Original Article

Factors Affecting Health Literacy and Pregnancy Stress in Pregnant Women

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Abstract

Objective: The purpose of this study was to investigate the factors that influence health literacy and pregnancy stress in pregnant women.
Method: This research employed a cross-sectional descriptive-correlational design. The study sample comprised 454 pregnant women. Data were collected using the "Personal Information Form," "Health Literacy Scale (HLS)," and "Pregnancy Stress Rating Scale (PSRS)." The collected data were analyzed using percentage distribution, mean, standard deviation, student's t-test, one-way analysis of variance (ANOVA), and Spearman correlation test.
Findings: The mean age of the pregnant women was 28.83±5.61. Pregnant women who had attained a postgraduate education, belonged to the 18-25 age group, had been married for less than three years, lived in an extended family setting, experienced their first pregnancy, were in the first trimester of pregnancy, and faced health issues during pregnancy exhibited higher total scores on the PSRS ($p<0.05$). Pregnant women who had been married for less than three years, were employed, lived in a nuclear family, and had a low income demonstrated higher total scores on the HLS ($p<0.05$). There was an inverse and negative relationship between the PSRS and the average total score of the HLS among pregnant women. Furthermore, as the health literacy level of pregnant women decreased, their perceived stress level during pregnancy increased.
Conclusions: This study highlights the necessity of identifying stress risk factors and coping strategies in pregnant women, enhancing the health literacy levels, and alleviating the stress or anxiety experienced by women during pregnancy.

Keywords: Pregnancy, health literacy, pregnancy stress, antenatal care.

Introduction

Pregnancy is one of the most important events and it is a period in which psychological, biological and emotional changes are experienced (Yanikkerem et al., 2006). Despite being a natural phase for women, many individuals experience stress throughout this period due to various physical, emotional, and social factors, as well as lifestyle adjustments (Chang et al., 2008). Moreover, concerns related to childbirth, the role of parenting, and physical symptoms experienced during pregnancy can contribute to stress levels (Chen, 2015; Bjelica et al., 2018). Additionally, stress may arise from personal experiences, family dynamics, socio-cultural influences, the attitudes of the spouse and other family members toward pregnancy, maternal age, desire for pregnancy, and a lack of social

support (Donmez et al., 2014). Mild stress during pregnancy is considered a normal and transient occurrence that can positively contribute to women's adaptation to the pregnancy process (DeSocio, 2018). However, when stress reaches a severe level, it can adversely impact the health of pregnant women. Stress has been linked to issues such as malnutrition, inadequate prenatal care, and challenges with breastfeeding among pregnant women. Additionally, it poses a risk for the mother to harm both her baby and herself in the postpartum period (Ertekin Pinar et al., 2017).

During stress, cortisol, adrenaline, noradrenaline hormone levels increase. These elevated hormones adversely affect the development of the fetus. With stress, constriction of the vessels occurs, preventing adequate blood supply to the placenta. As a result, some obstetric complications in pregnant women (spontaneous abortion, prolongation or shortening of labor, premature rupture of membranes, preeclampsia, type II diabetes, antenatal bleeding, spontaneous abortion, preterm labor, obesity, difficult labor and increased risk of episiotomy, growth retardation, low birth weight baby, low APGAR score, etc.) occur (Capik et al., 2015; Pearlstein, 2015). Physical and neurological development rate is slower in babies of mothers exposed to stress during pregnancy. Stress experienced during pregnancy causes hyperactivity, excessive crying, asocial behaviors and psychiatric problems in the baby (Grote & Frank, 2003). In order for the birth process to proceed under normal conditions, the physiology of the mother must be ready and the fetus must be suitable for birth. If the mother is under stress, both may experience labor before they are ready for birth (Romano & Lothian, 2007). Minimizing the stress levels of pregnant women is of great importance in terms of mother and baby health and a healthy delivery (Ust et al., 2013).

Health literacy is defined as the combination of skills and motivation required for an individual to make informed decisions about their health, safeguard and enhance their well-being, and access necessary information to prevent potential diseases (Copurlar & Kartal, 2016). In the context of pregnancy, health literacy directly influences both the mother and the baby. The ability of the pregnant woman to provide, understand and use basic information about health, and to make appropriate decisions for herself and her baby, is affected by the level of health literacy (Renkert and Nutbeam 2001). Additionally, health literacy determines how the woman and her family seek resolutions to health issues (Janicke et al., 2001). Assessing the health-related knowledge, understanding, and comprehension levels of pregnant women utilizing health services helps identify potential problems and enhances the effectiveness of health services and health education provided to pregnant women. Consequently, pregnant women with better health information are more likely to modify their lifestyles and adopt behaviors that enhance their own health, that of their families, and ultimately benefit society. As women's health behaviors significantly impact the well-being of family members, women play a crucial role in promoting community health. The pregnancy period, being a time when women are most engaged with health services and receptive to learning about health-related knowledge and behaviors, presents an opportunity to enhance health literacy levels (Filiz, 2015). The level of health literacy is an important factor in shaping pregnant women's ability to benefit from health services and comprehend and implement health-related matters (Akca et al., 2020). This study was carried out to determine the health literacy levels of pregnant women and the parameters affecting pregnancy stress. The objective of this study was to determine the health literacy levels of pregnant women and the factors influencing pregnancy stress. To achieve this goal, the study sought answers to the following research questions:

1. What are the factors affecting the health literacy levels of pregnant women?

2. What are the factors influencing pregnancy stress among pregnant women?

3. Is there a correlation between the health literacy levels of pregnant women and their experience of pregnancy-related stress?

Materials and Methods

Type of Research: It is a cross-sectional descriptive-correlational research.

Population and Sample: The population of the study consisted of pregnant women who visited the obstetrics and gynecology clinics at Zonguldak Women and Children's Hospital between May 4, 2020, and July 3, 2020. The sample of the study comprised 454 pregnant women who met the research criteria. The inclusion criteria were as follows: being over 18 years old, not having received any fertility treatments to conceive, having no history of high-risk pregnancies, having a live birth, being able to read and understand Turkish, and voluntarily agreeing to participate in the study.

Data Collection Tools: The "Personal Information Form," "Health Literacy Scale (HLS)," and "Pregnancy Stress Rating Scale (PSRS)" were used to collect the data.

Personal Information Form: This form includes descriptive questions aimed at assessing the socio-demographic characteristics (age, educational status, spouse's educational status, marital status, duration of marriage, employment status, income level, family type) and obstetric history (number of children, number of pregnancies, gestational age, health issues during pregnancy, birth preference, current health status) of the pregnant women.

Health Literacy Scale: To assess the level of health literacy, the Health Literacy Survey in Europe (HLS-E.U) scale developed by Sorensen, consisting of 47 items, was simplified by Toc, Bruzar, and Sorensen. The Cronbach's alpha value of the HLS-E.U scale ranged from 0.51 to 0.91 (Sorensen et al., 2013). The Health Literacy Scale (HLS) in Turkish, which was validated and tested for reliability by Aras and Bayik-Temel (2017), consists of 25 items and four subscales. **The Access to Information subscale** includes five items (Items 1-5), with a minimum score of 5 and a maximum score of 25. **The Understanding of Information subscale** comprises seven items (Items 6-12), with a minimum score of 7 and a maximum score of 35. **The Appraisal/Evaluation subscale** consists of eight items (Items 13-20), with a minimum score of 8 and a maximum score of 40. **The Application/Use subscale** includes five items (Items 21-25), with a minimum score of 5 and a maximum score of 25. Participants rate the scale items on a Likert scale with the following response options: "5: I have no difficulty at all, 4: I have a little difficulty, 3: I have some difficulty, 2: I have a lot of difficulty, 1: I am unable/cannot do it." All items in the scale are positively worded, and there are no reverse-coded items. The original scale has a standard deviation of 0.95, and the internal consistency coefficients (Cronbach's alpha) for the subscales range from 0.90 to 0.94. The Cronbach's alpha values for the Turkish version of the scale are 0.92 for the "total scale," 0.71 for the "access to information" subscale, 0.79 for **the "understanding of information" subscale,** 0.66 for the "appraisal/evaluation" subscale, and 0.62 for the "application/use" subscale. The minimum score for the entire scale is 25, and the maximum score is 125. Lower scores indicate inadequate, problematic, and weak health literacy, while higher scores indicate sufficient and excellent health literacy. As the score increases, an individual's level of health literacy also increases.

Pregnancy Stress Rating Scale: The Pregnancy Stress Rating Scale was developed in China in 1983 by Chen et al. with 30 items to measure perceived stress during pregnancy. Later in 2015, the scale was validated and tested for reliability in Taiwan, expanded to 40 items by adding stressors related to childbirth and postpartum, and then reduced to 36 items. The final version of the scale in 2015 consists of five (5) subscales. All items in the scale are positively worded and rated on a 5-point Likert scale. The scoring ranges from "definitely no (0)" to "mild (1)," "moderate (2)," "severe (3)," and "very severe (4)." The sum of all item scores yields the pre-birth stress score. The minimum score obtained from the scale is 0, and the maximum score is 144. A higher score indicates a high level of perceived pre-birth stress (Aksoy et al., 2019). The Turkish validation and reliability study of the scale was conducted by Aksoy et al. (2019). In the Turkish version, seven factors were identified for the scale, and these factors were named in accordance with the structure and theoretical integrity.

Factor 1 **represents stress related to safe healthcare during pregnancy, childbirth, and postpartum** (items 25, 26, 27, 28, 29, 30, 31, 32, 36);

Factor 2 represents **stress related to inadequate social support during**

childbirth and postpartum (items 12, 13, 14, 15, 16, 18, 21);
Factor 3 represents **stress related to baby's health** (items 9, 10, 24, 11, 23);
Factor 4 represents **stress related to baby's identity and care** (items 7, 8, 33, 35);
Factor 5 represents stress related to body image (items 1, 2, 3, 34);
Factor 6 represents **stress related to socio-economic life during pregnancy** (items 17, 19, 20, 22); and Factor 7 represents **stress related to psychological changes during pregnancy** (items 4, 5, 6). The Cronbach's alpha reliability coefficients were determined as follows: 0.94 for the total scale, 0.82 for the "safe healthcare during pregnancy, childbirth, and postpartum" subscale, 0.81 for the "childbirth and postpartum social support" subscale, 0.80 for the "baby's health" subscale, 0.78 for the "baby's identity and care" subscale, 0.73 for the "body image" subscale, 0.70 for the "socio-economic life during pregnancy" subscale, and 0.63 for the "psychological changes during pregnancy" subscale.

Data Collection: After obtaining the necessary permissions, the pregnant women were informed about the purpose of the study. Verbal consent was obtained from the pregnant women who wanted to participate in the study, and data collection forms were applied by face-to-face interview technique.

Ethical Dimension of Research: Written permission was obtained from Zonguldak Bulent Ecevit University Human Research Ethics Committee (07/01/2020-668) and Zonguldak Provincial Health Directorate (95762934-799/31.01.2020-3313) to conduct the study. Pregnant women who applied to the pregnant outpatient clinics of Zonguldak Obstetrics and Pediatrics Hospital and who met the research criteria were informed about the purpose and importance of the research. Verbal consent was obtained from the pregnant women who agreed to participate in the study.

Data Analysis: The analysis of research data was performed using the SPSS (Version 26) software package. The normal distribution of the research data was evaluated using the Kolmogorov-Smirnov test. Categorical variables in the study were presented with frequencies (n) and percentages (%), while continuous variables were presented as mean ± standard deviation. It was determined that the used data followed a normal distribution. For the comparison of quantitative data between two independent groups, the Student's t-test was applied, and for comparisons between more than two independent groups, one-way analysis of variance (ANOVA) was used. Bonferroni-corrected p-value was used for comparisons in the variables with a difference. Spearman correlation analysis was used to determine the relationship between the scales used in the study. The statistical significance level was set at $p<0.05$ in the research.

Findings

Table 1 presents the distribution of pregnant women according to the variables related to their socio-demographic and obstetric characteristics. The mean age of the pregnant women was 28.83±5.61 (min: 18; max: 48). It was found that 53.1% of the pregnant women were high school graduates, 94.9% were married, and 60.8% of them had an equal income to their expenses. In addition, it was found that most of the pregnant women (54.4%) were not working and 78.9% of them lived in a nuclear family. 50.2% of the pregnant women stated that their current pregnancy was their first pregnancy and 55.3% stated that they did not have a living child. The majority of pregnant women (43%) were in the second trimester (14-26 weeks) and 72.5% preferred cesarean delivery. 53.1% of the pregnant women stated that they experienced nausea during pregnancy and 53.1% defined their health status as good (Table 1).

When the total mean scores of the PSRS according to the socio-demographic and obstetric variables of the pregnant women were examined, age ($p=0.0001$), education status ($p=0.0001$), spouse educational status ($p=0.0001$), employment status ($p<0.0001$), duration of marriage ($p=0.001$), income status ($p=0.003$), family type ($p=0.032$), number of children ($p=0.0001$), number of pregnancies ($p=0.0001$), gestational week ($p<0.0001$), experiencing nausea ($p=0.004$), experiencing high blood sugar levels ($p=0.026$), experiencing high blood pressure ($p<0.0001$), and self-evaluation of current health status ($p<0.0001$), the differences in GSDS total score averages were found to be statistically

significant (p<0.05) (Table 2). Accordingly, pregnant women in the age group of 18-25, with themselves and their spouses having a postgraduate education level, married for less than three years, and living in extended families had significantly higher PSRS total scores. When looking at the obstetric characteristics of pregnant women, it was observed that those who had no living child and had their first pregnancy, were in the first trimester of pregnancy, and experienced health problems during pregnancy (nausea, high blood sugar levels, high blood pressure) had higher PSRS total scores. Additionally, pregnant women who evaluated their health status as poor also had higher PSRS total scores.

When the mean total score of the pregnant women according to socio-demographic and obstetric variables was examined, differences in the mean value of the total HLS score of the patients according to the duration of marriage (p=0.045), employment status (p=0.001), income status (p=0.0001) and family type (p=0.001) were statistically significant (p<0.05) (Table 2). Accordingly, the total HLS scores of pregnant women with less than three years of marriage, those who are working, living in a nuclear family and low income were significantly higher. There was no statistically significant difference between the obstetric characteristics of the pregnant women and their HLS scores.

The results of the correlation analysis of the PSRS and sub-dimension scores of the pregnant women and the HLS and sub-dimension scores are presented in Table 3. Accordingly, there is an inverse negative relationship between the PSRS total score and the HLS mean score (r=-0.107; p=0.023). Accordingly, as the health literacy level of pregnant women decreases, there is an increase in the perceived stress level during pregnancy. Among the PSRS sub-dimensions of the pregnant women, "factor 1", "factor 3", "factor 4", "factor 5", "factor 6", "factor 7" and HLS "Access to information" and "Understanding information" subgroups, "factor 2" and "Access to information" subgroups, there was a weak and significant negative correlation (p<0.05) (Table 3). Accordingly, as the level of access to and understanding of health information decreases, stress arising from safe pregnancy, birth and postpartum health care, stress related to baby's health, stress related to baby's identity and care, body image stress, socio-economic life stress during pregnancy, psychological stress during pregnancy and the level of stress associated with changes increases. Furthermore, as the level of access to health information decreases, the stress caused by the lack of social support during birth and postpartum increases.

Table 1. Socio-demographic and obstetric characteristics of pregnant women (n=454)

Variables		Number (Percentage)
Age	18-25 years old	102 (22.5)
	26-35 years old	272 (59.9)
	36-48 years old	80 (17.6)
Educational status	Primary/Middle School	54 (11.9)
	High School	241 (53.1)
	University	145 (31.9)
	Postgraduate	14 (3.1)
Spouse educational status	Primary/Middle School	39 (8.7)
	High School	175 (38.5)
	University	228 (50.2)
	Postgraduate	12 (2.6)
Marital status	Married	431 (94.9)
	Single	23 (5.1)
Duration of marriage	3 years and below	220 (48.5)

	4 years and above	234 (51.5)
Employment status	Working	207 (45.6)
	Not working	247 (54.4)
Income level	Income less than expenses	83 (18.3)
	Income equals expense	276 (60.8)
	Income greater than expenses	95 (20.9)
Family type	Nuclear family	358 (78.9)
	Extended family	96 (21.1)
Number of children	No living children	251 (55.3)
	1	123 (27.1)
	2	64 (14.1)
	3 and more	16 (3.5)
Number of pregnancies	First pregnancy	228 (50.2)
	Second pregnancy	146 (32.2)
	Three or more pregnancies	80 (17.6)
Gestational week	0-13 weeks	85 (18.7)
	14-26 weeks	195 (43.0)
	27-40 weeks	174 (38.3)
Occurrence of nausea	Yes	241 (53.1)
	No	213 (46.9)
Occurrence of high blood sugar levels	Yes	56 (12.3)
	No	398 (87.7)
Occurrence of high blood pressure	Yes	31 (6.8)
	No	423 (93.2)
Birth preference	Cesarean section	329 (72.5)
	Vaginal birth	125 (27.5)
Current state of health	Excellent	45 (9.9)
	Good	241 (53.1)
	Average	141 (31.1)
	Poor	26 (5.7)
	Very poor	1 (0.2)
Total		454 (100)

Table 2. Comparison of the mean total scores of PSRS and HLS according to the socio-demographic and obstetric characteristics of pregnant women (n=454)

Variables		**PSRS Mean±SD**		**HLS Mean±SD**	
Age	18-25 years old(1)	64.08±28.78	1>2	106.09±16.10	
	26-35 years old(2)	53.43±26.73	2>3	107.34±16.21	
	36-48 years old(3)	44.85±50.86	1>3	104.80±21.93	
		p=0.0001		p=0.48	
Educational status	Primary/Middle(1) School(2)	31.00±21.48	4>1	104.94±19.56	
	High School(3)	56.80±27.65	**4>2**	103.75±16.71	
	University(4)	55.73±27.00	**4>3**	112.82±14.89	
	Postgraduate(5)	63.92±21.15		111.85±15.94	
		p=0.0001		p=0.10	
Spouse Educational status	Primary/Middle School(1)	25.24±19.78	4>1	106.87±17.01	
	High School(2)	53.64±25.95	**4>2**	109.11±18.23	
	University(3)	58.27±27.86	**4>3**	101.82±18.15	
	Postgraduate(4)	60.75±26.57	3>1	109.66±15.76	
		p=0.0001		p=0.21	
Marital status	Married(1)	54.42 ±28.08		106.774±17.26	
	Single(2)	52.26 ±24.46		103.60±18.46	
		p=0.718		p=0.39	
Duration of marriage	3 years and below(1)	58.25±27.75	1>2	108.03±15.89	1>2
	4 years and above(2)	49.11±27.26		104.74±18.91	
		p=0.001		**p=0.045**	
Employment status	Working(1)	52.49±26.67		109.55±16.19	1>2
	Not working(2)	55.83±28.82		104.14±17.87	
		p=0.203		**p=0.001**	
Income level	Income less than expenses(1)	59.14±28.33	1>2	113.10±14.61	2>3

	Income equals expense(2)	50.78±27.69	3>2	106.38±16.06	1>3
	Income greater than expenses(3)	60.34±26.61		99.96±21.28	
		p=0.003		**p=0.0001**	
Family type	Nuclear family(1)	52.85±28.36	2>1	108.31±15.73	1>2
	Extended family(2)	59.73±25.40		100.29±21.18	
		p=0.032		**p=0.001**	
Number of children	No living children(1)	62.09±27.02	1>2	108.71±16.11	
	1 children(2)	45.43±24.08	1>3	104.39±17.35	
	2 children(3)	42.20±27.99	1>4	104.89±17.28	
	3 and more(4)	47.00±24.68	4>2	97.69±6.63	
		p=0.0001		p=0.055	
Number of pregnancies	First pregnancy(1)	61.82±27.35	1>2	108.32±16.27	
	Second pregnancy(2)	49.03±25.46	1>2	105.37±17.01	
	Three or more pregnancies(3)	53.00±49.49	1>3	105.70±16.93	
		p=0.0001		p=0.069	
Gestational week	0-13 weeks(1)	66.48±25.88	1>2	107.07±15.01	
	14-26 weeks(2)	54.92±27.54	1>3	108.11±17.73	
	27-40 weeks(3)	48.61±27.46		106.02±16.75	
		p< 0.0001		p=0.36	
Occurrence of nausea	Yes(1)	57.84±27.02	1>2	106.68±16.46	
	No(2)	50.31±28.36		106.53±18.28	
		p=0.004		p=0.923	
Occurrence of high blood sugar levels	Yes(1)	62.07±24.80	1>2	110.12±17.29	
	No(2)	53.22±28.14		106.12±17.28	
		p=0.026		p=0.105	
Occurrence of high blood pressure	Yes(1)	72.58±26.36	1>2	103.87±23.71	
	No(2)	52.97±27.54		106.81±16.77	
		p<0 .0001		p=0.361	
Birth preference	Cesarean section(1)	54.40±28.44		107.36±16.39	
	Vaginal birth(2)	54.07±26.44		104.64±19.49	
		p=0.910		p=0.13	
Current state of health	Very good(1)	42.37±24.01	4>1	117.15±11.50	
	Good(2)	48.88±26.69	3>1	108.35±15.22	1>3
	Average(3)	64.04±26.78	5>1	100.58±19.57	5>3
	Poor(4)	74.57±24.38	4>2	106.15±18.93	
	Very poor(5)	54.31±27.88	3>2	106.61±17.32	
		p< 0.0001		p=0.0056	

Table 3. The Relationship between the PSRS and sub-dimensions of the pregnant women and the HLS and sub-dimensions (n=454)

		Access to Information	Understanding Information	Appraisal/Evaluation	Application/Using	PSRS total
HLS	r	0.807**	0.809**	0.917**	0.796**	-0.107*
	p	p<0.0001	p<0.0001	p<0.0001	p<0.0001	**0.023**
Factor 1	r	-0.231**	-0.157**	-0.033	-0.058	0.874**
	p	**p<0.0001**	**0.001**	0.484	0.217	p<0.0001
Factor 2	r	-0.148**	-0.075	-0.053	-0.156**	0.759**
	p	**0.002**	0.111	0.26	0.001	p<0.0001
Factor 3	r	-0.201**	-0.164**	-0.068	-0.085	0.794**
	p	**p<0.0001**	**p<0.0001**	0.15	0.072	p<0.0001
Factor 4	r	-0.256**	-0.204**	-0.02	-0.041	0.823**
	p	**p<0.0001**	**p<0.0001**	0.671	0.382	p<0.0001
Factor 5	r	-0.093*	-0.094*	0.148**	0.072	0.657**
	p	**0.047**	**0.045**	0.002	0.127	p<0.0001
Factor 6	r	-0.251**	-.0281**	0.014	-0.02	0.755**
	p	**p<0.0001**	**p<0.0001**	0.771	0.674	p<0.0001

Factor 7	r	-0.212**	-0.207**	0.058	-0.014	0.720**
	p	**p<0.0001**	**p<0.0001**	0.214	0.762	p<0.0001

Factor 1, *stress related to safe healthcare during pregnancy, childbirth, and postpartum.* Factor 2, *stress related to inadequate social support during childbirth and postpartum.* Factor 3, *stress related to baby's health.* Factor 4, *stress related to baby's identity and care.* Factor 5, *stress related to body image.* Factor 6, *stress related to socio-economic life during pregnancy.* Factor 7, *stress related to psychological changes during pregnancy*

Discussion

The health literacy levels of women affect women's health and consequently child health. Health literacy level influences women's behaviors in protecting and improving their health and developing health-related behaviors. In our study, it was found that pregnant women with a marriage duration of less than three years, who are employed, living in nuclear families, and have a low income, have higher health literacy levels. Similarly, Kilic (2022) found higher health literacy levels among pregnant women living in nuclear families. This can be explained by the lesser use of traditional and experience-based practices related to healthcare in nuclear families. Decisions and healthcare practices in nuclear families are primarily made between the mother and the father. Consistent with our study, Essam et al. (2022) found that employed pregnant women had higher health literacy. In contrast to our study, some studies in the literature have indicated that pregnant women with higher income levels have higher health literacy levels (Safaie et al., 2018; Akca et al., 2020; Essam et al., 2022; Kilic, 2022). The reason for this difference may be that employed pregnant women with lower income in our study have more socio-cultural interactions with others, which facilitates easier access to information and healthcare services. However, the small number of pregnant women with low income in our study may have contributed to this difference. Additionally, no relationship was found between the education level of pregnant women and their spouses and health literacy levels in our study. Having a high education level does not always correlate with high health literacy. This is because health literacy encompasses not only reading and writing skills but also understanding complex information, using technology, searching for information, and interpreting acquired knowledge from different perspectives. Therefore, identifying the understanding and comprehension levels of pregnant women regarding health-related issues through the utilization of healthcare services will enhance the effectiveness of the healthcare services and health education provided to pregnant women. Therefore, pregnant women who gain better health knowledge will change their lifestyles and adopt behaviors that improve their own, their families', and consequently, the community's health.

In our study, no significant difference was found between the obstetric characteristics of pregnant women (number of pregnancies, number of living children, gestational week, birth preference, etc.) and their HLS scores. Similarly, Akca et al (2020) found that the number of pregnancies did not affect the level of health literacy. However, some studies have stated that the level of health literacy decreases with the increase in the number of pregnancies and children (Demirli, 2018; Kilic, 2022). The reason for this is that with the increase in the number of pregnancies and children, the frequency of women's use of health services decreases and the sources of access to information are limited. Furthermore, due to the inexperience of the parents who are preparing for the first baby to be born, pregnant women use health services more frequently and access up-to-date information through different information sources. In a study conducted in Iran, a relationship was found between low health literacy and low glycemic control (Pirdehghan et al., 2020), Essam et al. (2022) emphasized that the majority of participants who reported health problems in their previous pregnancies were associated with lower literacy. This is explained by the fact that individuals with low health literacy find it difficult to understand oral and written health information and have a lower chance of following health directions. The reason for this difference in our study can be explained

by the fact that the education level of the pregnant women in the sample is high school and above.

Pregnancy-related stress affects the health of both the pregnant woman and the fetus, and postpartum stress also influences the health of the mother and the newborn. In our study, it was found that pregnant women aged 18-25, with postgraduate education, a marriage duration of less than three years, and living in extended families had higher PSRS scores. Sis Celik and Atasever (2020) have reported that younger pregnant women and those living in extended families perceive higher levels of stress. In the same study, it was found that pregnant women with a primary school education had higher perceived stress levels (Sis Celik and Atasever, 2020). Similarly, Capik et al. (2015) reported that education level did not affect pregnancy-related stress. The decrease in stress levels with increasing education level can be explained by better access to information and its accurate utilization. Additionally, it is expected that stress increases for women living in extended families due to the increased roles and responsibilities within the family.

In our study, it was found that women without living children and experiencing their first pregnancy had higher PSRS scores. Similar studies in the literature have also found that first pregnancy status increases stress scores (Capik et al., 2015; Dundar et al., 2019). In the study by Sis Celik and Atasever (2020), it was similarly found that women with their first pregnancy and those without any children experienced more stress during the prenatal period. In the same study, it was reported that the perceived stress level decreased as the number of pregnancies increased. Kaloglu Binici and Kose Tuncer (2020) also stated that primiparous women experienced higher levels of stress. Yuksel et al. (2014) mentioned that women experiencing their first pregnancy had higher levels of prenatal distress compared to those experiencing their second pregnancy. However, this finding contradicts the study by Bane et al. (2020) in Ethiopia, where it is stated that multigravid women had higher levels of stress. The increased stress experienced by women in their first pregnancy can be attributed to their lack of knowledge and experience. However, having a higher number of pregnancies can also lead to different health problems, which can increase stress related to health issues.

In our study, it was found that women in their first trimester of pregnancy who experienced health problems such as nausea, high blood sugar, and elevated blood pressure had higher PSRS scores. Similarly, Sis Celik and Atasever (2020) reported that pregnant women experiencing problems during pregnancy had higher levels of perceived stress before childbirth. A similar study conducted in Taiwan also found that the severity of nausea and vomiting during pregnancy was associated with higher levels of perceived stress (Chou et al., 2008). Likewise, Biresaw et al. (2022) emphasized that pregnant women in the first and third trimesters had a four- to five-fold increased likelihood of perceiving stress compared to the second trimester. Bane et al. (2020) stated that perceived stress was higher in pregnant women in the first trimester in Ethiopia. Our study is consistent with the literature. This can be explained by significant life changes (biological, psychological) during pregnancy, especially in the first trimester.

In our study, it was determined that as the health literacy level of pregnant women decreased, the perceived level of stress during pregnancy increased. Similarly, Dorst et al. (2019) found that pregnant women who received health information experienced less stress. However, Kilic (2022) stated that as the health literacy level during pregnancy increased, the perceived level of stress before childbirth also increased. There is limited research in the literature that examined the relationship between perceived stress during pregnancy and health literacy. Factors such as pregnant women's limited access to health-related information, inability to analyze information, and difficulty in accessing healthcare services may contribute to the development of stress among pregnant women.

Limitations of the Research: The reliance on pregnant women's verbal responses to assess perceived prenatal stress and health literacy level constitutes a limitation of the study.

Conclusion: Health literacy plays a crucial role during pregnancy as maternal health

behaviors significantly impact both the mother's and the child's health. As the health literacy level of pregnant women decreases, there is an increase in perceived stress levels during pregnancy. Accordingly, it is recommended to identify risk factors and coping strategies that contribute to stress in pregnant women, enhance interventions aimed at improving their health literacy levels, and plan educational programs to address the stress and concerns experienced by pregnant women.

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