical variables.[25] The statistical significance was set at $p<0.05$.

Ethical Aspect of the Study

In order to implement the study, ethical approval was gained from the Dicle University Medical Faculty Non-Invasive Clinical Trials Ethics Committee (No. 2018/218). In addition,

we gave information to the participants about the study and assured them that their personal information would be protected. In addition, institutional permission was obtained from the hospital where the study was conducted. The study participants were informed about the purpose of this study, and their written consents were obtained by using the Informed Consent Form. In every stage of the study, compliance with ethical principles was ensured. Lastly, the volunteered pregnant women meeting the admittance criteria are involved in the study.

Limitations of the study

The data refer only to a single point in time in the present study. Thus, inferences cannot be drawn about the impact of the variables studied on. In addition, our research was a hospital based, thus pregnant women with anxiety who do not seek antenatal care services would not be captured. Our study was conducted in eastern Turkey. Since there will be cultural differences in the west and east of Turkey, the results of the study cannot be generalized to pregnant women in the west of Turkey. Additionally, the PRAQ-R assesses women's core pregnancy concerns, however, is limited in its ability to assess fully, pregnancy-related anxiety.

Results

Table 1 shows the sociodemographic and obstetric characteristics of the pregnant women who participated in the study. The mean age of participants was 29.47±6.47 years old. Of the study sample, 93.2% of them were unemployed; 57.1% of them were graduates of primary/secondary schools; and 65.3% of them had moderate levels of income. It was found that the average gestational age of the pregnant women was 29.74±4.95 and that 53.72% of them had male fetus. In addition, it was found that the pregnant women's mean number of pregnancy was 3.85±1.95; that their mean live birth was 2.37±1.54; and that their mean number of a living child was 2.34±1.50.Of all the pregnant women, 73.5% of them had a living son; that 74% of them had a living daughter; and that 45.1% of them had fewer living

sons than living daughters. The pregnant women's mean number of sons was 1.05±1.88, while their mean number of daughters was 1.28±1.13 (Table 1).

Table 2 shows comparisons regarding the pregnant women's PRAQ-R2 scores, the genders of the fetuses and the genders of the living children. The pregnant women who had a girl fetus had a mean PRAQ-R2 score of 32.08±9.33, while those with a boy fetus had a mean PRAQ-R2 score of 34.01±10.11 ($p<0.05$). The women with a living son had a mean PRAQ-R2 score of 30.19±10.31, while those without a living son had a mean PRAQ-R2 score of 34.17±9.4 ($p<0.001$). The pregnant women with a living daughter had a mean PRAQ-R2 score of 34.01±9.80, while those without a living daughter had a mean PRAQ-R2 score of 30.58±9.36. The pregnant women with fewer living sons than living daughters had a mean PRAQ-R2 score of 34.96±9.35, while those with equal numbers of daughters and sons had a mean PRAQ-R2 score of 33.35±10.06. In addition, the pregnant women with more sons than daughters had a mean PRAQ-R2 score of 31.55±9.52 ($p<0.05$) and a negative relationship was found between the PRAQ-R2 score and the number of living sons ($p<0.001$), while there was a positive relationship between the PRAQ-R2 score and the number of living daughters ($p<0.001$).

In the present study, the confidence interval of 95% was used for each regression coefficient. Table 3 presents the results of the linear regression analysis conducted in relation to the variables which were all found to have a relationship with the PRAQ-R2 score. In the study, a significant relationship was found between the PRAQ-R2 score and the gender of fetus, presence of a living son, gender of living children and gestational age ($R=0.352$, $R^2=0.124$, $F=7.398$, $p<0.001$). These variables explained 12.4% of the total variance for PrA. Also, the effect of gender preference on anxiety was 10.7%. The order of importance for the pregnancy related anxiety was determined as follows: presence of living son, gender of living children, gestational age and gender of fetus. As the conclusion, it was determined that presence of

living son, gender of living children, gestational age and gender of fetus variables were important independent predictors for the PrA (Table 3).

Discussion

Parents are interested in the gender of their infants, and they thus expect to have a child with a gender they want.[26] The willingness to have a child with the desired gender is in favour of a son, which in turn leads to a decrease in the value of daughters.[1, 4] Especially in eastern cultures, men are considered to be superior, while women are considered to be dependent and to have a secondary role and status.[1, 27, 28] Gender preference, which means the willingness to have a son, exists in many cultures.[3, 27- 30] In Turkey, couples tend to support gender discrimination by making their choice in favour of a son.[6, 31] Views that support gender preference for social and cultural reasons claim that having a child with the desired gender will increase the life quality of both the mother and the family.[7, 32]

In previous studies conducted to investigate gender discrimination show that a son has special and greater importance than a daughter as he is considered to be the person who will continue the family name.[1, 8, 28, 31] In this respect, it has always been desirable for women to have a son.[5, 28, 31] In a study carried out with Hospital Anxiety Depression Scale in Pakistan, gender discrimination and family preference of a male infant were found to be among the main causes of antenatal anxiety and depression.[8] In the present study, the effect of gender preference on anxiety was 10.7%. The study was revealed that the male fetus increased the participants' PRAQ-R2 score. This result is thought to be due to the high level of fear of losing the male infant. According to the results of another study conducted by Yağmur and colleagues (2019), the finding that learning the gender of the fetus during pregnancy and especially having a fetus with the desired gender increased the women's level of happiness supports the related results obtained in the present study. However, in a study carried out with pregnant women in Turkey the by Cankorur et al., (2017) using Edinburg Postnatal

Depression Scale it was demonstrated that there was no relationship between the gender preference of the pregnant women and the prenatal depression.[33] The difference between the results, which was conducted on the prenatal depression that is the advanced version of the prenatal anxiety, can be explained by that the scale used in the study of Cankorur was not sufficient for the PrA, and by that the study was conducted on participants from both rural and urban areas in Turkey. Our study was conducted in rural area in Turkey.

In literature, there is no study conducted to investigate the influence of gender preference on PrA, which results from gender discrimination. On the other hand, current studies revealed that gender preference had a relationship with postnatal depression.[32, 34] In a study carried out with pregnant women in Pakistan by Waqas and et al., (2015) utilizing Hospital Anxiety and Depression Scale, it was reported that the level of anxiety decreased in line with the increasing number of living sons increased and that the level of anxiety increased as the number of living daughters increased. In the present study, it was revealed that the PRAQ-R2 score increased in line with the presence of living son. In addition, the results obtained in the study demonstrated that those without a son had a higher PRAQ-R2 score and that those with more sons than daughters had a lower PRAQ-R2 score. In Turkey, no study was conducted to investigate the influence of the gender of living children on PrA. The results of the present study were found to be consistent with those obtained in the study conducted by Waqas et al. [3]

Conclusions

The results of this study demonstrated that gender of living children and gender of fetus were important predictors of PrA. Gender preference in favour of a male infant still maintains its importance in Turkey although it is reported that parents' expectations have been in favour of having a healthy infant in recent years.

In line with these results, nurses and midwives should be aware that women are affected by the gender of their babies, women with female gender have higher anxiety, they may come to health checks less during pregnancy and postpartum period, they can breastfeed less, they may be more insensitive about vaccination, and they should follow these women closely. In this context, considering the negative effects of PrA on the mother and infant's health, it is important to launch a program as early as possible to evaluate the provoking influence of gender preference during clinical practices and to prevent its negative effects. The importance of gender discrimination in the increase in PrA and the effects of PrA on mother-child interactions necessitate prevention programs and early psychotherapy care. In this respect, for the purpose of meeting individuals' needs and direct them towards social supports, nurses and midwives who provide pregnant women with general health care and psychological health care services, should be aware of pregnant women's cultural states and of the cultural history of the society.

Conflicts of interest

There are no conflicts of interest.

Authors' contribution

All authors contributed to this study.

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Authors Contributions

All authors have agreed on the final version drafting the article. Each one author's contributions:

Conception and design: MD, YDO

Data Collection: MD, YDO

Analysis: MD

Manuscript Writing: MD,YDO

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Table 1. Socio-Demographic Characteristics of the Pregnant Women (N = 588)

Characteristics	n (%)
Age (Mean ± SD)	29.47±6.47
Occupation	
Unemployed	548(93.2)
Employed	40(6.8)
Educational level	
No education or literate	134(22.8)
Primary/secondary school	336(57.1)
High school or university	118(20.1)
Family income	
Low	170(28.9)
Moderate	384(65.3)
High	34(5.8)
Gender of the fetus	
Girl	272(46.3)
Boy	316(53.7)
Presence of living son	
Yes	432(73.5)
No	156(26.5)
Presence of living daughter	
Yes	435(74.0)
No	153(26.0)
Gender of living children	
Sons less than daughters	265(45.1)
Equal number of sons and daughters	131 (22.3)
Sons more than daughters	192(32.7)
Gestational age (Mean ± SD)	29.74±4.95
Gravidity (Mean ± SD)	3.85±1.95
Number of previous live births(Mean ± SD)	2.37±1.54
Number of living children (Mean ± SD)	2.34±1.50
Number of living sons	1.05±1.88
Number of living daughters	1.28±1.13

SD: Standart deviation

Table 2. The Comparisons of The Pregnant Women Concerning the PRAQ-R2 Scores, the Genders of the Living Children, and the Genders of the Babies

Characteristics	Total PRAQ-R2 Mean±SD	Test	p
Occupation			
Unemployed	33.05±9.75	t=-0.620¶	0.536
Employed	34.05±10.51		
Educational level			
No education or literate	34.52±8.14	F=2.743‡	0.065
Primary/secondary school	33.08±10.19		
High school or university	31.64±10.19		
Family income			
Low	31.44±9.10	F=8.188‡	**0.000**
Moderate	34.23±9.98		
High	28.97±8.94		
Gender of fetus			
Girl	32.08±9.33	t=2.400¶	**0.017**
Boy	34.01±10.11		
Presence of living son			
Yes	30.19±10.31	t=4.414¶	**0.000**
No	34.17±9.4		
Presence of living daughter			
Yes	34.01±9.80	t=3.759¶	**0.000**
No	30.58±9.36		
Gender of living childeren			
Sons less than daughters	34.96±9.35	F=4.907‡	0.008
Equal number of sons and daughters	33.35±10.06		
Daughters less than sons	31.55±9.52		
Age		r=0.071§	0.087
Gestational age		r=-.114§	**0.000**
Gravidity		r=0.160§	**0.000**
Number of previous live births		r=0.199§	**0.000**
Number of living children		r=0.198§	**0.000**
Number of living sons		r=-.167§	**0.000**
Number of living daughters		r=0.136§	**0.000**

¶Independent Samples t Test, ‡Variance analysis, §Pearson Correlation analysis

Table 3. Regression model of factors associated with PRAQ-R2 score of the pregnant women

Risk factors for pregnancy related anxiety	B	SE	β	t	p
Family income	-.412	.718	-.023	-0.574	.566
Gender of fetus (referent: boy)	1.818	.778	.093	2.337	.020*
Presence of living son (referent: No)	5.289	1.313	.238	4.028	.000**
Presence living daughter (referent:Yes**)**	2.618	1.431	.117	1.730	.068
Gender of living children	-3.827	1.167	-.341	-3.279	.001*
Gestational age	-.170	.056	-.121	-3.018	.003*
Gravidity	-.378	.397	-.061	-0.777	.438
Number of previous live births	1.587	1.274	.251	1.245	.214
Number of living children	-5.207	4.313	-.801	-1.207	.228
Number of living sons	6.282	4.355	.570	1.442	.568
Number of living daughters	2.416	4.234	.279	0.571	.568
R=0.352 R^2=0.124 Adj R^2=0.107 F=7.398	**p<0.001**				

*p<0.05, **p<0.001