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The Relationship between Antepartum Symptoms Experienced by Pregnant Women and Risk Perception During Pregnancy

Nursema AKSÖZ[1]
[1]Yozgat Bozok University, Faculty of Health Sciences, Department of Midwifery, Yozgat, Türkiye

Gülseren DAĞLAR[2]
[2]Sivas Cumhuriyet University, Faculty of Health Sciences, Department of Midwifery, Sivas, Türkiye

ABSTRACT

Objective: To evaluate the relationship between antepartum symptoms experienced by pregnant women and risk perception during pregnancy.

Methods: The study was cross-sectional descriptive. The sample consisted of 615 pregnant women who applied to Sivas Numune Hospital for healthy pregnancy follow-up between the 9th and 40th gestational weeks between 01.10.2020-31.01.2021. Data were collected with Personal Information Form, Pregnancy Symptom Inventory (PSI) and Pregnancy Risk Perception Scale (PRPS). Analyses included descriptive statistics, independent-samples t-tests, one-way ANOVA, chi-square tests, and Pearson correlation analysis.

Results: The mean gestational week of the pregnant women was 22.18±9.42. The mean total score of PSI symptom frequency was 39.85±16.57 and the mean total score of symptoms restricting daily activities was 54.28±9.55. The mean total score of the PRPS was 2.71±1.69; the mean score of risk perception towards the baby was 2.49±1.92; and the mean score of risk perception towards oneself was 2.99±1.82. Symptom frequency was weakly and positively correlated with overall risk perception (r=0.150, p<.001), fetal risk perception (r=0.116, p=.004), and maternal risk perception (r=0.164, p<.001). Daily activity limitations also showed weak positive correlations with overall risk perception (r=0.204), fetal risk perception (r=0.165), and maternal risk perception (r=0.211; all p<.001).

Conclusion: Pregnant women's overall risk perception and risk perception toward the unborn child and themselves both rise in tandem with the symptoms they endure and the limitations they place on their day-to-day activities.

Keywords: Antenatal period, Midwifery, Pregnancy, Pregnancy symptoms, Risk perception

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Corresponding author: Nursema AKSÖZ
E-mail: nuraksz7@gmail.com

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Introduction

Although pregnancy is a natural process of life, women undergo significant anatomical, physiological, psychological, and biochemical changes during this period. These changes lead to the emergence of various antepartum symptoms. While the causes of some antepartum symptoms remain unknown, most are attributed to hormonal fluctuations and the enlarging uterus (Akcan & Yiğit, 2021; Polat, 2022; Şahin & Gürkan, 2023). During the first trimester, symptoms such as heightened sensitivity to odors, nausea and vomiting, nasal congestion and bleeding, fatigue, frequent urination, increased vaginal discharge, leukorrhea, breast tenderness, palmar erythema, ambivalent emotions, ptyalism, and abdominal discomfort are common. In the second and third trimesters, symptoms such as heartburn, increased appetite, edema, varicose veins, gas, hemorrhoids, constipation, back pain, muscle cramps, shortness of breath, sleep disorder, round ligament pain, carpal tunnel syndrome, headaches, and Braxton Hicks contractions may occur (Akcan & Yiğit, 2021; Şahin & Gürkan, 2023). The frequency and frequency of these symptoms may vary among pregnant women.

Studies investigating the frequency of pregnancy-related symptoms have reported that the most common symptoms experienced by pregnant women include back pain, frequent urination, sleep disorder and fatigue or weakness (Polat, 2022). These commonly reported symptoms are often found to limit daily life activities (Polat, 2022).

Symptom frequency and presentation differ among individuals, as do pregnant women's responses to these symptoms (Lee et al, 2019). It is imperative to determine not only the symptoms and corresponding reactions but also the extent to which these symptoms are perceived as risk factors. Therefore, assessing pregnant women's risk perception during pregnancy is essential. Risk perception refers to an individual's subjective assessment of the probability of an event occurring and the potential adverse outcomes it may cause (Lee et al., 2019). It is shaped by an "intuitive judgment" process and varies depending on individual differences (Lee et al., 2019; Lee et al., 2012). Risk perception during pregnancy refers to pregnant women's emotional and cognitive awareness of potential threats to themselves and their babies (Heaman & Gupton, 2009). This perception is influenced by the perceived frequency of risk, the manner in which information about the risk is presented, and the level of trust in the information source (Lee et al., 2019). Cultural and social values, the sense of social responsibility, and individual emotional responses, as well as the coping mechanisms used, also play a role in shaping risk perception (Lennon, 2016).

When pregnant women regard risky symptoms encountered during pregnancy as ordinary, they may delay seeking medical care and obtaining the necessary treatment (Lee, 2012). Conversely, women who recognize that symptoms arising during pregnancy can cause serious harm to both mother and fetus tend to seek healthcare without delay in order to reduce potential obstetric risks, prevent complications, and safeguard and enhance maternal–infant health through timely antenatal care

The literature includes studies that explore the frequency (Dönmez et al., 2018; İncirkuş, 2021) and frequency (Özyürek & Özgül, 2021; Şahin & Gürkan, 2023) of pregnancy symptoms, their impact on quality of life (Akcan & Yiğit, 2021), and risk perception (Lee et al., 2019; Maharramova, 2022; Rajbanshi et al., 2021). Additionally, studies have examined the relationship between risk perception and well-being (Okyay & Sunay, 2022), medical health perceptions (Bayrampour et al., 2012), the influencing factors, and inter-trimester comparisons (Gözüyeşil & Özertürk, 2022). Researchers have not found a study that simultaneously evaluates the symptoms experienced by pregnant women and their perception of risk during pregnancy, or that examines the relationship between antepartum symptoms and risk perception.

The current study sought to assess the association between pregnant women's risk perceptions throughout pregnancy and the antepartum symptoms they experienced, in light of this gap in the literature. The following research questions were the focus of the study:

Research Questions:

1. What are the most common antepartum symptoms experienced by pregnant women?
2. Which antepartum symptoms most significantly restrict the daily lives of pregnant women?
3. What are the levels of risk perception among pregnant women during pregnancy?
4. Do pregnant women's risk perceptions during pregnancy correlate with the antepartum symptoms they experience?

Methods

Type of the Study

This study was cross-sectional and descriptive in nature.

Place and Time of the Study

The study was carried out between October 1, 2020, and January 31, 2021, with healthy pregnant women who applied to the Obstetrics and Gynecology Outpatient Clinic

of Sivas Numune Hospital for routine pregnancy monitoring and were in their 9th to 40th gestational weeks.The inclusion criteria were as follows: having a healthy pregnancy, being literate, speaking Turkish, being between the 9th and 40th weeks of gestation, and volunteering to participate in the study. Exclusion criteria were a diagnosis of high-risk pregnancy, illiteracy, inability to speak Turkish, communication or comprehension difficulties, gestational age below 9 or above 40 weeks, and unwillingness to participate in the study. During recruitment, 13 women declined to participate. Five participants withdrew while completing the questionnaire, and three questionnaires with missing responses were excluded from the analysis. The final sample comprised 615 pregnant women who met the inclusion criteria and provided complete data between October 2020 and January 2021.

Participants

Data were collected using the Personal Information Form, the Pregnancy Symptom Inventory (PSI), and the Pregnancy Risk Perception Scale (PRPS). Prior to data collection, participants were informed about the aim and scope of the research and provided both written and verbal informed consent. The data collection process was conducted by the researcher under suitable conditions within the clinic, in compliance with pandemic precautions (e.g., mask use, social distancing, personal pen use). The Interviews were conducted in a private setting with only the researcher and participant present, each lasting on average 20 minutes. Data were collected through face-to-face interviews in which the researcher asked the questions and recorded the participants' self-reported responses on the data collection forms.

Measures

Research data were collected based on self-report using Personal Information Form, Pregnancy Symptom Inventory (PSI) and Pregnancy Risk Perception Scale (PRPS).

Data Collection

Personal Information Form

This form was developed by the researcher based on a review of the literature (Ceylan, 2022; İncirkuş, 2021; Akcan & Yiğit, 2021; Şahin & Gürkan, 2023). It includes 30 items addressing participants' demographic characteristics (age, family structure, place of residence, education level, spouse's education level, etc.) and obstetric history (number of pregnancies, births, living children, place of prenatal care, preferred mode of delivery, etc.).

Pregnancy Symptom Inventory (PSI)

Developed by Gürkan and Güloğlu (2020), this scale consists of 42 items and two main sections. In the first section, the frequency of pregnancy-related symptoms is assessed using a 4-point Likert scale. Participants respond to each item with "never (0)," "rarely (1)," "occasionally (2)," or "frequently (3)." Scores in this section range from 0 to 126, with higher scores indicating more frequent symptoms and lower scores indicating fewer symptoms (Gürkan & Güloğlu, 2020).

The second section evaluates the degree to which these symptoms limit daily activities using a 3-point Likert scale: "does not limit(1)," "limits slightly (2)," and "limits greatly (3)." Total scores range from 42 to 126, with higher scores reflecting greater limitations in daily activities. The Cronbach's alpha reliability coefficient for the original study was reported as .82 (Gürkan & Güloğlu, 2020), and it was calculated as .75 in this study.

Based on the literature, pregnancy symptoms were grouped into six categories: (Akcan & Yiğit, 2021; Şahin & Gürkan, 2023) genitourinary (leukorrhea, changes in sexual desire, breast tenderness, nipple pain, nipple color changes, frequent urination, and incontinence); gastrointestinal (nausea, vomiting, reflux, constipation, hemorrhoids, dry mouth, food cravings, thrush, and changes in taste and smell); cardiovascular and respiratory (painful vaginal veins, dizziness, fainting, palpitations, varicose veins, swelling of the hands and feet, snoring, and breathing difficulties); musculoskeletal (back pain, low back pain, and hip and pelvic pain); integumentary (oily skin, melasma, itchy skin, and stretch marks); and neurological (leg cramps, carpal tunnel syndrome, sciatic pain, headache, fatigue, sleep disturbances, restless legs, forgetfulness, feeling depressed, anxiety, vivid dreams, and changes in body image).

Pregnancy Risk Perception Scale (PRPS)

The scale was developed by Evcili and Dağlar (2019) and comprises two subscales: "pregnant woman's risk perception toward herself" and "pregnant woman's risk perception toward her baby." The "pregnant woman's risk perception toward her baby" subscale consists of five items (items 2, 6, 7, 8, and 9), whereas the "pregnant woman's risk perception toward herself" subscale comprises four items (items 1, 3, 4, and 5). Each item is rated on a 0 to 100 mm visual analog scale, with the endpoints labeled "no risk at all" and "very high risk." The total score is calculated by

summing the item scores and dividing by nine. The same calculation applies to subscale scores. No cut-off point has been established; higher scores indicate a higher perceived risk to the mother and fetus (Evcili & Dağlar, 2019). The Cronbach's alpha coefficient was found to be .84 in both the original and the current study.

Statistical Analysis

Statistical analyses were performed using IBM SPSS Statistics version 22.0 (IBM Corp., Armonk, NY, USA). Descriptive statistics included frequencies, percentages, means, standard deviations, and minimum and maximum values. The normality of the score distributions was assessed by examining skewness and kurtosis coefficients. Independent-samples t-tests were used to compare mean scores between two independent groups, and one-way analysis of variance (ANOVA) was used for comparisons involving more than two groups, according to participants' sociodemographic and obstetric characteristics. When ANOVA indicated a statistically significant difference, Tukey's test was used for post hoc comparisons when variances were homogeneous, and Tamhane's T2 test was used when variances were heterogeneous. The chi-square test was used to examine associations between categorical variables. Pearson's correlation analysis was used to assess the direction and strength of associations between pregnancy symptom frequency, limitations in daily activities, and pregnancy risk perception scores. Statistical significance was set at $p<.05$.

Ethics

All ethical standards and the Declaration of Helsinki's tenets were followed in the conduct of this investigation. Sivas Cumhuriyet Faculty of Medicine's Non-Interventional Clinical Research Ethics Committee granted ethical approval prior to implementation (Date: July 8, 2020, Approval No: 2020-07/14), and the hospital granted institutional permission (Document No: 76728045-44-2931_E78). All participants gave their verbal and written informed consent after being fully informed about the goals and methods of the study. It was completely voluntary to participate. Additionally, authorization to use the data collecting tools was acquired.

Results

It was found that 79.3% of the pregnant women were between the ages of 21 and 34, 48.8% had a university degree or higher, and 48.0% of their spouses also had a university degree or higher. Additionally, 53.7% of the women were unemployed, and 88.3% were not related to their spouses. Moreover, 65.0% of the participants reported that their income was equal to their expenses, and 68.1% evaluated their health status as good. The youngest participant was 18 and the oldest was 43 years old, with a mean age of 27.78±5.26 (Table 1).

Table 1.
Sociodemographic Characteristics of the Participants

Sociodemographic Characteristics		n	%
Age Groups*	18 – 20 years	50	8.1
	21-34 years	488	79.3
	35 – 43 years	77	12.6
Mean±SD (min–max)		27.78±5.26 (18 - 43)	
Educational Status	Primary education	151	24.5
	High school	164	26.7
	University and above	300	48.8
Spouse's Educational Status	Primary education	144	23.4
	High school	176	28.6
	University and above	295	48.0
Employment Status	Employed	285	46.3
	Unemployed	330	53.7
Consanguineous marriage	Related	72	11.7
	Not Related	543	88.3
Perceived Economic Status	Income less than expenses	119	19.3
	Income equal to expenses	400	65.0
	Income greater than expenses	96	15.7
Perceived Health Status	Good	419	68.1
	Moderate	196	31.9
TOTAL		**615**	**100.0**

* Age grouping was made considering the healthy and risky pregnancy age range.

The mean gestational week of the participants was 22.18±9.42. Among the pregnant women, 26.5% were in the first trimester, 41.5% in the second trimester, and 32.0% in the third trimester. It was found that 38.6% of the women were experiencing their first pregnancy, 52.8% had previously given birth, and 51.7% had living children. Additionally, 76.3% of the pregnancies were planned, 97.2% were desired, 55.0% of the participants stated that the baby was of the desired sex, and 90.6% reported that they attended prenatal check-ups regularly (Table 2).

Table 2.
Obstetric Characteristics of the Participants

Obstetric Characteristics		n	%
Trimester	First trimester	163	26.5
	Second trimester	255	41.5
	Third trimester	197	32.0
Mean±SD (min–max)		22.18±9.42 (9–40)	
Number of Pregnancies	First pregnancy	237	38.6
	Second pregnancy	158	25.7
	Third pregnancy	103	16.7
	Four or more pregnancies	117	19.0
Previous Birth History	Has given birth	325	52.8
	Has not given birth	290	47.2

Living Children	Has living children	318	51.7
	No living children	297	48.3
Pregnancy Planning Status	Planned	469	76.3
	Unplanned	146	23.7
Pregnancy Desire Status	Desired	598	97.2
	Undesired	17	2.8
Baby's Sex as Desired	Desired sex	338	55.0
	Undesired sex	100	16.2
	Sex unknown	177	28.8
Regular Antenatal Care Attendance	Regularly attending	557	90.6
	Not regularly attending	58	9.4

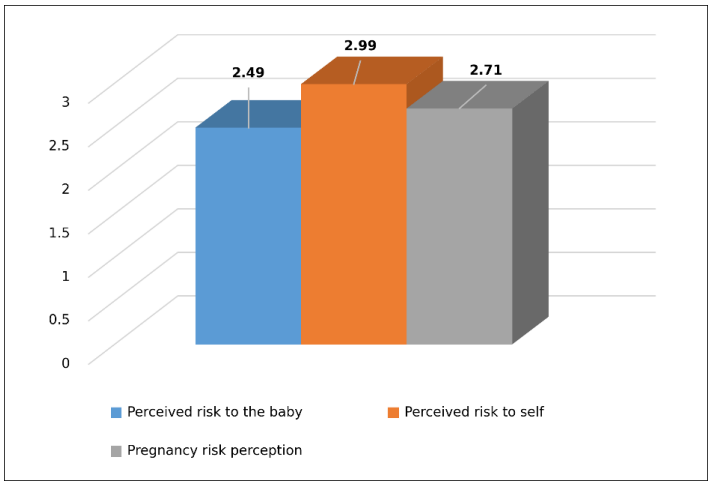
When the symptoms experienced by the pregnant women were evaluated by systems, it was determined that experienced symptoms related 99.7% to the genitourinary system (GUS), 99.3% to the neuropsychological system, 98.0% to the gastrointestinal system (GIS), 91.5% to the cardiovascular and respiratory systems, 85.7% to the musculoskeletal system, and 79.2% to the skin. The genitourinary system was the most frequently affected system, while skin-related symptoms were the least commonly reported (Table 3).

Regarding the limitation of daily life caused by system-related symptoms, 54.5% of the pregnant women reported that neuropsychological symptoms limited their daily activities, 53.5% that musculoskeletal symptoms did so, 45.4% genitourinary symptoms, 36.5% gastrointestinal symptoms, 23.0% integumentary symptoms, and 20.9% cardiovascular and respiratory symptoms (Table 3). It was determined that neuropsychological symptoms most frequently restricted daily life, whereas integumentary symptoms had the least impact.

The mean total score of the Pregnancy Risk Perception Scale (PRPS) was 2.71±1.69. The mean score for the subdimension of perceived maternal risk was 2.99±1.82, while the mean score for the subdimension of perceived fetal risk was 2.49±1.92 (Figure 1). It was determined that pregnant women's perception of risk towards themselves was relatively higher than their perception of risk towards their baby.

When the most common and most life-limiting symptoms were evaluated by trimester, it was found that in the first trimester, the most frequently reported symptom was frequent urination (95.7%), whereas in the second and third trimesters, fatigue or weakness was the most common symptom (97.3% and 97.5%, respectively). Fatigue or weakness was also the symptom most frequently reported to life-limit daily life across all three trimesters (78.5% in the first trimester; 78.4% in the second; and 77.7% in the third trimester). The second most life-limiting symptom was frequent urination (56.4% in the first trimester; 64.3% in the second; 67.5% in the third), followed by sleep disorder as the third most life-limiting symptom (54.0% in the first trimester; 60.4% in the second; 64.5% in the third trimester) (Table 4).

Figure 1.
Distribution of Mean Scores for the Pregnancy Risk Perception Scale (PRPS) Total and Subdimensions



Both the total and subscale scores of the Pregnancy Risk Perception Scale (PRPS) showed a low-level, positive, and statistically significant correlation with the total score and total limitation score of the Pregnancy Symptom Inventory (PSI) (respectively: r=0.150; *p*<.000; r=0.116; *p*=.004; r=0.164; *p*<.000; r=0.204; *p*<.000; r=0.165; *p*<.000; r=0.211; *p*<.000) (Table 5).

Discussion

Many symptoms are experienced during pregnancy, and these symptoms can restrict the daily lives of pregnant women. In this study, the mean score of pregnancy symptom frequency (PSF) was found to be 39.85±16.57 (range: 0-126), while the mean score for the extent to which symptoms restricted daily life was 54.28±9.55 (range: 42-126). Both frequency and restriction mean scores were determined to be at a low level (Table 3). In previous studies, the mean PSF score was reported to range between 37.71 and 43.23, and these were also considered low (Ceylan, 2022; Polat, 2022). In addition to these findings, which are consistent with the results of our study, there are studies in which the mean PSF score was between 45.31 and 53.88, and these were considered moderate (Güleroğlu & Onat, 2023; Şahin & Gürkan, 2023). It was found that the daily lives of pregnant women were restricted at a low level, supporting the findings of this study (Ceylan, 2022; Polat, 2022).

During pregnancy, many symptoms are experienced, and pregnant women tend to seek healthcare services when they perceive these symptoms as serious or as posing a risk to their babies. This situation is associated with pregnant women's risk perceptions regarding themselves and their babies (Heaman & Gupton, 2009;, Conseil Santé et al., 2007).

In this study, the mean total risk perception score was 2.71±1.69, while the mean self-related risk perception score (2.99±1.82) was higher than the mean baby-related risk perception score (2.49±1.92) (Figure 1).

Table 3.
*Distribution of Symptom Experience by Systems and the Impact of Symptoms on Daily Life among Pregnant Women**

SYSTEMS	Symptom Experience Status					
	Experienced			Not Experienced		
	n	%	Mean±SD	n	%	Mean±SD **
Genitourinary system	613	99.7	9.09±3.89	2	0.3	-
Neuropsychological system	611	99.3	13.00±6.10	4	0.7	-
Gastrointestinal system	603	98.0	7.37±4.26	12	2.0	-
Cardiovascular and respiratory system	563	91.5	5.61±3.48	52	8.5	-
Musculoskeletal system	527	85.7	2.99±1.48	88	14.3	-
Skin	487	79.2	3.67±2.10	128	20.8	-
	Daily Life Limitation Status					
	Limiting ***			Not Limiting		
	n	%	Mean±SD	n	%	Mean±SD
Neuropsychological system	333	54.5	16.78±3.91	278	45.5	7.05±2.60
Musculoskeletal system	282	53.5	4.12±0.94	245	46.5	1.64±0.47
Genitourinary system	279	45.4	11.43±2.30	334	54.6	5.44±1.97
Gastrointestinal system	220	36.5	11.77±2.62	383	63.5	4.53±2.20
Skin	112	23.0	5.95±1.21	375	77.0	2.40±1.09
Cardiovascular and respiratory system	118	20.9	11.16±2.08	446	79.1	4.24±2.20

* Each system included multiple symptoms, and the frequency of each symptom and its impact on daily activities were assessed separately.
**Mean values were not calculated for systems with no reported symptoms.
***For the PSI, the "very slightly limited" and "very limited" categories were merged and analyzed as a single "limited" category.

While there are studies in the literature reporting high self-related risk perception (Lee et al., 2019; Okyay & Sunay, 2022), some studies have found that baby-related risk perception was higher (Bülbül et al., 2023; Maharramova, 2022).

The fact that both the symptoms experienced by the pregnant women and the extent to which these symptoms restricted daily life, as well as the level of risk perception, were found to be low in our study is a pleasing result. The fact that the sample group was limited to women who were having healthy pregnancies may have contributed to the low level of risk perception seen in the study. Based on this result, it can be suggested that the pregnant women's feelings and thoughts about pregnancy may be positively influenced, that factors negatively affecting risk perception were limited, and that interventions aimed at modifying risk perception may not encounter significant challenges.

During pregnancy, anatomical, physiological, and psychological changes occur across all systems, leading to numerous antepartum symptoms (Bülbül et al., 2023; Ceylan, 2022; Polat, 2022; Şahin & Gürkan, 2023). In this study, it was determined that pregnant women most frequently experienced symptoms related to the genitourinary system (GUS) and neuropsychological system, both of which significantly restricted their daily lives. Among GUS symptoms, frequent urination was the most common symptom during the first trimester and the second most common symptom in the third trimester. Frequent urination was also the second most restrictive symptom to daily life across all three trimesters. Regarding neuropsychological symptoms, fatigue or tiredness was reported as the second

most common symptom in the first trimester (94.5%) and the most common symptom in the second (97.3%) and third (97.5%) trimesters.

In all three trimesters, fatigue or tiredness was the symptom that most restricted daily life (first trimester: 78.5%; second trimester: 78.4%; third trimester: 77.7%) (Table 4). Sleep disorder were experienced in all three trimesters, and progressively increase as the pregnancy advances (first trimester: 77.9%; second trimester: 86.3%; third trimester: 89.3%). The results of Marín-Jiménez et al. (2021) are very similar to the findings of this study.

Table 4.
*The Most Common and Most Limiting Symptoms by Trimester Among Pregnant Women**

1st Trimester (n=163)			2nd Trimester (n=255)			3rd Trimester (n=197)		
Most Common Symptoms*								
	n	**%**		**n**	**%**		**n**	**%**
Frequent urination	156	95.7	Fatigue or weakness	248	97.3	Fatigue or weakness	192	97.5
Fatigue or weakness	154	94.5	Sleep disorder	220	86.3	Frequent urination	187	94.9
Nausea	135	82.8	Breast pain	211	82.7	Sleep disorder	176	89.3
Increased vaginal discharge	129	79.1	Back pain	196	76.9	Back pain	167	84.8
Sleep disorder	127	77.9	Headache and food craving	193	75.7	Increased vaginal discharge	157	79.7
Most Limiting Symptoms**								
Fatigue or weakness	128	78.5	Fatigue or weakness	200	78.4	Fatigue or weakness	153	77.7
Frequent urination	92	56.4	Frequent urination	164	64.3	Frequent urination	133	67.5
Sleep disorder	88	54.0	Sleep disorder	154	60.4	Sleep disorder	127	64.5
Nausea and Back pain	83	50.9	Back pain	133	52.2	Back pain	122	61.9
Headache	71	43.6	Headache	132	51.8	Hip or pelvic pain	99	50.3

* Participants could report more than one symptom; therefore, frequencies do not sum to the total number of women in each trimester.
**The table lists the five most commonly reported symptoms among pregnant women.
*** The table lists the top five symptoms most frequently reported by pregnant women as limiting their daily life.

They applied the Pregnancy Symptom Inventory at the 16th and 34th weeks of pregnancy and evaluated the most frequent symptoms and their impact on daily life during the second and third trimesters. Moreover, at 16 weeks' gestation, the symptoms most limiting daily life were fatigue or exhaustion (68.0 %), sleep disorder (63.2 %), and frequent urination (54.6 %), whereas at 34 weeks' gestation, sleep disorder (83.6 %), fatigue or exhaustion (80.7 %), and frequent urination (64.5 %) were the most restrictive (Marín-Jiménez et al., 2021).Previous studies have similarly shown that the vast majority of pregnant women experience frequent urination (Akcan & Yiğit, 2021; İncirkuş, 2021; Özyürek & Özgül, 2021). In Akcan's (2021) work, fatigue or exhaustion was reported by all participants. Özyürek and Özgül (2021) found that fatigue or tiredness was the most common symptom across all three trimesters. Studies have shown that fatigue or tiredness restricted the daily lives of pregnant women at rates ranging from 68.0% to 86.8% (Marín-Jiménez et al., 2021; Özyürek & Özgül, 2021; Polat, 2022). Akcan and Yiğit (2021) also reported that fatigue or tiredness restricted the daily lives of all pregnant women participants. In Polat's (2022) study, three-quarters of the pregnant women experienced sleep disorder, while in Akcan and Yiğit's (2021) study, nearly all participants reported this symptom.

The extent to which sleep disorder restrict daily life may vary between individuals. Akcan and Yiğit (2021) found that sleep disorder restricted the daily lives of nearly all pregnant women participants, and in another study, more than half of the pregnant women stated that they did not feel rested upon waking (Arkalı, 2021). In conclusion, the prevalence and impact of frequent urination, fatigue or tiredness, and sleep disorder on daily life were consistent with the literature.

Table 5.
The Relationship Between Symptom Experience and Daily Life Limitation by Physiological Systems and Risk Perception During Pregnancy

SYSTEMS	Pregnancy Risk Perception Scale					
	Perceived risk toward the fetus		Perceived Risk Toward Self		Total score	
	r	*p***	r	p**	r	*p***
Symptom Experience Status						
Genitourinary system	.078	.054	.076	.059	***.085***	***.035***
Gastrointestinal system	***.102***	***.011***	***.169***	***.000***	***.144***	***.000***
Cardiovascular & Respiratory systems	***.099***	***.014***	.052	.201	***.087***	***.031***
Musculoskeletal system	.036	.368	***.092***	***.023***	.066	.100
Skin	.040	.328	***.152***	***.000***	***.097***	***.016***
Neuropsychological system	***.105***	***.009***	***.159***	***.000***	***.141***	***.000***
PSI* total score	***.116***	***.004***	***.164***	***.000***	***.150***	***.000***
Daily life limitations due to experienced symptoms						
Genitourinary system	***.096***	***.018***	***.103***	***.011***	***.109***	***.007***
Gastrointestinal system	***.117***	***.004***	***.190***	***.000***	***.163***	***.000***
Cardiovascular & Respiratory systems	***.141***	***.000***	***.105***	***.009***	***.138***	***.001***
Musculoskeletal system	.065	.109	***.116***	***.004***	***.095***	***.018***
Skin	***.103***	***.011***	***.202***	***.000***	***.160***	***.000***
Neuropsychological system	***.165***	***.000***	***.207***	***.000***	***.202***	***.000***
PSI* Total score	***.165***	***.000***	***.211***	***.000***	***.204***	***.000***

*Pregnancy Symptom Inventory
**Pearson Correlation

This study showed that the frequency of system-specific symptoms experienced during pregnancy and the restriction of daily life was associated with the overall, self-related, and baby-related risk perceptions of pregnant women. Symptoms can significantly affect the quality of life of pregnant women (Akcan & Yiğit, 2021; İncirkuş, 2021), lead to additional medical interventions in some high-risk situations, and impose an economic burden (Ralston et al., 2023), thereby increasing risk perception during pregnancy. High risk perception during pregnancy negatively impacts maternal well-being (Okyay & Sunay, 2022; Ralston et al., 2023). The most common GUS symptoms experienced by pregnant women are frequent urination and incontinence, which adversely affect daily activities and can lead to feelings of stigma (İnal & Timur, 2020). Gastrointestinal symptoms such as nausea, vomiting, reflux, and constipation may increase risk perception when symptom frequency intensifies. Cardiovascular and respiratory symptoms, including dizziness, palpitations, and shortness of breath, contribute to heightened perceptions of life-threatening risk (Conseil Santé et al., 2007). Similarly, musculoskeletal symptoms (e.g., back and pelvic pain) can elevate risk perception (Shojaeian et al., 2021). Skin symptoms may affect body image and psychological well-being, leading to anxiety and unhappiness (Crossland et al., 2023), while neuropsychological symptoms (e.g., sleep disorder) may increase stress and anxiety and are associated with a higher risk of cesarean delivery (Hashmi et al., 2016). Studies have shown that anxiety and depression are risk factors during pregnancy and contribute to increased risk perception (Kalyoncu, 2021). In summary, symptoms experienced during pregnancy and the associated restrictions on daily life can increase risk perception and negatively impact psychosocial well-being. These findings underscore the importance of symptom management and supportive approaches during pregnancy.

Limitations of study

As this study was conducted at a single center and included only healthy pregnant women, the findings cannot be generalized to all pregnant women. Although the cross-sectional design allows for the assessment of associations between antepartum symptoms and risk perception during pregnancy, it does not permit causal inferences.

Conclusion and Recommendations

In this study, the most frequently experienced symptom was frequent urination in the first trimester, and fatigue or tiredness in the second and third trimesters. In each of the three trimesters, the symptoms that most restricted daily activities were fatigue or exhaustion, frequent urination, sleep disorder, and back pain. Greater symptom frequency and more pronounced limitations in daily activities were weakly and positively associated with overall risk perception and perceived risks to both the pregnant women themselves and their babies. It is recommended that midwives collect detailed data on the symptoms experienced by pregnant women and the extent to which these symptoms restrict daily life during antenatal follow-ups, plan care based on these data, provide structured education, and implement

appropriate interventions aimed at developing coping strategies for symptoms associated with risk perception.

Ethics Committee Approval: All ethical standards and the Declaration of Helsinki's tenets were followed in the conduct of this investigation. Sivas Cumhuriyet University Faculty of Medicine's Non-Interventional Clinical Research Ethics Committee granted ethical approval prior to implementation (Date: July 8, 2020, Approval No: 2020-07/14), and the hospital granted institutional permission (Document No: 76728045-44-2931_E78).

Informed Consent: Pregnant women enrolled in the study were informed about the research's aims and procedures, and their written and verbal informed consent was obtained. Participation in the study was entirely voluntary, and the decision to participate or not was left entirely to the individuals.

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