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An Investigation into Health Literacy, Health Practices and Related Factors in Pregnant Women

Gebelerin Sağlık Okuryazarlığı ile Sağlık Uygulamaları ve İlişkili Faktörlerin Belirlenmesi

Rabia Atilla, Nazlı Baltacı, Reyyan Gürel

ABSTRACT

***Objective**: This study aimed to investigate pregnant women's health literacy, health practices and related factors.*
***Method**: The cross-sectional and descriptive study included 224 volunteer pregnant women who were admitted to the gynecology policlinic of a university hospital between September 2021 and February 2022. "Pregnant Presentation Form", the "Health Literacy Scale" and "Health Practices Questionnaire in Pregnancy" were used to collect data.*
***Results**: The findings indicate that the mean score of the "Health Literacy Scale" of pregnants was 112.62±14.03, while the mean score of the "Health Practices Questionnaire in Pregnancy" was 130.97±14.66, and there was a significant positive correlation between the mean values for both scales (p< 0.01, r=0.555). A significant association was found between pregnant women's place of residence, family type, occupation, education, income level, pregnancy planning, use of folic acid and iron medication, and health literacy and health practice (p< 0.05). It also found that women's health literacy and pregnancy health practices decreased with increasing years of marriage, pregnancy, birth and children (p< 0.05).*
***Conclusion**: The study found that pregnant women had high health literacy and good health practices. Additionally, the increase in health literacy during pregnancy is associated with improved health practices.*

***Keywords:** Nursing, pregnancy, health literacy, health knowledge, health practice*

ÖZ

***Amaç**: Bu çalışmada gebelerin sağlık okuryazarlığı, sağlık uygulamaları ve ilişkili faktörlerin belirlenmesi amaçlanmıştır.*
***Yöntem**: Kesitsel ve tanımlayıcı tipteki çalışmaya, bir üniversite hastanesinin kadın doğum polikliniğine Eylül 2021 ile Şubat 2022 tarihleri arasında başvuran 224 gönüllü gebe dahil edilmiştir. "Gebe Tanıtım Formu, Sağlık Okuryazarlığı Ölçeği ve Gebelikte Sağlık Uygulamaları Ölçeği" verilerin toplanmasında kullanılmıştır.*
***Bulgular**: Bulgular, "Gebelerin Sağlık Okuryazarlığı Ölçeği" puan ortalamasının 112,62±14,03, "Gebelikte Sağlık Uygulamaları Ölçeği" puan ortalamasının ise 130,97±14,66 olduğunu ve her iki ölçeğin toplam puanları arasında anlamlı pozitif korelasyon olduğunu göstermiştir (p< 0,01, r=0,555). Gebelerin yaşadığı yer, aile tipi, mesleği, eğitim, gelir düzeyi, gebeliğin planlanması, folik asit ve demir ilacı kullanım durumları ile sağlık okuryazarlığı ve sağlık uygulamaları puan ortalamaları arasında istatistiksel olarak anlamlı bir ilişki bulunmuştur (p< 0,05). Ayrıca evlilik yılı, gebelik, doğum ve çocuk sayısının artmasının, gebelikte sağlık okuryazarlığı ve sağlık uygulamalarını düzeyini azalttığı da tespit edilmiştir (p< 0,05).*
***Sonuç**: Çalışmada, gebelerin yüksek düzeyde sağlık okuryazarlığına ve iyi düzeyde sağlık uygulamalarına sahip olduğu bulunmuştur. Ayrıca gebelik döneminde sağlık okuryazarlığının artması, sağlık uygulamalarının iyileştirilmesi ile ilişkilidir.*

***Anahtar kelimeler:** Hemşirelik, gebelik, sağlık okuryazarlığı, sağlık bilgisi, sağlık uygulaması*

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INTRODUCTION

Health literacy is explained as the aspirations and behaviors of individuals that are needed for access to understanding information, assessment and application of acquired information to make informed decisions for the protection, maintenance, improvement of health [1,2]. Health literacy provides the opportunity to reach and use the right data and service to enhance both individual and social health [2]. Health literacy is essential and crucial for individuals to preserve their health and benefit from basic healthcare information and services that enable recovery [3]. It has been suggested that insufficient health literacy level leads to failure to use preventive health services and delays in seeking help in the symptomatic period, failure to comply with medical recommendations and instructions, inadequate self-care, increased hospitalizations, emergency room visits, healthcare costs and mortality [2,4].

A survey in eight European countries found that 47% of respondents had only a basic understanding of health concepts, with health literacy rates ranging from 29% to 62% in 2015 [5]. Similarly, in our country's report on health literacy, only 30.9% of respondents were literate, with women disproportionately represented in the "at risk" category in 2018 [6]. In a study comitted in Türkiye, it was established that 45.9% of women living in the metropolis had insufficient health literacy [7]. Increasing women's health literacy can strengthen their ability to take care of themselves, which will have a positive impact on the health of their families and society [8].

During pregnancy, that is a remarkable period of women's lifetime, health literacy level of expectant mother is of great importance for mother and child health. Women's health literacy affects on their own health care, pregnancy, foetal, neonatal, and child health, thus public health [8]. Mothers' health literacy affects the health of their pregnancies, prenatal care and birth consequence [9]. A systematic review found that pregnant women's health literacy was limited and varied across studies. In the reviewed studies, it was revealed that health literacy affects beliefs, attitudes and behaviors, knowledge and lifestyle during pregnancy and fewer health literacy level is related with unhealthy behaviors [10]. A study conducted in Kayseri in 2021 found that 56.4% of pregnant women had adequate health literacy (enough /great) [11]. On the other hand, in a study handled in Adana in 2018, 69.27% of women who had recently given birth, were found to have inadequate health literacy [12]. The literacy level of women is affected by educational status [13-16], income status [16], having a profession [13,17], family type and place of residence [16,18].

Adequate health literacy in women creates affirmative attitudes and actions regarding starting time of prenatal care, pregnancy weight gain, use of iron and folic acid supplements, had blood tests and and exercise during pregnancy [19]. Health literacy in pregnancy is associated with nutritional self-care behaviors and has a key role in the prediction of pregnancy outcomes and baby birth weight [20]. Research suggests that adequate health literacy in pregnancy promotes attitudes and behaviors toward a healthy lifestyle, such as regular exercise, adequate and balanced nutrition, and using supportive treatments suitable for gestational weeks [18]. Besides, the increase in mothers' health literacy level also enhances their breastfeeding self-efficacy [21].

There are some research in the literature that examine health literacy status and related conditions during pregnancy [10,15,16,19,22-24]. However, two systematic reviews that examined pregnant women's health literacy and antenatal influencing factors reported that the level of evidence was not sufficient [10,24]. In addition, it has been reported that there is a need for more research is needed to evaluate the level of health literacy during the critically important pregnancy period [24]. In addition, the literature does not contain any studies which have assessed health literacy, antenatal health practices and related factors using a scale. This study differs from others in that it uses a scale to assess health practices during pregnancy, which increases the sensitivity of analyses of subsequent health literacy and determinants, and reinforces the validity of the evidences.

The aim of this study was to describe pregnant women's health literacy, their health practices during pregnancy and the factors associated with them.

Research questions

1. What is the level of health literacy among the pregnant women participating in this study?
2. What is the level of health practices among the pregnant women participating in this study?
3. Is there a relationship between demographic and obstetric characteristics of pregnant women and health literacy and health practices?

4. Is there a relationship between the health literacy level of pregnant women and health practices?

MATERIALS AND METHODS

Design and population

The cross sectional and descriptive research was administered between September 23rd, 2021, and February 28th, 2022, in Başkent University Hospital, Obstetrics outpatient clinics. The study population comprised 240 pregnant women who registered for antenatal care at the obstetric policlinic over a six-month period. This study included all pregnant women who (1) were aged 18 years or older, (2) could communicate orally and in writing, and (3) agreed to participate in this study.

A total of 224 pregnant women who fulfilled the inclusion criteria took part in the study (93.0% of the population).

Data collection tools

"Pregnant Presentation Form," "Health Literacy Scale" and "Health Practices Questionnaire in Pregnancy" was used to collect data.

Pregnant Presentation Form: Researchers prepared "Pregnant Presentation Form" based on the literature [10,12,18,25]. The form includes a total of 29 questions in total about women's socio-demographic characteristics and their spouses, obstetric history, health practices in pregnancy and information sources.

Health Literacy Scale (HLS): Toci et al. (2015) formulated the Health Literacy Scale [26]. Aras and Temel (2015), conducted a validity and reliability research in Türkiye [27]. The scale has 25 items and is divided into four groups: (1) getting to the information; (2) processing the information; (3) judging the usefulness of the information; and (4) making use of the information. Participants rate the things on the scale as follows: "5: I have no problem, 4: I have little difficulty, 3: I have some difficulty, 2: I have a lot of difficulties, 1: I cannot do it / I have no ability / impossible." You can use the scale to get a value between 25 and 125. With a higher score, the individual has a higher grasp of health literacy concepts. The Cronbach's alpha for each dimension ranged from 0.62 to 0.79, while the alpha for the overall scale was 0.92 [27]. Cronbach's alpha for the scale in this research came out to be 0.90.

Health Practices Questionnaire in Pregnancy (HPQ): The scale's development may be traced back to Lindgren in 2005 [28], and a study of its validity and reliability in Türkiye was carried out by Er in 2006. It's a 16-item, 5-point Likert scale. For this scale, "Always" equals 5, "Often," "Sometimes," "Rarely," and "Never" equal 1. Items 17–33 have a range of 1–5 and can be answered with one of five possible answers. Items 5, 6, 7, 11, 21, 22, 23, 24, 25, 32, and 33 on the scale had their wording switched around. The scale has a maximum point value of 165 and a minimum value of 33. Results that are high reflect healthy habits [25]. Cronbach's alpha in this research was 0.82.

Data collection

After obtaining the necessary permissions to conduct this study, the pregnant women were informed in detail about this study by the researchers and verbal and written consent was obtained from them. Data collection instruments were administered to the participating women by the researchers using face-to-face interviewing at the obstetrics clinic of the hospital where the present study was conducted.

Data analysis

IBM SPSS (v.23) software was used to analyse all data. In this study, descriptive statistical methods, such as number, percentage, minimum-maximum scores, mean and standard deviation were used to analyse sociodemographic data. In the analysis of normally (the range (-1, +1) was taken as reference) distributed data, "independent sample t-test, one-way analysis of variance (ANOVA), Tukey's test" was used, " Mann-Whitney U test, Kruskal-Wallis U test and Tamhane's T2 test" were used to analyse non-normally distributed data. The relationship between the scores obtained from the scales was determined by "Pearson correlation analysis (r: correlation coefficient, r=0.00-0.25 very weak, r=0.26-0.49 weak, r=0.50-0.69 moderate, r=0.70-0.89 high, r=0.90-1.00 very high)." The reliability of the scales was analysed using Cronbach's alpha. 95% confidence interval and $p<0.05$ significance level were used to analyse results.

Ethics

Ethical approval for the research was received from Başkent University Ethics Committee (Decision No: 21/133/22.09.2021). The Declaration of Helsinki was followed throughout the research. Informed consent was obtained from all pregnant women who participated in the study.

RESULTS

Table 1 shows the distribution of socio-demographic characteristics among pregnant women. Mean age (year) of pregnancies was 27.62 ± 5.12. The majority of women live in the province, a housewife, cigarettes and alcohol did not use.

Distribution of pregnant women's some obstetric characteristics were presented in Table 2. The findings showed that the mean week of gestation of the women was 35.96±4.47, and the mean number of pregnancy follow-up was 10.53±4.14. Regarding pregnancy, 34.54% of women stated that they were informed about screening programs, 35.7% about vaccination, 28.6% about harmful substances, 29.9% about sexually transmitted infections (STI), 67.9% about the use of vitamins, 62.9% about adequate and balanced diet, 59.8% about weight gain, 31.3% about sleep pattern, 26.8% travel, 44.6% exercise, 43.3% about sexual life, 37.5% self-care behaviors, 46% medication use, and 20.1% herbal products/ food supplements. In addition, 32.1% of the pregnant women obtained information about pregnancy from their mother, 30.4% from their friend, 17.4% from their spouse, 69.2% from nurses/midwife, 74.1%

Table 1. Pregnant women's distribution of socio-demographic characteristics (n=224)

Characteristics		X ± SD	Min.-Max.
Age (years)		27.62±5.12	18-44
Marriage age		22.37±4.25	15-41
Marriage year		5.32±4.96	1-24
		n	%
Place of residence	Province	158	70.5
	District	41	18.3
	Village/town	25	11.2
Educational status	Primary and secondary school	66	29.5
	High school	78	34.8
	Undergraduate and higher	80	35.7
Profession	Housewife	156	69.6
	Civil servant	34	15.2
	Worker and self-employed	34	15.2
Family type	Nuclear family	195	87.1
	Extended family	29	12.9
Income status	Income less than expenses	55	24.6
	Income equals expense	139	62.1
	Income more than expenses	30	13.3
Smoking	Yes	15	6.7
	No	209	93.3
Alcohol use	Yes	3	1.3
	No	221	98.7

X ± SD: Mean ± standard deviation; n: number; %: percentage

Table 2. Distribution of pregnant women's some obstetric characteristics (n=224)

Characteristics		X ± SD	Min.-Max.
Number of pregnancies		2.15±1.33	1-8
Number of births		0.99±1.13	0-5
Number of living children		0.89±1.04	0-5
Gestational week		35.96±4.47	8-41
First pregnancy follow-up week		5.91±1.99	2-12
Number of pregnancy follow-ups		10.53±4.14	2-25
		n	%
Pregnancy plan	Planned	184	82.1
	Unplanned	40	17.9
Presence of any disease during pregnancy	Yes	206	92.0
	No	18	8.0
Folic acid use	Yes	189	84.4
	No	35	15.6
Vitamin D use	Yes	166	74.1
	No	58	25.9
Use of iron supplementation	Yes	157	70.1
	No	67	29.9
Tetanus vaccination status	Vaccinated	194	86.6
	Unvaccinated	30	13.4
Status of exercising	Doing	99	44.2
	Doesn't	125	55.8
Participation in antenatal education	Participated	34	15.2
	Did not participate	190	84.8

X ± SD: Mean ± standard deviation; min.: minimum; max.: maximum; n: number; %: percentage

from physicians, 8.5% through courses, 21.9% from books, magazines or newspapers, and 67.9% from the internet.

The distribution of the mean HLS and HPQ scores of the pregnant women are presented in Table 3. While the mean total score of HLS in pregnant women was 112.62±14.03, the mean total score of HPQ was 130.97 ± 14.66.

A comparison of the total mean scores of HLS and HPQ scores regarding some sociodemographic and obstetric characteristics of pregnant women is presented in Table 4. A significant difference was found between the place of residence, educational status, occupation, income status, family type, pregnancy plan, folic acid use, and iron medication use of the pregnant women, and both HLS and HPQ scores ($p< 0.05$). Moreover, women's health practices during pregnancy were higher in those who exercised than those who did not ($p= 0.001$). In addition to these, as the age of marriage and the number of pregnancy follow-ups of pregnant women increased, the HLS and HPQ scores increased; and as the year of marriage, the number of pregnancies, the number of births, and the number of living children increased, HLS and HPQ scores decreased ($p< 0.05$).

The correlation values between the HLS and HPQ scores of the pregnant women are presented in Table 5. There was a moderately positive and significant correlation between the HLS mean scores of the pregnant women and the mean HPQ scores ($p< 0.01$). Similarly, as pregnant women's health literacy increases, the level of pregnancy-related health practices increases.

DISCUSSION

The study found that pregnant women had high levels of health literacy and good health practices, and a significant positive relationship was found between them. In addition, a statistically significant relationship was obtained between family type, place of residence, occupation, education, income level, pregnancy planning, folic acid and iron using, and health literacy and health practice levels of the pregnants. It was also revealed that as women's years of marriage, pregnancy, birth and number of children increased, their health literacy and health practices during pregnancy decreased.

Pregnant women's health literacy is associated with socio-demographic factors such as age, family income, education, employment, socio-economic class, parental education and ethnicity. Risk of low health literacy increased with lower education, ethnicity and unemployment in the prenatal period [24]. In the present study, it was found that average age of women 27.62±5.12, 70.5% lived in the province, 35.7% pregnant women had a bachelor's degree or higher, 69.6% were housewives and 62.1% had equal income and expenditure level. In a study that supports our findings, pregnant women who were educated for more than 8 years, had a high socioeconomic level and worked were found to have higher health literacy [29].

This study found that 84.8% of pregnants did not participate in antenatal education and 74.1% received information about pregnancy from physicians. During pregnancy, an important period in women's lives, health literacy levels influence

Table 3. Distribution of the mean HLS and HPQ scores of the pregnant women (n=224)

Scales	X ± SD	Min	Max
HLS total	112.62±14.03	51	125
Access to information sub-dimension	22.70±3.15	7	25
Understanding information sub-dimension	31.08±4.45	10	35
Appraisal/evaluation sub-dimension	36.00±5.06	14	40
Application/use sub-dimension	22.82±2.90	13	25
HPQ total	130.97±14.66	82	162

X±SD: mean, standard deviation; min.: minimum; max.: maximum

Table 4. Comparison of the total mean scores of HLS and HPQ according to some sociodemographic and obstetric characteristics of pregnant women (n=224)

Characteristics		HLS	Test; p	HPQ	Test; p
		Median (min.-max.)		X ± SD	
Place of residence	Province	118 (75-125)[a]	KW=6.404 **0.041**	133.47±13.24[a]	F=17.205 **0.001**
	District	117 (63-125)[ab]		130.34±12.46[ac]	
	Village/town	112 (51-125)[b]		116.20±17.94[b]	
Educational status	Primary and secondary school	114 (51-125)[a]	KW=22.169 **0.001**	123.12±14.13[a]	F=36.841 **0.001**
	High school	115 (75-125)[ac]		127.89±13.10[ac]	
	Undergraduate and postgraduate	121 (84-125)[b]		140.45±11.10[b]	
Profession	Not working	115 (51-125)[a]	KW=20.890 **0.001**	126.80±13.76[a]	F=25.633 **0.001**
	Civil servant	122 (90-125)[b]		141.82±10.70[b]	
	Worker and self-employed	121 (63-125)[b]		139.23±13.22[b]	
Income status	Income less than expenses	113 (51-125)[a]	KW=16.842 **0.001**	125.61±13.14[a]	F=13.023 **0.001**
	Income equals expense	117 (63-125)[ac]		130.76±13.71[ac]	
	Income more than expenses	123 (63-125)[b]		141.73±16.19[b]	
Family type	Nuclear family	118 (51-125)	Z=-4.243 **0.001**	133.01±13.37	t=5.768 **0.001**
	Extended family	109 (63-124)		117.27±15.83	
Smoking	Yes	112 (63-125)	Z=1.759 0.079	129.93±8.13	t=-0.475 0.639
	No	117 (51-125)		131.04±15.03	
Alcohol use	Yes	97 (91-121)	Z=1.245 0.213	124.00±14.10	t=-0.829 0.408
	No	117 (51-125)		131.06±14.68	
Pregnancy plan	Planned	117 (63-125)	Z=-2.343 **0.019**	133.47±12.81	t=4.889 **0.001**
	Unplanned	113 (51-125)		119.45±17.13	
Presence of any disease during pregnancy	Yes	116 (51-125)	Z=-1.779 0.075	130.84±14.76	t=0.443 0.658
	No	121 (75-125)		132.44±13.77	
Folic acid use	Yes	117 (51-125)	Z=-2.117 **0.029**	133.02±13.51	t=5.125 **0.001**
	No	113 (63-125)		119.91±15.86	
Use of vitamin D	Yes	116 (51-125)	Z=1.427 0.154	131.70±14.65	t=1.265 0.207
	No	120 (63-125)		128.87±14.61	
Use of iron supplementation	Yes	118 (63-125)	Z=-2.821 **0.005**	133.74±12.42	t=3.963 **0.001**
	No	113 (51-125)		124.47±17.33	
Tetanus vaccination status	Vaccinated	116 (51-125)	Z=0.889 0.374	131.11±14.79	t=0.376 0.707
	Unvaccinated	121 (92-125)		130.03±13.97	
Status of exercising	Doing	118 (63-125)	Z=-1.468 0.142	135.58±13.35	t=4.403 **0.001**
	Doesn't	116 (51-125)		127.32±14.67	
Participation in antenatal education	Participated	115 (63-125)	Z=0.972 0.331	134.79±14.90	t=1.656 0.099
	Did not participate	117 (51-125)		130.28±14.55	

Table 4. Continued		
Age	r=-0.034; 0.611	r=-0.067; 0.320
Marriage age	r=0.277; **0.001**	r=0.352; **0.001**
Marriage year	r=-0.290; **0.001**	r=-0.359; **0.001**
Number of pregnancies	r=-0.187; **0.005**	r=-0.318; **0.001**
Number of births	r=-0.268; **0.001**	r=-0.361; **0.001**
Number of living children	r=-0.294; **0.001**	r=-0.401; **0.001**
Gestational week	r=0.018; 0.788	r=-0.102; 0.126
First pregnancy follow-up week	r=0.046; 0.490	r=-0.121; 0.070
Number of pregnancy follow-ups	r=0.160; **0.016**	r=0.353; **0.001**

a,b,c: Representation of differences according to Tukey/Tamhane's T2 test - no difference between groups with the same letter.
Z: Mann-Whitney U test; KW: Kruskal-Wallis U test; F: One-way analysis of variance; t: Independent sample t-test; r: Pearson correlation analysis-correlation coefficient

Table 5. Correlation values between HLS and HPQ scores of pregnant women (n=224)

Scales	HLS total	Access to information sub-dimension	Understanding information sub-dimension	Appraisal/evaluation sub-dimension	Application/use sub-dimension
HPQ total	r=0.555*	r=0.540*	r=0.474*	r=0.500*	r=0.497*

**p< .01; **Pearson correlation analysis; r: correlation coefficient "(r=0.00-0.25 very weak, r=0.26-0.49 weak, r=0.50-0.69 moderate, r=0.70-0.89 high, r=0.90-1.00 very high)"*

their ability to access and learn information and make appropriate health decisions that protect and improve their health and that of their baby [24]. Low health literacy is a risk factor for high-risk health behaviours [10]. Evaluation of literacy level is critical for a healthy pregnancy period [30].

This study found that the health literacy of pregnant women was high (112.62±14.03). More than half of pregnants in Iran [13,31], and nearly half of pregnant women in Qatar have been reported to have an inadequate or limited health literacy [30]. In other studies in Türkiye using the same scale, pregnant womens health literacy was found moderately high (103.64±16.25) in the district centre residents [21], and high level (112.62±14.03) in city center residents, which is similar to our study [15]. In studies analysing health literacy in pregnants in Türkiye with different scales, the results have been evaluated at different levels as insufficient, limited [14,23], or high [18].

The variation in pregnant women's health literacy reported in the literature may be due to many factors, including the country or region of the study, the scales used in the study, the health institution where the study was conducted, the gestational week of the individuals evaluated, the health risk status, culture, and socioeconomic status of the pregnant women [10,16,22,30].

Adequate health literacy among pregnant women increases their equality of information about antenatal care, improves health practices in pregnancy and increases their chances of obtaining a healthy pregnancy outcome [19,22]. Pregnant women were found to have good health practices (130.97±14.66) in this study. In contrast, in our study, pregnant women in eastern Türkiye had moderate health practices (114.43±17.90 and 109.8±12.9) [32,33]. Compared with other studies, the high rate of health practices during pregnancy in our study may be due to the effects of the provinces where the data were collected, and due to socio-cultural and individual differences in health practices.

A high level of education is an important feature that increases health literacy [13-15] and affects prenatal care services [16,17]. The study found that the higher percentage of pregnant women with undergraduate and higher education significantly increased the level of health literacy and significantly increased health practices during pregnancy. As educational attainment declines, it may cause challenges in accessing information and understanding medical terms, inadequacy in access to healthcare services, and may prevent the implementation of positive health practices [17].

In this study, it was noticed that the status of having a profession/job and a high income level among pregnant women increased health literacy and increased health practices during pregnancy. Consistent with our results in this study, Dadipoor et al. [13] found that pregnant women's health literacy was significantly affected by occupational factor, while Asadi et al. [17] described higher health literacy among those with professionals compared to housewives. Forghani et al. suggest that there is a significant correlation between pregnant women's income levels and their health literacy score [16]. Health literacy is an integrated concept that encompasses social structure, environmental and cultural characteristics of the place where individuals live, and the healthcare system [1,22]. In our study, the state of living in the province and having a nuclear family structure significantly increased pregnant women's health literacy level and significantly increased health practices during pregnancy. Although there are studies reporting consistent results in the literature [16,18], one study reported that there was no relationship between family type and health literacy [22].

For a healthy pregnancy and birth outcomes, it is recommended to maintain healthy lifestyles and follow positive health practices during and before pregnancy [8,25,33]. In our study, it was found that the planned pregnancy, the increase in the number of pregnancy follow-ups, taking folic acid and iron supplements and exercising significantly increased the level of health literacy. Practices other than exercising significantly increased health practices during pregnancy. The results of Öztürk Emiral's research are similar to our findings [18]. Özcoban Astantekin et al. reported that pregnant women with greater health literacy were more likely to receive pre-conception counseling, to have regular health check-ups and to take folic acid, and to be physically active on more than three days a week [19]. Kharazi et al. showed that maternal health literacy, nutritional self-efficacy, and dietary behaviors significantly affect pregnancy outcomes and newborn weight [20]. In this study, the findings showed that the increase in the number of years of marriage, pregnancy, birth and children decreased health literacy level and health practices during pregnancy. In support of our findings, it has been reported in the literature that women with primigravida who have no living children or have one have higher health literacy, and this contributes to prenatal care knowledge [16,18,22].

This study found that there was a significant positive relationship between total mean health literacy scores and pregnant women's health practices at a moderate level (r=0.555) and as the level of health literacy increased, health practices during pregnancy also improved. Concerning the recommended health practices during pregnancy, our study showed that the majority of pregnants with high levels of health literacy planned their pregnancies, began pregnancy follow-up in the first trimester, were vaccinated, attended antenatal follow-ups, and took drug supplements at high rates. The literature supports our study by showing that expectant mothers with higher literacy levels are more likely to receive prenatal counseling and have planned pregnancies [17,19,22], as well as have more positive attitudes and behaviors toward health practices [19,33], including healthy eating, regular exercise, and the use of supportive treatments appropriate for their gestational weeks [18,19].

Limitations and strengths of study

Our research has limitations due to its cross-sectional nature. Cross-sectional studies obtain information during a specific period, so results may vary depending on the time and population the study was done. Therefore, our study could not prove causality. Another limitations is that our study's results were obtained from the obstetrics outpatient clinics of a university hospital in Ankara, which is located in the Central Anatolia region. Thus, they cannot be generalized to the general population of pregnant women in Türkiye. In addition, obtaining data based on self report of pregnant womenmay be create bias. The strength of our study is that pregnancy health literacy status, its relationship with health practices and the other associated factors were assessed and presented using scales.

CONCLUSION

Findings from this study indicated that expectant mothers had a high level of health literacy and good health practices, and that these women's health practices improved as their health literacy levels did as well. Assessment of the level of health literacy of women in the community and making efforts to promote them is crucial in achieving quality of health practices, which are essential to preserving and improving the health of both women and fetuses during pregnancy. The physicians, nurses, and midwives who deliver prenatal care have important

roles and duties in realizing this objective. It is also suggested that training be offered in experimental studies to improve pregnant women's literacy and health behaviors.

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Author contribution
Study conception and design: RA, NB, and RG; data collection: RG; analysis and interpretation of results: RA and NB; draft manuscript preparation: RA, NB, and RG. All authors reviewed the results and approved the final version of the manuscript.

Ethical approval
The study was approved by the Başkent University Ethics Committee (Decision No: 21/133/22.09.2021).

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Conflict of interest
The authors declare that there is no conflict of interest.

Yazar katkısı
Araştırma fikri ve tasarımı: RA, NB ve RG; veri toplama: RG; sonuçların analizi ve yorumlanması: RA ve NB; araştırma metnini hazırlama: RA, NB ve RG. Tüm yazarlar araştırma sonuçlarını gözden geçirdi ve araştırmanın son halini onayladı.

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