ORİJİNAL MAKALE / ORIGINAL ARTICLE
Balıkesir Sağlık Bilimleri Dergisi / BAUN Sağ Bil Derg
Balıkesir Health Sciences Journal / BAUN Health Sci J
ISSN: 2146-9601- e ISSN: 2147-2238
Doi: https://doi.org/10.53424/balikesirsbd.1575873

The Relationship of Risk Perception in Pregnancy with Uncertainty Tolerance and Psychological Resilience

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Geliş Tarihi / Received: *30.10.2024,* ***Kabul Tarihi / Accepted:*** *16.03.2025*

ABSTRACT

Objective: This study was conducted to determine the relationship between risk perception during pregnancy and intolerance of uncertainty and psychological resilience level. **Materials and Methods:** The sample of this cross-sectional and correlational study consisted of 373 pregnant women who were attending a hospital in Eastern Turkey. Data were collected using the Personal Information Form, the Intolerance of Uncertainty Scale (IUS), the Brief Psychological Resilience Scale (BPRS), and the Pregnancy Risk Perception Scale (PRPS). **Results:** As a result of the correlation analysis, it was determined that there was a negative and moderately significant relationship between the mean scores of the Psychological Resilience Scale and the mean scores of the Uncertainty Tolerance Scale (r=-0.215; p=0.000). In addition, a weakly significant positive correlation was found between the mean score of the Risk Perception Scale and the mean score of the Uncertainty Tolerance Scale (r=0.125; p=0.015). **Conclusion:** It was found that as the risk perception levels of pregnant women increased, their intolerance of uncertainty increased and there was a significant relationship between them, and as the intolerance of uncertainty of pregnant women increased, their psychological resilience decreased and the relationship between them was significant.
Keywords: Uncertainty, Pregnant, Risk, Resilience, Psychological, Intolerance.

Gebelikte Yaşanan Risk Algısının Belirsizliğe Tahammülsüzlük ve Psikolojik Sağlamlık Düzeyi ile İlişkisi

ÖZ

Amaç: Bu araştırma gebelikte yaşanan risk algısının belirsizliğe tahammülsüzlük ve psikolojik sağlamlık düzeyi ile ilişkisinin belirlenmesi amacıyla yapıldı. **Gereç ve Yöntem:** Kesitsel ve ilişki arayıcı nitelikte yapılan bu araştırmanın örneklemini, Türkiye'nin doğusunda bir hastaneye başvuran 373 gebe oluşturdu. Veriler, "Kişisel Tanıtım Formu", "Belirsizliğe Tahammülsüzlük Ölçeği (BTÖ)" "Kısa Psikolojik Sağlamlık Ölçeği (KPSÖ)" ve "Gebelikte Risk Algısı Ölçeği (GRAÖ)" aracılığıyla elde edildi. **Bulgular:** Yapılan korelasyon analizi sonucunda, psikolojik sağlamlık ölçeği puan ortalaması ile belirsizliğe tahammülsüzlük ölçeği puan ortalamaları arasında negatif yönde orta düzeyde anlamlı ilişki olduğu belirlendi (r=-0.215; p=0.000). Ayrıca risk algısı ölçeği puan ortalaması ile belirsizliğe tahammülsüzlük ölçeği puan ortalaması arasında pozitif yönde zayıf düzeyde anlamlı bir ilişki olduğu saptandı (r=0.125; p=0.015). **Sonuç:** Gebelerin risk algısı düzeyleri arttıkça belirsizliğe tahammülsüzlük düzeylerininde arttığı ve aralarında anlamlı bir ilişki olduğu, ayrıca belirsizliğe tahammülsüzlük düzeyleri arttıkça psikolojik sağlamlık düzeylerinin azaldığı ve aralarındaki ilişkinin anlamlı olduğu bulundu.
Anahtar Kelimeler: Belirsizlik, Gebe, Psikolojik, Risk, Sağlamlık, Tahammülsüzlük.

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Bu makaleye atıf yapmak için / Cite this article: Altiparmak, S., & Karabulut Bozal, S. (2025). The relationship of risk perception in pregnancy with uncertainty tolerance and psychological resilience. *BAUN Health Sci J, 14*(1), 107-113. https://doi.org/10.53424/balikesirsbd.1575873

INTRODUCTION

While a woman and her partner experience happiness, joy, and excitement during pregnancy, they begin to experience the role of parenthood with the physiological burden of pregnancy and the anxiety caused by psychological changes. Women are increasingly exposed to the view that pregnancy and childbirth are inherently risky and require medical supervision and management. Because of social pressures, women are expected to behave "appropriately" during pregnancy. In addition to these changes that occur during pregnancy, these social pressures have led to an increase in women's perceptions of risk (Kahyaoğlu & Mehmet, 2011).

Perceptions of risk in pregnancy are a complex web of individual, psychological, and cultural factors, including objective medical predictions and more subjective and socially constructed estimates of risk (Lennon, 2016). Pregnant women's perceptions of their own risk are more subjective and closely related to personal and social experiences (Evcili & Dağlar, 2019). Risk perceptions during pregnancy can also influence decisions about whether to undergo screening tests, the use of medications, and even where to give birth (Lennon, 2016; Okyay & Sunay, 2022). In addition, biomedical risk factors and psychosocial factors can alter pregnant women's risk perceptions (Altındaş et al., 2020; Gupton et al, 2001;). Early diagnosis and treatment of any problem that affects the quality of life by putting the mother at risk during pregnancy is extremely important (Akpınar & Apay, 2020). Otherwise, uncertainty can negatively affect women and pregnancy, and lead to intolerance. Uncertainty intolerance is defined as the tendency to react negatively emotionally, cognitively, and behaviorally to uncertain events and situations (Buhr & Dugas, 2002). Uncertainty about future events can lead to anxiety or even dysfunction. Existing evidence suggests that intolerance of uncertainty is associated with both increased symptoms of depression and anxiety (Huang, 2019). Pregnancy is a period that every woman experiences differently and some women's mental health is negatively affected (Dikmen, 2020). Most women can adapt to possible psychological changes during pregnancy. However, some women may experience mild, moderate, or severe stress during the period of adjustment to a new role with the change in bio-psychosocial balance, thoughts of change in body image, social relationships, and family and work roles. Thoughts and uncertainties about the health status of the baby and labor are common sources of stress during pregnancy (Koyuncu et al., 2020).

It has also been reported that individuals with high uncertainty intolerance tend to view uncertainty situations as unpleasant and stressful, and experience problems with their functioning in uncertainty situations (Yüksel, 2014). Such stressful uncertainty situations are thought to negatively affect the psychology and psychological resilience of pregnant women.

Psychological resilience is the capacity of an individual to successfully overcome and adapt to adverse conditions, despite challenging circumstances (Öz & Yılmaz, 2009). While some women experience the pregnancy process in a healthy manner, others may encounter various mental health issues, including depression, anxiety disorders, psychosomatic complaints, and psychotic episodes. A history of depression, marital discord, low socioeconomic status, economic concerns, negative life experiences, unwanted pregnancy, abortion history, new difficulties and needs created by pregnancy, anxiety about the fetus, and high parenting stress are among the factors that increase susceptibility to mental health problems during this process (Üzar Özçetin & Erkan, 2018). Pregnant women with high psychological resilience are more likely to cope with the challenges they face during this process and protect themselves from emotional distress (Mautner, 2013). Indeed, it is well established that individuals with high psychological resilience have greater stress resistance and are better able to cope with the consequences of traumatic events. Risk factors that pose a threat to psychological resilience include biological, psychological, environmental, or socio-economic factors that increase the likelihood of a negative situation or cause the negativity in question to persist (Varıcıer, 2019). From this perspective, the relationship between risk perception during pregnancy intolerance of uncertainty and psychological resilience is an intriguing area for further investigation. The aim of this study was to determine the relationship between risk perception during pregnancy and intolerance of uncertainty and psychological resilience.

Research question:

Question 1: Is there a relationship between the perception of risk during pregnancy and the level of intolerance to uncertainty?

Question 2: Is there a relationship between the perception of risk during pregnancy and the level of psychological resilience?

MATERIALS AND METHODS

This cross-sectional study was conducted in a public hospital in Malatya between July 1 and 30, 2022. The objective was to determine the relationship between risk perception during pregnancy intolerance of uncertainty and psychological resilience. The study population consisted of pregnant women attending the antenatal class where the study was conducted.

The criteria for inclusion in the research

- All pregnant women who were admitted to the hospital on the day of the study,
- Who consented to participate,
- Who did not have communication difficulties or psychological problems were included in the study.

A power analysis was performed to determine the minimum sample size required to achieve with a 95% confidence interval and 95% representativeness via Openepi program (Openepi, 2022). The study was completed with 373 pregnant women, which met the calculated sample size.

Data collection tools

Data were collected by administering the following instruments: the Personal Information Form, the Intolerance of Uncertainty Scale (IUS), the Brief Psychological Resilience Scale (BPRS), and the Pregnancy Risk Perception Scale (PRPS).

Personal information form

The researchers used a personal information form to collect data from pregnant women. This form included nine items that covered both descriptive characteristics (e.g., age, educational status, and economic status) and obstetric characteristics (e.g., gestational week, infant sex, and type of pregnancy) Evcili & Dağlar, 2019; Altiparmak & Yilmaz, 2021; Derya et al., 2021).

Pregnancy Risk Perception Scale (PRPS)

The scale was developed by Heaman and Gupton in 2004 to assess risk perception in pregnant women. It consists of 11 items developed based on the literature and clinical experience of the researchers (Heaman et al., 2004). The Turkish validity and reliability study of the scale was conducted by Evcili and Dağlar in 2019 (Evcili & Dağlar, 2019). The number of items of the scale was reconsidered, which resulted in the identification of nine items. The factor "Pregnant women's risk perception towards the baby" consists of five items (items 2, 6, 7, 8, and 9). The factor "Pregnant women's risk perception towards themselves" consists of four items (items 1, 3, 4 and 5). The scale consists of a linear line from 0 to 100 mm, with "no risk at all" and "extremely high risk" immediately below each item. Each item receives a score from 0 to 100. The scores are summed and divided by the number of items, resulting in a self-report index. The total scale score is calculated by summing the scores for each of the nine items and dividing the resulting score by nine. In addition, the scale factors can be scored. The score for the factor "Pregnant women's perception of risk to their baby" is calculated by summing the scores for each of the five items under this factor and dividing the resulting score by five. The score for the "pregnant women's risk perception towards themselves" factor is obtained by summing the scores for each of the four items under this factor and dividing the score by four. The Cronbach alpha reliability coefficient of the scale is 0.84 (Evcili & Dağlar, 2019). In this study, the Cronbach's alpha reliability coefficient was 0.83.

Intolerance of Uncertainty Scale (IUS)

The scale developed by Buhr and Dugas in 2002 (Buhr & Dugas, 2002) was adapted into Turkish by Sarı and Dağ in 2009 (Sari & Dağ, 2009). It is emphasized that this scale can distinguish between individuals with high and low levels of anxiety in non-clinical samples, and therefore its criterion validity is sufficient. The Turkish version of the scale includes 26 items. The scale employs a 5-point Likert-type structure, with responses ranging from 1 (indicating "does not define me at all") to 5 (indicating "defines me completely"). As the scores obtained from the scale increase, intolerance of uncertainty decreases. The Cronbach alpha internal reliability coefficient of the scale was determined to be 0.78 (Sari & Dağ, 2009). In this study, the Cronbach alpha internal reliability coefficient of the scale was found to be 0.93.

Brief Psychological Resilience Scale (BPRS)

The scale was developed by Smith et al. (2008) to measure psychological resilience (Smith et al., 2008). The BPRS is a 5-point Likert-type, 6-item, self-report measure. Items 2, 4, and 6 are reverse coded. High scores, which are obtained after converting the reverse coded items, indicate a high level of psychological resilience. Accordingly, the Cronbach alpha internal consistency coefficient was found to be 0.83 (Doğan, 2015). In this study, the Cronbach's alpha internal reliability coefficient of the scale was found to be 0.95.

Data collection

The research data were collected by the researcher through face-to-face interviews with pregnant women who met the inclusion criteria and were present in a public hospital in Malatya between July 1-30, 2022. Data collection took 10-15 minutes on average.

Statistical analysis

The data were analyzed using the SPSS 25.0 package program (IBM, Armonk, NY, USA) in a computerized environment. Descriptive statistics, Pearson correlation analysis and regression analysis were used for statistical evaluation.

Ethical considerations

Ethical approval from Inonu University Health Sciences Non-Interventional Clinical Research Ethics Committee (decision number: 2022/3718) and institutional approval were obtained. In addition, an informed consent form was signed by all pregnant women before the study. The Declaration of Helsinki was adhered to throughout the study.

RESULTS

Table 1 shows the distribution of pregnant women who participated in the study according to their descriptive characteristics. The mean age of the pregnant women was 28.27±5.25 years and the mean gestational age was 36.51±3.49 weeks. It was found that 35.7% of the pregnant women who participated in the study were high school graduates, 78.0% were unemployed, 85.0% had an income equal to their expenses, and majority of the pregnant women (86.3%) had a nuclear family. It was found that 50.1% of the pregnant women underwent antenatal care by doctor, 51.5% of them had 2 or more pregnancies, and 78.6% of them had healthy pregnancies.

Table 1. Distribution of descriptive characteristics of pregnant women (n=373).

Descriptive Features	Mean ± SD (Min - Max)	
Age (Year)	28.27 ± 5.25 (14-46)	
Gestational week (week)	36.51 ± 3.49 (29-42)	
	n	**%**
Education Level		
Primary School	57	15.3
Secondary School	62	16.6
High School	133	35.7
University or Higher	121	32.4
Work Status		
Working	82	22.0
Not Working/Housewife	291	78.0
Economic Status		
Income more than expense	51	13.7
Income equals expense	317	85.0
Income less than expense	5	1.3
Family Structure		
Nucleus Family	322	86.3
Extended Family	51	13.7
Pre-pregnancy health check by doctor		
Yes	187	50.1
No	186	49.9
Pregnancy Status		
Healthy	293	78.6
At Risk	80	21.4
Total number of pregnancies		
First	181	48.5
Second or more	192	51.5
Total	**373**	**100.0**

SD: Standard Deviation

Table 2. Distribution of lowest-highest scores and mean scores of the total and subscale pregnancy risk perception scales, intolerance of uncertainty scale, and brief psychological resilience scale (n=373).

	Min.	Max.	Mean± SD. Deviation
BPRS	6.00	30.00	23.12±8.12
PRPS	9.00	40.00	13.43±5.26
Risk perception of the pregnant woman towards her baby	5.00	29.00	6.37±2.20
Risk perception of the pregnant woman towards themselves	4.00	24.00	7.06±4.05
IUS	26.00	130.00	62.34±39.50

SD: Standard Deviation**;** PRPS: Pregnancy Risk Perception Scale; IUS: Intolerance of Uncertainty Scale; BPRS: Brief Psychological Resilience Scale.

Table 2 shows the mean scores and the lowest and highest scores of pregnant women in BPRS, PRPS and IUS. It was found that the lowest score on the BPRS was 6 and the highest score was 30, the lowest score on the PRPS was 9 and the highest score was 40, and the lowest score on the IUS was 26 and the highest score was 130. In our study, the lowest and highest scores of pregnant women in the sub-dimension "pregnant women's risk perception towards their baby" were 5 and 29 points, respectively, and in the sub-dimension "pregnant women's risk perception towards themselves" were 4 and 24 points. The mean total score of BPRS was 23.12±8.12, the mean total score of PRPS was 13.43±5.26, and the mean total score of IUS was 62.34±39.50. The mean score of the PRPS sub-dimensions "pregnant woman's risk perception towards their baby" was 6.37±2.2 and "pregnant woman's risk perception towards herself" was 7.06±4.05.

Table 3. Correlation analysis between the perception of risk in pregnancy, the intolerance of uncertainty, and the brief psychological resilience of pregnant women scales (n=373).

Scales	*r	p
IUS-BPRS	-0.215	0.000**
PRPS-IUS	0.125	0.015***

PRPS: Pregnancy Risk Perception Scale; IUS: Intolerance of Uncertainty Scale; BPRS: Brief Psychological Resilience Scale.
*Pearson Correlation Coefficient (r=0.00-0.25 very low, r=0.26-0.49 low, r=0.50-0.69 moderate, r=0.70-0.89 high, r=0.90-1.00 very high)
**p=0.001 *** p<0.05

As a result of the correlation analysis, when comparing the total mean scores of pregnant women from the BPRS, PRPS and IUS scales (Table 3), it was determined that there was a weakly significant negative relationship between the mean BPRS score and the mean IUS score, and that the level of intolerance of uncertainty decreased as the level of psychological resilience increased (r=-0.215; p=0.000). It was also found that there was a weak significant positive correlation between the mean PRPS score and the mean IUS score, and that the level of intolerance of uncertainty increased with increasing risk perception (r=0.125; p=0.015).
In Table 4, as a result of the regression analysis in which BPRS of pregnant women was taken as the dependent variable and PRPS and IUS were taken as independent variables, a significant regression model F=0.629, p<0.001 was found and the variance in the dependent variable (R^2adjusted=0.003) was explained by the independent variable, and a significant relationship of intolerance of uncertainty in pregnant women was found with risk perception and psychological resilience levels.

Table 4. Regression Analysis Between Perception of Risk in Pregnancy, the Intolerance of Uncertainty, and the Brief Psychological Resilience of Pregnant Women Scales (n=373).

	BPRS	SE	β	t	Sig.	R=0.058* R^2=0.003 F=0.629 p<0.001
PRPS	0.019	0.023	0.044	0.841	0.401	
IUS	0.006	0.009	0.033	0.630	0.529	

PRPS: Pregnancy Risk Perception Scale; IUS: Intolerance of Uncertainty Scale; BPRS: Brief Psychological Resilience Scale. Unstandardized regression coefficient, **p<0.001, *p<0.05, SE: standard error, β: Standardized regression coefficient, R: degree of association, R^2: Coefficient of Determination, a: Dependent Variable: Brief Psychological Resilience Scale of Pregnant Women (BPRS) mean score. b. Predictors: (Constant): Perception of risk experienced during pregnancy and level of intolerance to uncertainty.

DISCUSSION

In this section, the data of this study, which examined the relationship of pregnant women's risk perception with uncertainty intolerance and psychological resilience, are discussed with the relevant literature. It was found that the mean scores of the pregnant women included in the study were 13.43±5.26, 6.37±2.20, and 7.06±4.05 for the total score of the PRPS and the mean scores of the subdimensions of risk perception toward the baby and toward the self, respectively, and that the pregnant women experienced a moderate level of risk perception (Table 2). Although the concept of risk perception among pregnant women is quite broad, it is generally associated with stress, anxiety, depression, and chronic disease. These problems have a negative impact on pregnant women and their babies. A review of the literature found that the mean total risk perception scores of pregnant women were higher than our findings (Lee et al., 2019; Okyay & Sunay, 2022;). In a study conducted to compare risk perception in pregnant women of different age groups, it was found that adolescent pregnant women had higher risk perception than adult pregnant women (Taghizadeh et al., 2017). This may be because of age-related uncertainty in adolescent pregnancy. In addition, it is thought that risk perception is at a moderate level in women with advanced age pregnancy, which may be due to the negative obstetric factors that advanced age brings (Dağlar & Aksöz, 2023). However, Rajbanshi et al. (2021) found that pregnant women perceived pregnancy as a normal event and did not see themselves as being at risk because they were observed in a close environment (Rajbanshi et al., 2021).

The mean BPRS total score of the pregnant women included in the study was 23.12±8.12 (Table 2). Considering that the highest total score that can be obtained from the scale is 30, it can be said that the psychological resilience of pregnant women was high. Psychological resilience increases positive adaptation to the process by providing a protective effect against psychological outcomes such as depression and anxiety during pregnancy (Üzar Özçetin & Erkan, 2018). Abera et al. (2023) found the mean BPRS score to be 16.6±4.7 in a study conducted in pregnant women and stated that psychological resilience is associated with low income in pregnant women, which is characterized by a decrease in psychological resilience (Abera et al., 2023). Ekrem et al. (2023) found that perceived stress during pregnancy had a negative relationship with psychological resilience in women and psychological resilience decreased as the perceived stress level increased (Ekrem et al., 2023).

The mean IUS total score of pregnant women was 62.34±39.50 (Table 2). Considering that the highest IUS score is 130, pregnant women showed a moderate level of intolerance to uncertainty. A review of the literature shows that pregnant women experience moderate intolerance to uncertainty and that various risk factors, such as the risk of abortion and pandemics encountered during pregnancy, causing them to experience a feeling of uncertainty and increase their intolerance to this feeling (Çevik, 2017; Dilcen et al., 2021). In fact, our study found that there was a weakly significant positive correlation between the mean IUS score and the mean PRPS score of pregnant women, and as the risk perception of pregnant women increased, their intolerance of uncertainty levels also increased (p<0.05) (Table 3). In this respect, our findings are similar to the relevant literature. Çankaya and İbrahimoğlu (2022) found that factors such as stress, anxiety, and intolerance of uncertainty are important risk factors that affect the psychological well-being of pregnant women under the threat of abortion by 52% (Çankaya & İbrahimoğlu, 2022). Çevik (2017) also found that the mean intolerance of uncertainty score of pregnant women with abortion risk was higher, while the mean intolerance of uncertainty score of pregnant women without abortion risk was lower. This result is similar to our study and supports the relationship between intolerance of uncertainty and perceived risk (Çevik & Yağmur, 2017). These studies are similar to our study because the relationship between anxiety disorders and risk perception and psychological resilience is clear in pregnant women (Yu et al., 2020).

It was found that there was a negative and moderately significant relationship between the mean scores of psychological resilience and intolerance of uncertainty; as the level of psychological resilience of pregnant women increased, their intolerance of uncertainty decreased (p<0.05) (Table 3). A review of the literature revealed that our findings are compatible and that increasing the level of psychological resilience and psychological well-being reduces the level of uncertainty intolerance and the relationship between them is significant (Çankaya & İbrahimoğlu, 2022; Çevik & Yağmur, 2017; Yu et

al. 2020). The results of Furtado et al. (2021) show that factors such as anxiety and stress in pregnant women have a positive relationship with uncertainty tolerance (Furtado et al., 2021). In fact, it is an undeniable fact that the changes that occur in women's bodies and lives during pregnancy affect their level of psychological resilience and tolerance to uncertainty by causing stress and anxiety.

CONCLUSION

In this study, which was conducted to evaluate the relationship between risk perception during pregnancy and intolerance of uncertainty and psychological resilience level, it was determined that there was a negative and moderately significant relationship between psychological resilience and intolerance of uncertainty in pregnant women, and as the level of psychological resilience increased, the level of intolerance of uncertainty decreased. This study also found that there was a positive and weakly significant relationship between risk perception and uncertainty intolerance, and that the level of uncertainty intolerance increased as risk perception increased. It should be kept in mind that risk perception during pregnancy may affect the emotional state of a woman, and the decision-making process related to pregnancy and childbirth. Pregnant women may experience anxiety due to negative or uncertain situations, and the pregnancy process may be negatively affected. Interventions planned for pregnant women with high-risk perceptions should aim to reduce risk perceptions and increase intolerance of uncertainty and psychological resilience. Increasing psychological resilience will contribute positively to this process by providing a protective effect against psychological outcomes such as depression and anxiety during pregnancy. Therefore, planning interventions to increase psychological resilience and reduce risk perception may provide potential benefits to improve the health and well-being of pregnant women and their babies. In addition, intolerance of uncertainty leads to distressing psychological complexity in pregnant women. It is therefore important for midwives to manage and support women's psychological health during pregnancy and beyond. Pregnant women may not make accurate assessments of risk perception. It is important that midwives provide women with accurate information about what factors to consider when making risk assessments.

Acknowledgement

The authors would like to extend their sincere thanks to anyone who contributed to this study.

Conflict of Interest

The author declares no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

Author Contributions

Plan, design: SA, ŞKB; **Material, methods and data collection:** SA, ŞKB; **Data analysis and comments:** SA, ŞKB; **Writing and corrections:** SA, ŞKB.

Funding

No funding applied for or received.

Ethical Approval

Institution: Inonu University Health Sciences Non-Interventional Clinical Research Ethics Committee
Date: 20.09.2022
Approval no: 2022/3718

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