

Original Article

The Effects and Related Factors of Health Literacy Status and Self-Efficacy of Pregnant Women

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Abstract

Objective: To determine the factors related to self-sufficiency and health literacy level of pregnant women.

Methods: This descriptive study was conducted at a maternity hospital in the Central Anatolia region of Turkey. The population consisted of volunteer pregnant women who applied to the obstetrics clinic between 01 June and 31 September 2017. The sample were calculated with the G*Power 3.1.7 program as 175 people but 205 pregnant women were included to prevent data loss. The data was collected in a descriptive form containing socio-demographic and obstetric characteristics and general self-efficacy and health literacy levels. The data were evaluated using the SPSS 20.0 package program. Descriptive statistics, correlation, student t-test, chi-square, variance and regression analysis were carried out.

Findings: A total of 205 pregnant women with a mean age of 26.66 ± 6.30 years participated. The average self-efficacy score of the pregnant women was determined as 32.92 ± 7.131 (min = 15, max = 50) and their general health literacy index score average as 58.00 ± 8.15 (min = 42, max = 83). 11.7% of pregnant women had inadequate, 44.4% had problematic-limited, 29.8% had adequate and 14.1% had excellent health literacy. It was found that those with high health literacy received preconception counseling, had regular health checks and used folic acid, and were physically active more than three days a week. It has been determined that pregnant women with a high self-efficacy level received preconception counseling, had health checks, began using iron preparations, had blood tests and were physically active throughout their pregnancy. It was determined that there was a correlation between THL-32 and self-efficacy score averages of pregnant women at $p = 0.000$ significance level.

Result: Health literacy of pregnant women was determined at a moderate level. Individuals with higher levels of health literacy and self-efficacy displayed positive behavior in the preconception period. Self-efficacy was found to be an important factor in explaining the level of health literacy.

Keywords: Pregnant, Self-efficacy, Health Literacy

Introduction

Self-efficacy is the belief in the ability to demonstrate effective behavior regarding events that affect an individual's life (Bandura, 1994). It is a person trusting their own resources and sufficiency. The concept of self-efficacy is the level of motivation that emerges as a result of the planning of the action, the recognition, and organization of necessary skills, and the evaluation of the benefits obtained along with the

difficulties (Yildirim & Ilhan 2010). Persons who believe that they can overcome barriers go into psychological relaxation, experience less anxiety, and act by developing thoughts of success. The formation of a strong self-efficacy allows success and well-being and, most importantly, the diversification of personal development and skills (Kaya & Sahin, 2016). Self-efficacy influences patients', health/illness status, exchange of information, information

recall and use of it, use of health care, the satisfaction level of service, and self-management and its outcome (Katz et al, 2007).

Self-efficacy is an effective element in gaining new behaviors and adapting to the situation during the period of physiological and psychological changes during pregnancy (Salomonsson, et al. 2013; Schwartz, et al 2015; Razurel, et al 2016). In our age, information societies are living a paradox of decision making in the field of health (Kickbusch, 2013). Individuals face complex information and treatment decisions, such as assessing information about illnesses, analyzing risks and gains, calculating drug doses, making sense of test results, or accessing health information.

This requires individuals to be competent and self-managing with sufficient knowledge and skills to make the right decision. However, in the complex modern health care system, the use of advanced technology, legislation, and implementation changes make it difficult to deliver health-related information from the service provider to the service recipient.

Among the causes of this difficulty are the complexity of the process of diagnosis, cultural differences, age-related changes, conditions affecting listening, learning, and remembering, as well as the individual's level of health literacy (Tozun and Sozmen, 2014). Health literacy is defined by the World Health Organization as "the cognitive and social skills that determine an individual's ability to understand and use of information, motivate and access information that helps encourage and sustain good health" (WHO 1998). It is also suggested that this is a multi-level concept that includes cognitive development and personal abilities that affect communication skills to a great extent (Nutbeam, 2008). The level of health literacy has positive or negative effects on the state of health and health behaviors. According to the literature, it has been determined that individuals with poor health literacy have inadequate health protection and development practices, difficulties in chronic disease management and complying with treatment and there is also an increase in the rate of incorrect medical applications, sickness and hospitalization, health care costs and deaths (Baker, 1998; Cho, Lee, Arozullah and Crittenden, 2008; Berkman, et al.2011).

Healthy literacy, which is effective in every period of life, is a vital element, especially during

pregnancy. During this period, the woman has to take responsibility for both herself and her unborn baby while experiencing an intense process of change. At the same time, women have to use health care more frequently during pregnancy than in everyday life. The majority of pregnant women are benefiting from prenatal care services for the first time or could even be using the health care system for the first time. Considering this, the level of inadequate/poor health literacy in the complex health system could be a frightening situation. Given that women's education is essential in improving the state of health in the family, women play a key role in the development of health literacy as a social initiative (Charoghchian et al. 2018). Although there is no relationship between the level of health literacy and self-efficacy of the individual in some studies (Chen et al., 2013), the level of health literacy in other studies is defined as the predictor of self-efficacy (Ishikawa, et al. 2008). In this context, the study is planned as a descriptive study in order to produce information on the determinants of the self-efficacy level and the factors related to the health literacy status of pregnant women due to the limited number of studies on this subject in our country.

Material and Method: This descriptive study was carried out in a maternity hospital in Turkey's Central Anatolia region. The research population consisted of all the pregnant women who attended the obstetrics clinic at the maternity hospital between June 1, 2017, and September 31, 2017, and agreed to participate. The sample size was calculated with 95% power within a 2-point deviation from the known score (29.7 ± 8.0) (Okuy and Abacigil, 2016) with G * Power 3.1.7 program. It was determined that 175 people should be included in the sampling. In order to prevent data loss, 205 pregnant women participated voluntarily, who are literate, have no psychological problems, and agreed to participate in the research.

Data Collection Tools: Descriptive form, general self-efficacy, and health literacy scales were used in the collection of data. Descriptive form, a questionnaire consisting of 55 questions including sociodemographic and obstetric features was prepared by the researchers after scanning the literature.

The general self-efficacy scale, a 23-item original form was developed by Sherer et al. (1982). The validity and reliability of the Turkish form were

developed by Yildirim and Ilhan in 2010 and a scale with 17 questions was created. The score for each question ranges from 1 to 5. The measures 2, 4, 5, 6, 7, 10, 11, 12, 14, 16 and 17 are scored in reverse. The scale total score can vary between 17-85; an increase in the scores indicates that the belief of self-efficacy has increased (Yildirim and Ilhan 2010).

The Turkish Health Literacy Scale-32 (THL-32) was developed in 2016 by Okyay et al. THL-32 is a five-point Likert type scale measuring health literacy level, consists of 32 questions. The scale is based on the conceptual framework developed by the European Health Literacy Survey Consortium (Sorensen et al., 2012). The question content of the scale involves two main indexes as healthcare, disease prevention / health promotion and four main processes: accessing the information, understanding the information, assessing the information and using the information. In the assessment of the scale; indexes were standardized to be between 0 and 50. The following formula should be used for this.

$$\text{Index} = (\text{mean}-1) \times (50/3)$$

Health literacy is defined according to the scores below,

Score (0-25): poor health literacy

(> 25-33): problematic-limited health literacy

(> 33-42): adequate health literacy

(> 42-50): excellent health literacy, (Okyay, Abacigil, 2016).

Data Collection Process: The data was collected face-to-face by interviewers between 01 June and 31 September 2017, based on a self-efficacy.

Data Analysis: Analysis of the research data was carried out with the Statistical Package for Social Science 20 (SPSS 20.0) package program. Descriptive statistics, Pearson Product-Moment Correlation technique, student t-test, chi-square, variance analysis were used.

In multivariate analysis, logistic regression was performed using possible factors in previous analyzes. Hosmer-Lemeshow test was used for model adaptation. THL-32 scale groups were coded as two categorical data to perform logistic regression analysis. Assuming that individuals with adequate and excellent health literacy levels were not in the risk group, they were coded with "0" value, problem-limited and inadequate health

literacy groups were evaluated together and individuals in this group were assumed to be in the risk group and were coded as "1". In the regression analysis, backward logistic regression (Backward LR) ratio selection criterion was used to determine the important ones. Statistically significant cases with a Type-1 error level of less than 5% were interpreted.

In univariate analysis, simple linear regression analysis was performed using possible factors in previous analyzes. Durbin Watson = 1.801 and VIF value for self-efficacy was found to be 1.00. The statistical significance level was accepted as 0.05 in the study.

Ethical Issues: Written permission was obtained from the institution where the study took place. Ethical approval was obtained from the Ethics Committee of Non-Interventional Clinical Investigations of Konya Selcuk University Health Sciences Faculty. Verbal approval was obtained from the participants.

Result

A total of 205 pregnant women with a mean age of 26.66 ± 6.30 (min = 18, max = 47) participated. The average self-efficacy score of the pregnant women was determined as 32.92 ± 7.131 (min = 15, max = 50) and their general health literacy index score average as 58.00 ± 8.15 (min = 42, max = 83). 11.7% of pregnant women had inadequate, 44.4% had problematic-limited, 29.8% had adequate and 14.1% had excellent health literacy. The distributions of descriptive characteristics of pregnant women and THL-32 scale general index and average self-efficacy scores are given in Table 1. There was no significant difference between THL-32 scale general index scores according to descriptive characteristics of pregnant women ($p > 0.05$). There was a significant difference in relation to their education and job status in terms of the average of self-efficacy scores ($p < 0.05$). The Scheffe test was conducted to determine which group was causing the difference between education status and self-efficacy and it was found that the average self-efficacy score of individuals with a higher educational status was high.

Findings related to the comparison of THL-32 and self-efficacy scale score averages according to the information acquisition characteristics of pregnant women are given in table 2. There was a statistically significant difference ($p < 0.05$) in terms of THL-32 general index score averages

according to the use of the internet by pregnant women for health research in the last week. There was a significant difference between pregnant

women's average self- efficacy scale scores and pregnancy-related researching status ($p < 0.05$).

Table 1. Comparisons of THL-32 and self-efficacy scale mean scores according to the descriptive characteristics of pregnant women

Descriptive Properties	n	%	THL-32 Score Average \pm SS	Index	Test Value	self-efficacy Scale Score Average \pm SS	Test Value
Level of Education							
Primary Education	64	31.2	31.95 \pm 7.37		F=0.920 p=0.400	57.45 \pm 7.62	F=5.321 p = 0.006
Secondary Education	105	51.2	33.48 \pm 6.81			56.99 \pm 7.59	
Higher Education	36	17,6	32.99 \pm 7.59			61.91 \pm 9.59	
Employment Status							
Not working (Housewife)	174	84.9	32.67 \pm 6.93		t=-1.173	57.25 \pm 7.68	t=-3.152
Employed	31	15.1	34.30 \pm 8.14		p=0.242	62.16 \pm 9.51	p=0.002
Social Security Status							
None	39	19.0	31.21 \pm 6.73		F=1.625 p=0.199	57.35 \pm 7.82	F=1.029 p=0.359
SSI	155	75.6	33.42 \pm 7.15			58.37 \pm 8.08	
Private Pension	11	5.4	31.88 \pm 7.71			55.00 \pm 10.06	
Residency							
Village / town	48	23.4	32.20 \pm 6.86		F=0.208 p=0.891	57.06 \pm 8.32	F=0.724 p=0.539
District Centre	57	27.8	33.17 \pm 7.62			57.50 \pm 8.17	
Provincial Centre	83	40.5	33.13 \pm 6.84			59.00 \pm 8.10	
Metropolis	17	8.3	33.02 \pm 7.99			57.41 \pm 8.02	
The Family's Monthly Income Status							
Income less than outgoings	76	37.1	32.97 \pm 5.99		F=0.357 p=0.700	56.81 \pm 8.57	F=1.543 p=0.216
Income equal to outgoings	102	49.8	32.61 \pm 7.97			58.43 \pm 7.58	
Income is more than outgoings	27	13.2	33.91 \pm 6.85			59.70 \pm 8.81	

Table 2. Comparison of THL-32 and self-efficacy Scale Scores According to Pregnancy Information Acquisition Characteristics.

Variables	n	%	THL-32 Index Average \pm SS	Score	Test Value	self-efficacy Scale Score Average \pm SS	Test Value
Getting help in literacy activities							
Sometimes	32	15.6	31.27 \pm 7.27		F=1.335	57.46 \pm 7.53	F=0.080
Rarely	29	14.1	32.26 \pm 6.75		p=0.265	58.06 \pm 8.40	p=0.923
Never	144	70.2	33.42 \pm 7.13			58.10 \pm 8.28	
Reading Habit							
None	99	48.3	32.31 \pm 7.32			58.19 \pm 8.04	
1 book per week	13	6.3	37.25 \pm 8.12			62.23 \pm 10.15	
1-2 books per month	38	18.5	34.43 \pm 6.90		F=2.120	57.76 \pm 8.76	F=1.218
3 or more books a year	28	13.7	32.02 \pm 5.14		p=0.080	56.46 \pm 7.49	p=0.304
Other	27	13.2	31.84 \pm 7.40			57.18 \pm 7.04	
Internet usage status							
Yes	175	85.4	33.26 \pm 7.03		t=1.662	58.39 \pm 8.34	t=1.983
No	30	14.6	30.93 \pm 7.46		p=0.098	55.70 \pm 6.59	p=0.053
Use of the internet for health research in the last week							
Yes	97	47.3	34.16 \pm 6.89		t=-2.391	57.96 \pm 8.35	t=-0.051
No	108	52.7	31.80 \pm 7.18		p=0.018	58.02 \pm 8.00	p=0.959
Researching about pregnancy issues status							
No	103	50.2	32.08 \pm 7.19		t=-1.700	56.88 \pm 7.72	t=-1.985
Yes	102	49.8	33.76 \pm 7.00		p=0.091	59.12 \pm 8.44	p=0.049

The mean of the gestational week was 34.85 \pm 7.33, the mean age of marriage was 20.57 \pm 3.01, the mean first pregnancy age was 21.68 \pm 3.80, and the mean of the first week of prenatal care was 10.59 \pm 6.06. When 58% of pregnant women had a health problem, they firstly attended a public hospital and 30.2% attended a family health center. For pregnancy controls, 66.3% go to the public hospital, 22.4% go to the family health center, and 11.2% goes to other health institutions (educational research, university hospital, private hospital, etc.). There was a significant difference between pregnant women being examined by the same doctor and comfortably asking a question during the examination (p = 0.000).

Pregnant women stated that doctors spend an average of 10.59 \pm 6.06 minutes during their examination at the hospital. 22.2% of the

pregnant women stated that they were not comfortable because of time pressure during an examination with a doctor, 14.8% were hesitant to ask questions, and 9.4% stated that they had difficulty understanding what they said.

The obstetric characteristics of the pregnant women and their individual risk situations, THL-32 and self-efficacy scale scores are shown in Table 3. There was a significant difference between the pregnant women receiving prenatal counseling, getting a health check, using folic acid, doing a physical activity and THL-32 in terms of general index score averages (p <0.05). There was a significant difference between the pregnant women receiving prenatal counseling, getting a health check, using iron supplements, having a blood test, physical activity during pregnancy and self-efficacy score averages (p <0.05).

Table 3. Comparing obstetric characteristics of pregnant women with THL-32 and self-efficacy scale score averages

Obstetric Features	n	%	THL-32 Mean±SD	Index	Test Value	self-efficacy Mean±SD	Scale	Test Value
Number of Pregnancies								
Primipara	73	35.6	33.72±7.14		t=1.200	58.45±8.61		t=0.590
Multipara	132	64.4	32.47±7.11		p=0.203	57.75±7.90		p=0.231
Interval between pregnancies								
First pregnancy	73	35.6	33.72±7.14			58.45±8.61		
Between 1-2 years	53	25.9	34.03±7.49		F=2.878	57.69±7.88		F=0.175
>2 years	79	38.5	31.43±6.69		p=0.059	57.78±7.97		p=0.840
Risk Group								
Normal pregnancy	152	74.1	33.29±7.36		t=-1.275	57.85±8.02		t=-0.430
Risky pregnancy	53	25.9	31.84±6.35		p=0.204	58.41±8.57		p=0.668
Regularly taking medication								
Yes	24	11.7	32.72±6.89		t=-0.144	55.00±8.66		t=0.805
No	181	88.3	32.94±7.18		p=0.885	58.39±8.02		p=0.055
Being examined by the same person at the hospital								
Yes	87	42.4	33.66±7.44		t=1.288	59.01±9.12		t=1.530
No	118	57.6	32.37±6.87		p=0.199	57.25±7.30		p=0.127
Ask questions comfortably during the examination								
Yes	168	82.0	33.34±7.28		t=1.816	58.12±8.35		t=0.467
No	37	18.0	31.00±6.13		p=0.076	57.43±7.23		p=0.641
Writing a note in a notebook/diary about problem/situation before going for a check-up								
Yes	18	8.8	32.62±6.68		t=-0.185	54.61±5.85		t=-1.858
No	187	91.2	32.95±7.18		p=0.853	58.32±8.27		p=0.065
Participation in prenatal classes								
Yes	19	9.3	33.52±8.05		t=0.388	57.05±9.85		t=-0.531
No	186	90.7	32.85±7.05		p=0.699	58.09±7.98		p=0.596
Receiving pre-pregnancy counselling (preconception care)								
Yes	21	10.2	36.69±7.95		t=2.591	62.52±10.37		t=2.726
No	184	89.8	32.49±6.92		p=0.010	57.48±7.72		p=0.007
Having a pre-pregnancy health check								
Yes	64	31.2	34.75±7.51		t=2.518	59.75±9.05		t=2.088
No	141	68.8	32.08±6.81		p=0.013	57.20±7.60		p=0.038
Use of folic acid before pregnancy								
Yes	49	(23.9)	35.21±7.32		t=2.619	59.10±10.02		t=0.933
No	156	76.1	32.20±6.93		p=0.009	57.65±7.47		p=0.354
Use of iron supplement before pregnancy								

Yes	42	20.5	34.36±7.84	t=1.470	60.52±10.19	t=2.273
No	163	79.5	32.55±6.91	p=0.143	57.34±7.43	p=0.024
Having a blood test before pregnancy						
Yes	84	41.0	33.96±7.42	t=1.758	59.55±8.94	t=2.306
No	121	59.0	32.19±6.85	p=0.080	56.91±7.40	p=0.022
Smoking during pregnancy						
Yes	9	4.4	32.14±6.18	t=-0.333	59.88±7.50	t=0.710
No	196	95.6	32.95±7.18	p=0.740	57.91±8.18	p=0.478
Physical activity during pregnancy						
Yes	87	42.4	33.87±8.30	t=1.582	60.00±8.40	t=3.078
No	118	57.6	32.21±6.06	p=0.116	56.52±7.66	p=0.002
The frequency of physical activities (n=87)						
Two days a week and less	51	58.6	32.36±8.00	t=-2.066	60.01±8.64	t=0.026
Three days a week and more	36	41.4	36.02±8.36	p=0.042	59.97±8.17	p=0.980

Table 4. Univariate regression analysis results of health literacy and self-efficacy scores

Dependent Variable	Independent Variable	B	Standard Error	β	t	p	R ² =0.103 F=23.231
HL-32 Index Score	Fixed	16.661	3.407		4.891	0.000	
	Self-efficacy	0.280	0.320	0.320	4.820	0.000	
Model (p)= 0.000							

The use of the internet for health research, pre-pregnancy counseling status, pre-pregnancy health check status, pre-pregnancy use of folic acid status were determined as independent variables in the above analysis and health literacy groups as dependent variables. Variables that contributed to the model the least were excluded (preconception counseling status [preconception care], pre-pregnancy health check status). The model results obtained from this study were, -2 Log Likelihood value = 267.721, Cox and Snell R² value = 0.063, and Nagelkerke R² value = 0.085. In addition, as the chi-square test statistic 13.413 and sig. value is 0.009, it is understood that the model is a good fit. The generated model explains 8% of the dependent variable (Nagelkerke R² value = 0.085). According to this model, there is a significant relationship between the use of internet for health research in the last week

and health literacy groups (Wald=7.437, p=0.006). Those who used the Internet for health research in the last week were found to have a higher level of health literacy about 2.5 times more (Exp (β) /OR=2.209, 95%, CI = 1.2-3.9) than those who did not use it for health research.

There was a significant correlation between THL-32 and self-efficacy score averages of pregnant women at p = 0.000 significance level. Because of the correlation found between THL-32 and self-efficacy scores of pregnant women, further research was carried out by simple linear regression analysis. According to the result of the regression analysis, F = 23.231, p = 0.000, the model was considered as significant. Self-efficacy was found to be an important factor in explaining the level of health literacy. The values for the regression (Beta) coefficient (t = 4.820, p = 0.000) were

statistically significant. In this model, self-efficacy explained 10.3% (R Square = 0.103) of the change in the level of health literacy and it is possible to say that this value is a statistically significant contribution (Table 4).

Discussion

As the level of education of the pregnant women increased, the self-efficacy level increased and the self-efficacy scores of working pregnant women were found to be higher than those who were not. Studies have also shown that self-efficacy perceptions are affected by education, and self-efficacy perceptions of those with a higher educational status are higher (Banana and Fun 2012). In this context, it is significant that education, which is an important tool in accessing information, is in correlation with self-efficacy.

In this study, more than half of the pregnant women had an inadequate and problematic level of health literacy. In a similar study, the level of poor health literacy was found to vary between 2-27% (Kickbusch et al., 2013). The health literacy average was determined as 29.7 ± 8.0 for women in a health literacy study carried out in our country (Okyay and Abacigil, 2016). In his study Lee et al. (2012), found the level of inadequate and borderline health literacy in women to be 29%. In a study conducted in Iran, 34% of the pregnant women were found to have a low level of health literacy (Kohan et al. 2007). The study carried out in Turkey, the level of health literacy was found to be low in pregnant women (Filiz, 2015). In a study conducted in Iran, 34% of the pregnant women were found to have a low level of health literacy (Ghanbari, 2012). The data we obtained is consistent with the literature and shows that the health literacy status of the pregnant women is low.

No significant correlation was found between sociodemographic data and health literacy in the study. In the literature, it has been found in some studies that the level of health literacy increases with the increase of economic level (Filiz, 2015; Charoghchian, 2018; Furuya et al. 2013), whereas it has also been found in some studies that the health literacy level of individuals with a higher education level can be low (Cho et al. 2007, Kohan et al. 2007). In a study conducted, it was found that there was a significant correlation between health literacy, education, and

employment status, whereas there was no correlation found with the employment status of pregnant women in other studies (Filiz, 2015; Ghanbari, 2012; Charoghchian, 2018). According to the results of the research, pregnant women's use of the internet for health research in the last week increased the level of health literacy 2.5 times. Health literacy involves steps apart from reading and writing, such as understanding complex information, being able to use technology, seeking information, and interpreting acquired knowledge to adapt to personal health and behavior. In this context, the effect of internet use on the level of health literacy can be evaluated. In his study, Shieh et al. state that there is a correlation between pregnant women's information seeking behaviors and self-efficacy skills during the gestational period (Shieh, et al. 2010). Similarly, in this study, the self-efficacy of those conducting the pregnancy-related research is at a higher level. The pregnant women with excellent health literacy attended a health care facility earlier in the week of gestation than those with an inadequate health literacy level (Kohan, et al. 2007). In this study, the health literacy status of the pregnant women and the average of the gestational week they first received prenatal care was found to be consistent with the literature. While there is no significant correlation between the pregnant women comfortably asking their doctor questions during their check-ups and health literacy scores, the scores of the pregnant women asking questions were higher. The pregnant women who were examined by the same doctor each time asked questions without hesitation. It is vital that the pregnant woman is comfortable communicating with a person who carries out their check-ups, in order to resolve any present or future problems and monitor their health. This is an important finding that shows the importance of the caregiver's continuity in health monitoring. According to a study on the knowledge and education status of the pregnant women in the prenatal care period, a large proportion of the pregnant women didn't benefit from the information and training that was given many times at the prenatal care clinics (Mojoyinola, 2011).

In this study, it was determined that pregnant women with high health literacy had preconception counseling, had health checks and used folic acid, and were physically active more than three days a week. In a study conducted by

Endres et al.(2004) on pregnant women with diabetes, it was shown that those with a low level of health literacy planned their pregnancy, had a consultation with an endocrine specialist and gynecologist before pregnancy, had a lower folic acid use score and started prenatal care in later gestational weeks. Kohan et al. (2007) found that receiving adequate prenatal care had an effect on the level of health literacy of the pregnant women. In the study of Mojinyinola (2011), it was found that pregnant women with higher health literacy levels were receiving prenatal care earlier and more frequently. In a study conducted with pregnant women in our country, the level of health literacy was found to be high in those who regularly took iron supplements and folic acid in the first three months (Filiz, 2015). In a similar study, it was shown that pregnant women with a high level of health literacy had better hematocrit levels and showed differences in iron and folic acid use, the type of birth, the week of birth, gestational weight gain, the newborns birth weight and breastfeeding than those with a low level of health literacy (Kohan et al. 2007). According to the studies that have been conducted, individuals with higher health literacy scores do more exercise/sports (Sorenson 2012; Filiz, 2015). The results of the study show similarities with the findings in the literature. The study, it was determined that pregnant women who had high health literacy levels also had high levels of self-efficacy. In the literature, there is a strong correlation between self-efficacy and health literacy (Charoghchikan, 2016; Wood et al., 2009). This suggests that self-efficacy is an important factor in explaining the level of health literacy.

Conclusion

As a result of our work, health literacy of pregnant women was determined at a moderate level. Individuals with high levels of health literacy and self-efficacy received preconception counseling, had health checks, and used folic acid. According to the results of the further analysis, there was a significant difference between self-efficacy and the use of the internet for health research in the last week. According to findings, raising the level of health literacy of the pregnant women and improving their self-efficacy status provides the opportunity for preconception care. This is a very important finding considering that the preconception period is effective in healthy pregnancies, healthy births, and healthy newborns. The period of pregnancy

should be considered as an important opportunity to improve health literacy for the protection and development of health. Self-efficacy and health literacy levels of pregnant women should be determined during prenatal care. Pregnant women should be given support to improve their self-efficacy and should be given training according to their level of health literacy in a manner that is understandable and identifying educational materials and methods. Communication and pre-planned education according to the pregnant woman's level of health literacy will make learning easier. At the same time, it makes it possible for the pregnant women to apply what they learn. Moreover, the improvement of pregnant women's health literacy and the strengthening of these women will be of considerable benefit in the development of their ability to potentially overcome health-related processes throughout their lives.

Place where the work was carried: Dr. Ali Kemal Belviranlı Women and Children Diseases Hospital, Konya Turkey

Study Limitations : The sample was limited to only one region of the country, and therefore the findings may not be generalizable to other parts of Turkey.

Acknowledgements : We thank all participants for their participation in this study.

References

- Baker D.W, Parker R, Williams MV, Clark W. (1998). Health literacy and the risk of hospital admission. *JGIM* 13:791-98.
- Bandura, A., (1984). Self efficacy, In V.S. Ramachandran (Ed.) *Encyclopedia of human behavior*, (Vol.4, pp. 71-81). Newyork: Academiz Press. (Reprinted in H. Friedman (Ed.), *Encyclopedia of Mental Health*. San Diego: Academic Press. 1998) <https://www.uky.edu/~eushe2/Bandura/BanEncy.html> Erişim Tarihi: 20.02.2018
- Berkman ND, Eicher SL, Donahue KE, (2011) Low health literacy and health outcomes: an updated systematic review. *Annals of Internal Medicine* 155;97-107.
- Ghanbari S, Majlessi F, Ghaffari M, Mahmoodi Majdabadi M. (2012), Evaluation of health literacy of pregnant women in urban health centers of Shahid Beheshti Medical University. *Daneshvar Medicine*. 2012; 19 (97) :1-12
- Charoghchian KE, Peyman N, Esmaily H. (2018), "Measuring Maternal Health Literacy in Pregnant Women Referred to the Healthcare Centers of Mashhad, Iran, in 2015". *Journal of Midwifery and Reproductive Health*. 2018; 6(1): 1157-1162.

- Chen AM, Yehle KS, Alber NM, Ferraro KF, Mason HL, Murawski MM, Plake KS. (2013) Relationships between health literacy and heart failure knowledge, self-efficacy, and self-care adherence. *Research in Social & Administrative Pharmacy*. 2013
- Cho, YL, Lee SY, Arozullah, A.M., & Crittenden, KS. (2008). Effects of health literacy on health status and health service utilization amongst the elderly. *Social Science & Medicine*, 66(8), 1809–16. Ishikawa, Takeuchi, & Yano, 2008; Ishikawa H, Takeuchi T, Yano E. Measuring functional, communicative, and critical health literacy among diabetic patients. *Diabetes Care*. 2008;31(5):874–879.
- Cho, R.N., Plunkett, B.A., Wolf, M.S., Simon, C.E., Grobman, W.A. (2007). Health literacy and patient understanding of screening tests for aneuploidy and neural tube defects. *Prenatal Diagnosis*, 27(5), 463-467
- Cho, R.N., Plunkett, B.A., Wolf, M.S., Simon, C.E., Grobman, W.A. (2007). Health literacy and patient understanding of screening tests for aneuploidy and neural tube defects. *Prenatal Diagnosis*, 27(5), 463-467
- Endres LK, Sharp LK, Haney E, Dooley SL, (2004). Health Literacy And Pregnancy Preparedness In Pregestational Diabetes. *Diabetes Care*, 27, 331-34.
- Filiz E, (2015) “The Relationship Between Health Literacy Pregnancy and Perception of Health” Selçuk University, Health Science Enstitutions, Unpublished PhD Thesis
- Furuya Y, Kondo N, Yamagata Z, Hashimoto H, (2013) Health literacy, socioeconomic status and self-rated health in Japan. *Health Prom. Int*,
- Kaya E. C., Sahin H. N. (2016) Effects Of Adaptation To Parenthood Support Program (ASPS) On Parenthood Self-Efficacy. *Samsun Journal of Health Sciences Volume 1: Issue: 2*
- Katz MG, Jacobsen TA, Veledar E, Kripalani S. (2007) Patient literacy and question asking behavior during the medical encounter: A mixed-methods analysis. *Journal of General Intern Medicine*. 22(6):782–786.
- Kickbusch I, Pelikan JM, Apfel F, et al. (2013) Health literacy: the solid facts. Copenhagen: WHO Regional Office for Europe, WHO
- Kohan S, Ghasemi S, Dodange M. (2006) Associations between maternal health literacy and pregnancy outcomes. *Iranian Journal of Nursing and Midwifery Research*.; 3(32):33-42
- Lee SYD, Tsai TI, Tsai YW, Kuo KN, 2012. Health literacy and women’s health-related behaviors in Taiwan. *Health Educ Behav*, 39, 210-18
- Mojoyinola JK. (2011). Influence of maternal health literacy on healthy pregnancy and pregnancy outcomes of women attending public hospitals in Ibadan, Oyo State, Nigeria. *An International Multi-Disciplinary Journal, Ethiopia*, 5 (3), 28-39
- Muz G. ve Eglence R. (2012). The Evaluation Of Self Care Ability And Self Efficacy Of Patients Receiving Hemodialysis. *Balikesir Health Sciences Journal*; 2(1): 15-21.
- Nutbeam D. (2008) The evolving concept of health literacy. *Social Science & Medicine*.; 67(12):2072–2078.
- Okay P & Abacigil F. (2016). Turkey Health Literacy Scale-32 (THL-32) Anıl Ad. Press (Anıl Reklam Matbaa), Ankara, Turkey
- Razurel C, Kaiser B, Antonietti JP, Epiney M, Sellenet C. (2016). Relationship Between Perceived Perinatal Stress And Depressive Symptoms, Anxiety And Parental Self-Efficacy In Primiparous Mothers And Role Of Social Support. *Women & Health*, 1-19
- Salomonsson, B., Bertero, C., Alehagen, S. (2013). Self-Efficacy In Pregnant Women With Severe Fear Of Childbirth. *JOGNN*, 42(2), 191–202
- Schwartz L, Toohill J, Creedy DK, Baird, K, Gamble, J, Fenwick, J. (2015). Factors Associated With Childbirth Self-Efficacy In Australian Childbearing Women. *BMC Pregnancy Childbirth*, 15(1), 29;
- Shieh, C. and Halstead, J.A., (2009), “Understanding the Impact of Health Literacy on Women’s Health” *journal of the Association of Women’s Health, Obstetric and Neonatal Nurses* September–October, 2009 Volume 38, Issue 5, Pages 601–612
- Sorensen K, Helmut B, Pelikan JM, Rothlin F, Ganahl K, Slonska Z, (2015). Health literacy in Europe: comparative results of the European health literacy survey (HLS-EU). *European Journal of Public Health*, 25: 1053–1058.
- Tozun, M., Sozmen M. K., (2014), “Health Literacy with Perspective of Public Health”, *Smyrna Tip Dergisi* (in Turkish)
- WHO 1998: Health Promotion Glossary Available from URL:<http://www.who.int/healthpromotion/about/HPR%20Glossary%201998.pdf> Date: 23.02.2018
- Yildirim F. Ilhan OI. (2010) The Validity and Reliability of the General Self-Efficacy Scale-Turkish Form. *Turkish Journal of Psychiatry*; 21(4):301-8
- Wood MR, Price JH, Dake JA, Telljohann SK, Khuder SA. (2009) African American parents/guardians’ health literacy and self-efficacy and their child’s level of asthma control. *Journal of Pediatric Nursing*. [http://www.pediatricnursing.org/article/S0882-5963\(09\)00125-0/pdf](http://www.pediatricnursing.org/article/S0882-5963(09)00125-0/pdf)