



## ORIGINAL ARTICLE

# Investigation of the Effect of Risk Perception, Socio-demographic and Obstetric Factors on the Level of Decision-making of Pregnant Women via the Internet: Multiple Linear Regression Analysis Model

## Gebelerin İnternet Yoluyla Karar Alma Düzeyi Üzerine Risk Algısının, Sosyo-demografik ve Obstetrik Faktörlerin Etkisinin İncelenmesi: Çoklu Doğrusal Regresyon Analiz Modeli

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### Abstract

**Objective:** This study examines the effect of risk perception and socio-demographic and obstetric factors on the level of decision-making of pregnant women via the internet.

**Method:** This study employed a cross-sectional and analytical design and was conducted online with 384 pregnant women living in Turkey. Data were collected using descriptive information forms, such as the decision-making scale via the internet on pregnancy and the perception of pregnancy risk scale. Descriptive statistics, including percentages and means, as well as multiple linear regression analysis, were utilized to analyze the data.

**Results:** As the risk perception in pregnancy increased, the level of decision-making via the internet increased ( $\beta=0.118$ ,  $p=0.000$ ). Among pregnant women experiencing pregnancy-related health issues, a significant increase in decision-making via the internet was observed ( $\beta=0.092$ ,  $p=0.046$ ). As the age of women increased ( $\beta=-2.623$ ,  $p=0.013$ ) and income was perceived to be equal to expenses ( $\beta=-1.499$ ,  $p=0.011$ ) or more than expenses ( $\beta=-1.953$ ,  $p=0.023$ ), decision-making via the internet during pregnancy decreased. Unwanted pregnancy has a "reducing" effect of approximately two times on online decision-making ( $\beta=-1.919$ ,  $p=0.026$ ). The number of pregnancies, education and family type were found to have no statistical effect on decision-making ( $p>0.05$ ).

**Conclusion:** As the risk perception increases in pregnant women, online decision-making also increases. Factors such as some socio-demographic and obstetric factors affect online decision-making of pregnant women.

**Keywords:** Pregnancy, online, decision-making, risk perception, Turkey

### Öz

**Amaç:** Bu çalışmada amaç, gebelerin gebelikte ilgili konularda internet yoluyla karar alma düzeyi üzerine risk algısının, sosyo-demografik ve obstetrik faktörlerin etkisini incelemektir.

**Yöntem:** Çalışma kesitsel tiptedir. Araştırma online olarak Türkiye'de yaşayan 384 gebe ile gerçekleştirilmiştir. Verilerin toplanmasında gebe tanıtıcı bilgi formu, gebelikte internet yoluyla karar alma ve gebelikte risk algısı ölçeği kullanılmıştır. Verilerin analizinde yüzdeler, ortalama gibi tanımlayıcı istatistikler ve çoklu doğrusal regresyon analizi kullanılmıştır.

**Bulgular:** Çalışmada gebelikte risk algısı arttıkça internet yoluyla karar alma düzeyinde artış olduğu bulunmuştur ( $\beta=0.118$ ,  $p=0.000$ ). Gebeliğe bağlı sağlık sorunu yaşayan gebelerde, internet yoluyla karar alma puanında artış olduğu saptanmıştır ( $\beta=0.092$ ,  $p=0.046$ ). Gebelerin yaşı arttıkça ( $\beta=-2.623$ ,  $p=0.013$ ) ve gelir giderden fazla olarak algılandığında ( $\beta=-1.499$ ,  $p=0.011$ ) ve gelir giderden fazla olarak algılandığında ( $\beta=-1.953$ ,  $p=0.023$ ) gebelikte internet yoluyla karar almanın azaldığı saptanmıştır. Gebeliğini hiç istememe durumunun, online karar alma puanı üzerinde yaklaşık iki kat "azaltıcı" etkisinin olduğu belirlenmiştir ( $\beta=-1.919$ ,  $p=0.026$ ).

**Sonuç:** Gebelerde risk algısı arttıkça, online karar verme düzeyi de artmaktadır. Gebenin online karar verme düzeyini bazı sosyo-demografik ve obstetrik faktörler etkilemektedir.

**Anahtar Kelimeler:** Gebe, online, karar alma, risk algısı, Türkiye

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## Introduction

Pregnancy and childbirth, though considered physiological processes, are also recognized as periods marked by stress, complexity, and uncertainty, particularly for women. During this time, women actively seek comprehensive and reliable information to support their well-being and that of their unborn child (1). Health-seeking behaviors, especially among first-time mothers, tend to be highly pronounced as they navigate the transition to motherhood, adapt to the new experience, and engage in planning and preparation (1,2). Health-seeking behavior is an individual's response to a perceived health issue and can be categorized into three main types: traditional, professional, and online. Recently, there has been a notable increase in the prevalence of online health-seeking behaviors (3), wherein individuals utilize the internet to seek solutions to health-related concerns (4,5). Pregnant women benefit from a variety of information sources, including books, print, visual, and audio-visual media, and the internet, with healthcare professionals serving as primary resources for health-related decision-making (2,6,7). The term "decision" originates from Arabic, conveying meanings such as "stability, continuity, and soundness" (8). In Turkish, it is defined as "the process of identifying and selecting the most suitable option for a given situation" (9).

With advancements in globalization, innovation, and technology, notable changes have occurred in how individuals access, share, and process information, as well as in decision-making processes (10). According to Turkish Statistical Institute 2024 household information technologies usage survey, the rate of individuals using the internet was announced as 88.8% (11). Factors influencing internet usage among pregnant women include age, pregnancy history, education level, health perception, ease of internet use, and the availability of extensive resources online regarding pregnancy and childbirth (6,12). Pregnant women resort to a variety of health information resources to access accurate and reliable information, clarify conflicting information, and make informed decisions regarding their health and that of their baby (e.g., in the case of a concerning prenatal screening result). The internet is the most used source of online information, with usage rates among pregnant women ranging from 70% to 97% (13-15). A study conducted in Turkey revealed that the top three sources of information about pregnancy and labor for pregnant women

were healthcare professionals (98.9%), the internet and social media platforms (80.7%), and family or friends (73.4%) (16).

Several factors, such as the increasing workload of healthcare professionals and the challenges in meeting all health-related needs of pregnant women, have contributed to the rising use of the internet in the decision-making process (17). Hadımlı et al. (18) found that pregnant women most frequently used the internet to obtain information on prenatal tests (29.9%), track fetal development, and identify danger signs (29.9%). Similarly, Oscarsson et al. (19) reported that the primary motivation for pregnant women's internet use was to obtain pregnancy-related information and benefit from the experiences of individuals in similar situations. In a web-based study by Lagan et al. (20), it was reported that nearly half of the participants (48.6%) turned to the internet due to dissatisfaction with the clarity and comprehensiveness of information provided by healthcare professionals.

Another study indicated that pregnant women often preferred the internet over consulting healthcare professionals for reasons such as considering some issues "too minor" to bring up, not wanting to disturb health personnel (11.1%), difficulty reaching healthcare providers in times of need (8.3%), and a perception that the information provided by professionals was insufficient (6.6%) (15). These findings highlight the internet's role as a frequently accessed resource for information and decision-making among pregnant women. However, it is essential to recognize that some of the online information sources may be unreliable, potentially leading to anxiety and decision-making challenges for pregnant women (21,22). For instance, a study conducted by Bjelke et al. (23) in Sweden reported that 65.9% of pregnant women felt anxious after accessing pregnancy-related information online, with forum pages identified as the primary web-based source contributing to these concerns.

The internet offers rapid and convenient access to a wealth of information, one of its significant advantages (24). However, it is essential to recognize that the reliability and validity of online information are not always assured. For pregnant women, this uncertainty can influence risk perception, as incomplete or inaccurate information may increase anxiety and perceived risks and impede sound decision-making (16,21). To ensure information security and access to accurate information, the development of health literacy and media literacy skills is crucial (16,25). Women with low health and media literacy may struggle to critically evaluate the accuracy and reliability of online information, which in turn raises the likelihood of making misguided decisions (16).

The pregnancy and childbirth period inherently involves risks for both the mother and fetus, requiring pregnant women to make prompt and informed decisions. Several conditions, such as pre-existing systemic diseases, pregnancy-related

### Main Points

- Pregnant women's online decision-making total mean score is  $36.76 \pm 5.59$ .
- The total score of risk perception during pregnancy is  $51.19 \pm 14.30$ .
- As risk perception increases in pregnant women, the rate of decision-making via the internet also increases.
- The level of decision-making via the internet increases in pregnant women who have pregnancy-related health problems.
- As the ages and income levels of pregnant women increased, their ability to make decisions via the internet during pregnancy decreased.
- There is a decrease in the level of decision-making via the internet in unwanted pregnancies.

complications, ambiguous prenatal screening results, pregnancy-induced hypertension, placental anomalies, premature rupture of membranes, intrauterine growth restriction, cervical insufficiency, and preterm labor, can increase risk perception concerning the mother and fetus (25,26). Risk perception in pregnancy refers to the potential negative situations that pregnant women may anticipate and how they interpret the consequences of these situations. This perception is influenced by various psychological, physiological, individual, and environmental factors (27). Elevated risk perception during pregnancy can contribute to adverse obstetric outcomes, including compromised psychosocial health, weakened prenatal attachment, fetal neurodevelopmental issues, increased fear of childbirth, a higher likelihood of medical interventions, and a preference for cesarean delivery (27,28). Conversely, a lower risk perception enhances adaptation to pregnancy, facilitates coping with pregnancy-related challenges, reduces maternal stress, promotes perinatal mental health, and supports effective management of labor and the postnatal period (29). Reduced risk perception positively impacts maternal, fetal, neonatal, and community health (30,31).

Midwives and nurses providing prenatal care play a crucial role in guiding pregnant women and their families towards reliable online information sources and in strengthening health literacy skills, which are essential for maternal and fetal well-being (16,31). Access to accurate information online during pregnancy not only decreases risk perception but also contributes to reducing healthcare costs (31).

This study aims to investigate the impact of risk perception, socio-demographic factors, and obstetric variables on the level of online decision-making among pregnant women. Current literature includes a limited number of studies that descriptively explore the risk perception and online decision-making behaviors of pregnant women (32,33). However, no study has yet examined the combined influence of pregnancy-related risk perception, socio-demographic characteristics, and obstetric factors on online decision-making among pregnant women, as proposed in this study. This research seeks to address this gap in literature and provide a foundation for further studies on this topic. Additionally, findings from this study may support the World Health Organization's strategies to enhance the quality of antenatal care and foster positive pregnancy experiences.

## Material and Method

### Study Design

This research was designed as a cross-sectional study and analytical design.

### Study Setting and Sample

The study population included all pregnant women who voluntarily agreed to participate, regardless of gestational week, and who owned a smartphone and used social media. A sample size of 384 pregnant women was determined using

power analysis in OpenEpi Version 3.01 software, based on a 50% prevalence and a 95% confidence interval. Inclusion criteria were being 20 years of age or older, living in Turkey, having a confirmed pregnancy diagnosis, and owning a smartphone. Exclusion criteria included being an immigrant or not being literate in Turkish.

### Data Collection

Data were collected online using the pregnant descriptive information form, the decision-making scale via internet on pregnancy, and the perception of pregnancy risk scale. Prior to completing these forms, pregnant women were introduced to the study through an online Google survey. They were informed that participation was voluntary, their data would remain confidential, would not be used for commercial purposes, and would be exclusively for scientific research. Participants were advised of their right to opt out, and only those who consented by selecting the option "I agree to participate in the study" were included in the research sample.

### Data Collection Tools

**The pregnant descriptive information form:** The form, developed by the researcher following a comprehensive literature review, collects information on the socio-demographic and obstetric characteristics of pregnant women (2,5,6,12,15,21,31).

**The decision-making scale via internet on pregnancy:** Developed by Koyun and Erbektaş (12) in 2018, this scale consists of 15 items with a Cronbach's alpha coefficient of 0.85. The scale uses a five-point Likert response format, ranging from "1 = strongly disagree" to "5 = strongly agree". Scores range from 15 to 75, with higher scores indicating a greater reliance on internet-based decision-making.

**The perception of pregnancy risk scale:** Originally developed by Heaman and Gupton to assess pregnant women's risk perception, this scale was adapted into Turkish by Evçili and Dağlar (26) in 2019. It consists of 9 items across two factors. Each item includes a 0-10 cm visual analog scale labeled with "no risk at all" and "extremely high risk". The overall score is calculated by summing the item scores and dividing by nine. A scoring of the scale factors can also be performed. The score for the "risk perception of the pregnant woman towards her baby" factor is calculated by summing the scores of the five items within this factor and dividing the total by five. Similarly, the score for the "risk perception of the pregnant woman towards herself" factor is derived by summing the scores of its four items and dividing by four. The scale does not have a cut-off point; higher scores indicate a stronger perception of risk concerning both the mother and her baby (26).

### Statistical Analysis

Data from the study were analyzed using Statistical Package for Social Sciences version 22.0 for Windows. Descriptive statistics, including frequency, percentage, mean, and

standard deviation, were applied to summarize the data. Multiple linear logistic regression analysis was conducted to assess the effect of risk perception and certain variables on the level of online decision-making among pregnant women. This method allows examination of the linear effect of multiple independent variables on a dependent variable (34). A 95% confidence interval was used, with statistical significance set at  $p < 0.05$ .

### Ethical Consideration

Prior to the study, approval was received from the Gümüşhane University Scientific Research and Publication Ethics Committee (approval no: 2020/11, date: 08/12/2020). Additionally, permission was obtained from the researchers who had previously adapted the decision-making scale via internet on pregnancy and the perception of pregnancy risk scale into Turkish. To ensure data confidentiality, questionnaires were distributed to pregnant participants via a secure Google Forms link. Before completing the questionnaires and scales, participants were instructed to read an informed consent form, which omitted personal identifiers and detailed the study's purpose, and to indicate their consent by clicking an approval button. This study was conducted in alignment with the principles outlined in the Declaration of Helsinki.

### Results

The average age of pregnant women was  $29.20 \pm 5.29$  years. Nearly half held undergraduate or postgraduate degrees (47.1%). Most participants lived in nuclear families (91.6%) and were not employed (74.5%). 47.6% of the pregnant women expressed their income perception as "income is less than expenses". 60.4% of the pregnant women resided in the city centre. At the same time, 41.9% were experiencing their second pregnancy and the mean gestational week was  $24.51 \pm 7.29$ . The rate of birth experience was found to be 55.7%. 51.1% of the pregnant women were in the second trimester and almost all of them attended antenatal check-up (95.6%). 70% of the pregnant women wanted to have this pregnancy and 61.4% had a health problem in this pregnancy. 31.7% of the pregnant women were undecided about something related to their pregnancy during pregnancy. 45.8% of the pregnant women described their emotional state during pregnancy as "moderate". Again, pregnant women mostly stated doctors as the source of information on pregnancy-related issues (21.4%). The rate of having experienced indecision about pregnancy was 68.3% and the majority of pregnant women (60.3%) received support from their husbands in decision-making. The most common issues of indecision during pregnancy were the choice of physician (38.3%) and the type of delivery (Table 1).

As shown in Table 2, the mean total score on the decision-making scale via internet on pregnancy was  $36.76 \pm 5.59$ , while the mean total score on the perception of pregnancy risk scale was  $51.19 \pm 14.30$  (Table 2).

**Table 1.**  
**Socio-demographic and Obstetric Characteristics of Pregnant Women (n=384)**

Descriptive characteristics	n (%)
<b>Age (year)</b>	
20-25	105 (27.3)
26-30	144 (37.5)
31-35	84 (21.8)
36-43	51 (13.4)
<b>Education level</b>	
Primary school	68 (17.7)
High school	135 (35.2)
Undergraduate/postgraduate	181 (47.1)
<b>Family type</b>	
Nuclear	352 (91.6)
Extended	32 (8.4)
<b>Employment</b>	
Yes	98 (25.5)
No	286 (74.5)
<b>Income perception</b>	
Income less than expenses	183 (47.6)
Income equals expenses	178 (46.4)
Income more than expenses	23 (6.0)
<b>Place of residence</b>	
City	232 (60.4)
District	105 (27.4)
Village	47 (12.2)
<b>Number of pregnancies</b>	
1	130 (34.0)
2	161 (41.9)
≥3	93 (24.1)
<b>Birth experience</b>	
Yes	214 (55.7)
No	170 (44.3)
<b>Pregnancy trimester</b>	
1.	37 (9.6)
2.	196 (51.1)
3.	151 (39.3)
<b>Pregnancy check-up</b>	
Yes	367 (95.6)
No	8 (2.1)
Partially	9 (2.3)
<b>Wanted pregnancy</b>	
Yes	268 (69.7)
No	70 (18.2)
Partially	46 (12.1)
<b>Health problems during pregnancy</b>	
Yes	236 (61.4)
No	148 (38.6)



**Table 1.**  
**Continued**

Descriptive characteristics	n (%)
<b>Emotional state in pregnancy</b>	
Very good	74 (19.3)
Good	107 (27.8)
Moderate	176 (45.8)
Not good	27 (7.1)
<b>Sources of information during pregnancy</b>	
Internet	318 (18.5)
Midwife	283 (17.1)
Nurse	258 (14.6)
Doctor	357 (21.4)
Family	223 (13.3)
TV, journal, book	242 (15.1)
<b>Experiencing uncertainty in pregnancy</b>	
Yes	122 (31.7)
No	262 (68.3)
<b>The person who guides the indecisive person</b>	
No one	27 (14.7)
Spouse	110 (60.3)
Healthcare professional	40 (22.1)
Mother/mother-in-law	4 (2.0)
Friend	2 (0.9)
<b>Challenging areas for decision-making during pregnancy</b>	
Physician	146 (38.2)
Birth mode	111 (28.8)
Screening test	69 (17.9)
Hospital	58 (15.1)
	Mean ± SD
Age	29.20±5.29
Gestational week	24.51±7.29

SD=standard deviation

**Table 2.**  
**Total and Sub-dimension Mean Scores of the Decision-making Scale via Internet on Pregnancy and the Perception of Pregnancy Risk Scale**

Scales	Mean ± SD	Minimum-maximum
<b>The decision-making scale via internet on pregnancy</b>	36.76±5.59	10-47
Perception of self-efficacy sub-dimension	17.88±3.13	5-24
Perception of self-control sub-dimension	18.87±3.28	4-25
<b>The perception of pregnancy risk scale</b>	51.19±14.30	13-90
Risk perception towards the baby sub-dimension	28.41±8.96	5-50
Risk perception towards herself sub-dimension	22.78±5.99	4-40

SD=standard deviation

In Table 3, the results of the multiple linear regression analysis indicate that as the risk perception in pregnancy increased ( $\beta=0.118$ ,  $p=0.000$ ), the level of decision-making via the internet also increased. Conversely, as age ( $\beta=-2.623$ ,  $p=0.013$ ) and income levels of pregnant women increased ( $\beta=-1.953$ ,  $p=0.023$ ), their level of decision-making via the internet decreased. Additionally, an increase in unwanted pregnancy correlated with a decrease in online decision-making ( $\beta=-1.919$ ,  $p=0.026$ ). As the health problems among pregnant women increase ( $\beta=0.092$ ,  $p=0.046$ ), their level of decision-making via the internet also rises (Table 3).

## Discussion

This study examines the effects of factors such as risk perception and some socio-demographic and obstetric characteristics on pregnant women's online pregnancy-related decision-making levels. In the study, the average total score on the decision-making scale for pregnant women was  $36.76 \pm 5.59$ . Given that the minimum score on this scale is 15 and the maximum is 75, this suggests that the level of online decision-making among pregnant women in this study is moderate. The highest possible score was calculated as  $75-15=60$ , and the lowest value as  $60/2=30$ , with the "moderate level range" defined as between 30-60 points. Thus, the average score of  $36.76 \pm 5.59$  places the level of online decision-making in the moderate range, though it is slightly above the minimum value. Several studies using the same scale show similar results, with Ünal et al. (2) reporting an average score of  $36.1 \pm 6.4$  and Palta and Kanbur (22) reporting  $30.98 \pm 6.18$ . The findings from these studies align closely with our results.

Individuals frequently utilize the internet to access health information and support decision-making processes, driven by factors such as convenience, speed, and cost-effectiveness (13,16,17,32,35). In the present study, the average total score for risk perception during pregnancy was  $51.19 \pm 14.30$ . In contrast, the study by Bor et al. (36) reported an average total score of  $29.93 \pm 1.98$  on the pregnancy risk perception scale, while Okyay and Sunay (35) found a score of  $20.45 \pm 17.13$ . When compared to our findings, some studies show relatively lower levels of risk perception. This discrepancy may be attributed to differences in the socio-demographic, obstetric, and psychological characteristics of the pregnant women in each study. Additionally, the data collection for our study occurred during the second and third waves of the COVID-19 pandemic, which is likely to have influenced the heightened levels of online decision-making and risk perception observed among pregnant women in our sample as compared to those in some other studies. Previous research conducted during the pandemic has shown that pregnant women experienced increased stress related to their own and their babies' health, leading to increased perceptions of risk, deteriorated psychosocial health (37,38), and a greater reliance on online decision-making concerning antenatal tests and birth method preferences (37,39,40). These findings are consistent with the results of the current study.

**Table 3.**  
**Multiple Linear Regression Results on the Decision-making Scale via Internet on Pregnancy**

Independent variables	The decision-making scale via internet on pregnancy			
	$\beta$	St. E.	t	p
	33.679	2.45	13.71	0.000
<b>Age (year)</b>				
26-30	-0.284	0.70	-0.40	0.686
31-35	-0.599	0.88	-0.68	0.498
36-43	-2.623	1.05	-2.49	<b>0.013*</b>
<b>Education level</b>				
High school	0.245	0.79	0.31	0.757
Undergraduate and postgraduate	-0.660	0.80	-0.82	0.413
<b>Place of residence</b>				
District	-0.644	0.63	-1.02	0.308
City	-0.351	0.86	-0.41	0.684
<b>Income perception</b>				
Income equals expenses	-1.499	0.58	-2.55	<b>0.011*</b>
Income more than expenses	-1.953	0.85	-2.28	<b>0.023*</b>
<b>Birth experience</b>				
No	-1.073	0.82	-1.31	0.193
<b>Pregnancy trimester</b>				
	0.021	0.04	0.59	0.557
<b>Number of pregnancies</b>				
2	-0.0149	0.17	-0.09	0.932
$\geq 3$	-0.064	0.55	-0.12	0.908
<b>Wanted pregnancy</b>				
Partially	-1.873	0.87	-2.16	<b>0.032*</b>
No	-1.919	0.86	-2.23	<b>0.026*</b>
<b>Health problems during pregnancy</b>				
Yes	0.092	0.046	2.00	<b>0.046*</b>
<b>Emotional state in pregnancy</b>				
Good	-0.374	0.82	-0.45	0.651
Moderate	0.316	0.81	0.39	0.696
Not good	-0.478	1.25	-0.38	0.702
<b>Experiencing uncertainty in pregnancy</b>				
	-0.537	0.58	-0.93	0.356
<b>The perception of pregnancy risk scale total score</b>				
	0.118	0.02	5.38	<b>0.000*</b>
Maximum VIF	1.10 (no multi-connection problems)			
White test	$p=0.32>0.05$ (no heterogeneity problem)			
Shapiro-Wilk W normality test	$p=0.26>0.05$ (normal distribution)			
Ramsey reset test	$p=0.096>0.05$ (no model specification error)			

\*= $p<0.05$ , VIF=variance inflation factor

In this study, it was found that as the level of risk perception among pregnant women increased, their level of online decision-making also rose proportionally ( $\beta=0.118$ ,  $p=0.000$ ). This suggests a positive relationship, whereby an increase in online decision-making is associated with high risk perception. Consistent with these findings, studies by Ünal

et al. (2), Yuill et al. (21), Gözüyeşil and Özertürk (41), and Sanders and Crozier (42) also reported a positive correlation between increased risk perception and online decision-making among pregnant women. This relationship can be interpreted as the decisions made by pregnant women based on online information-whether about themselves or

their babies-inducing anxiety and concern, which in turn increases their perception of risk. The nature of the online decision-making process could stem from either accurate or inaccurate interpretations of information. Both correct and incorrect interpretations of online information can contribute to a high sense of risk perception (16,43). For instance, a pregnant woman who receives a concerning result from a prenatal screening test might perceive an elevated risk to the fetus and decide to terminate the pregnancy based on information gathered from online sources. Conversely, an increased perception of risk may amplify anxiety and worry in the pregnant woman. In the study by Serçekuş et al. (44), some pregnant women experienced increased fear after gathering online information. Similarly, Maharramova (45) study revealed that heightened risk perceptions regarding the health of both the mother and baby were associated with increased stress levels. While internet sources can facilitate access to information during pregnancy, it is crucial that the information be accurate and reliable to maintain risk perception within a manageable range. Therefore, expectant mothers should verify online information by consulting healthcare professionals and tailor their decision-making processes accordingly. A perception of childbirth as risky and traumatic for both the mother and baby can lead to adverse obstetric outcomes, such as decisions regarding the mode of birth and a greater desire for medical intervention during childbirth (46-49).

This study showed that as the age and perceived income level of pregnant women increase, their reliance on internet-based decision-making during pregnancy decreases. This suggests that older women may prefer to seek information from sources outside the internet, and women with higher income levels may be more likely to utilize healthcare providers for information and support. Furthermore, the study revealed that as the unwanted status of pregnancy increases, the level of decision-making through the internet decreases. This may indicate that women experiencing unwanted pregnancies are more likely to engage in health-seeking behaviors. These findings highlight the importance of providing enhanced support to women with unwanted pregnancies and ensuring that they have easier access to the healthcare services they need. One of the findings of this study is that as the incidence of health problems during pregnancy increases, the level of decision-making through the internet also increases. This is consistent with the observation that as a woman's perception of risk during pregnancy rises, her reliance on online decision-making also increases. Palta and Kanbur (22) similarly reported that as pregnancy-related complaints increase, the level of online decision-making also rises, which supports the findings of our study. The research included both low-risk and high-risk pregnancies, with high-risk pregnancies typically associated with greater uncertainty and anxiety. Women facing increased risks during pregnancy are more likely to act out of anxiety and stress, potentially leading them to seek information from unreliable sources, which, in turn, increases their anxiety. High anxiety and stress levels during

pregnancy have the potential to contribute to physiological complications (50).

In the study, the most common sources of information preferred by pregnant women were their physician (n=357), the internet (n=318), and their midwife (n=283). In a study, the most frequently shared information sources by pregnant women were recorded as doctors (n=217), internet (n=42), and midwives (n=35), similar to this study (51). The internet was a frequently utilized resource. The primary reasons for seeking online information included gaining knowledge, alleviating concerns, making more informed decisions, connecting with other women who share similar experiences, and benefiting from their shared knowledge (48-50). Online forums, social media, and support groups help reduce feelings of isolation and provide emotional support to pregnant women (49). Given these findings, midwives and nurses involved in preconception and antenatal care must plan educational sessions that enhance the health literacy and health-seeking behaviors of pregnant women and their families.

### Study Limitations

The main identified limitation of the study is the inclusion of pregnant women who use smartphones without distinguishing between those from low-risk and high-risk pregnancy groups.

### Conclusion

The study demonstrated that the level of risk perception and decision-making via the internet among pregnant women was moderate. An increase in risk perception during pregnancy positively influenced internet-based decision-making. As the age of pregnant women increases and their income is perceived to be equal to or greater than their expenses, the use of the internet for decision-making during pregnancy decreases. However, factors such as the number of pregnancies, education level, and family type did not appear to affect online decision-making. While accessing reliable information on the internet is not always guaranteed, pregnant women must receive education on how to seek accurate and trustworthy information during the antenatal period. In this regard, it is recommended to integrate social media and health literacy initiatives into prenatal care. Furthermore, identifying pregnant women with a high level of risk perception, closely monitoring their well-being, and referring them to appropriate healthcare units when necessary is important. Future research with larger sample sizes and mixed-method designs is needed to further explore the factors influencing risk perception and online decision-making during pregnancy.

**Ethics Committee Approval:** Prior to the study, approval was received from the Gümüşhane University Scientific Research and Publication Ethics Committee (approval no: 2020/11, date: 08/12/2020).

**Informed Consent:** Additionally, permission was obtained from the researchers who had previously adapted the decision-making scale via internet on pregnancy and the perception of pregnancy risk scale into Turkish.

## Footnotes

**Author Contributions:** Surgical and Medical Practices - S.A., T.Y.T., Ö.P.A., R.A.; Concept - S.A., T.Y.T., Ö.P.A., R.A.; Design - S.A., T.Y.T., Ö.P.A., R.A.; Data Collection and/or Processing - S.A., T.Y.T., Ö.P.A., R.A.; Analysis and/or Interpretation - R.A., S.A., T.Y.T., Ö.P.A.; Literature Review - S.A., T.Y.T., Ö.P.A., R.A.; Writing - S.A., T.Y.T., Ö.P.A., R.A.

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