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Determining the relationship between nomophobia and health literacy in pregnant women

Gebelerde nomofobi ile sağlık okuryazarlığı arasındaki ilişkinin belirlenmesi

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ABSTRACT

***Aim*:** This study was conducted to determine the relationship between nomophobia and health literacy during pregnancy.
Methods: The population of our study consisted of pregnant women who applied to the Obstetrics Outpatient Clinic of a university hospital between 20.07.2022 and 20.08.2022. A total of 215 pregnant women who applied to the outpatient clinic between these dates and voluntarily accepted to participate in the study were included in the study. "Personal Information Form" consisting of 12 items, "Nomophobia Scale" and "Health Literacy Scale" were used as data collection tools. The data were collected by the researchers through face-to-face interview technique.
Results*:* The mean age of the pregnant women was 28.14±4.52 years. A significant relationship was found between nomophobia scale sub-dimension and total scores and age, educational status, place of residence, number of pregnancies, trimester and having problems during pregnancy ($p<0.05$). A significant relationship was found between health literacy subscale and total scores and educational status, spouse's educational status, place of residence, number of pregnancies and number of births ($p<0.05$). A positive, moderately significant relationship was found between the total and sub-dimensions of the two scales ($p<0.05$).
Conclusion: According to our study results, nomophobia level of pregnant women was found to be high and it was seen that this affected health literacy. This result may be due to the increasing frequency of mobile device use with the developing world conditions.

Keywords*:* health literacy; nomophobia; pregnancy

ÖZ

Amaç: Bu çalışma gebelikte nomofobi ve sağlık okuryazarlığı arasındaki ilişkiyi belirlemek amacıyla yapılmıştır.
Yöntem: Çalışmamızın evreni 20.07.2022-20.08.2022 tarihleri arasında bir üniversite hastanesinin Kadın Doğum Polikliniğine başvuran gebeler oluşturmuştur. Bu tarihler arasında polikliniğe başvuran ve çalışmaya katılmayı gönüllü olarak kabul eden toplam 215 gebe çalışmaya dahil edilmiştir. Veri toplama aracı olarak 12 maddeden oluşan "Kişisel Bilgi Formu", "Nomofobi Ölçeği" ve "Sağlık Okuryazarlığı Ölçeği" kullanılmıştır. Veriler araştırmacılar tarafından yüz yüze görüşme tekniği ile toplanmıştır.
Bulgular: Gebelerin yaş ortalaması 28.14±4.52 yıl olarak bulunmuştur. Nomofobi ölçeği alt boyut ve toplam puanları ile yaş, eğitim durumu, yaşadığı yer, gebelik sayısı, trimester ve gebelikte sorun yaşama faktörleri arasında anlamlı bir ilişki bulunmuştur ($p<0.05$). Sağlık okuryazarlığı alt boyutu ve toplam puanları ile eğitim durumu, eşin eğitim durumu, yaşanılan yer, gebelik sayısı ve doğum sayısı arasında anlamlı bir ilişki bulunmuştur ($p<0.05$). İki ölçeğin toplam ve alt boyutları arasında pozitif yönde orta düzeyde anlamlı bir ilişki bulunmuştur ($p<0.05$).
Sonuçlar: Çalışma sonucumuza göre gebelerin nomofobi düzeyi yüksek bulunmuş ve bunun sağlık okuryazarlığını etkilediği görülmüştür. Bu sonucun gelişen dünya koşulları ile birlikte mobil cihaz kullanım sıklığının artmasından kaynaklı olabileceğini düşündürmektedir.

Anahtar kelimeler*:* gebe; nomofobi; sağlık okuryazarlığı

Introduction

The importance of mobile devices in our lives has been rising in today's technology, where faster accessing information is sought. Many different sectors, from health to business, use the internet and mobile technologies extensively to improve their efficiency and productivity (Alsancak Sırakaya & Seferoğlu, 2018). In Türkiye, 59.6% of the population uses a computer and 83.8% have an internet connection at home. Moreover, the number of smartphone users has been reported to be 98.7% (Turkish Statistical Institute [TUİK], 2018). This rise in internet use shows that the rate of internet use by women has also been on the rise (Aydın et al., 2013). The recent rise in computer and internet use during pregnancy has led to discussions on the effects of this behaviour on pregnancy (Hadımlı et al., 2018).

Nomophobia, which is defined as the new phobia of the modern age, refers to the fear felt when an individual is not able to access a mobile device or communicate on a mobile phone (King et al., 2013; Yildirim & Correia, 2015). "Nomophobia," which was developed by abbreviating the expression No-Mobile-Phone, can also be defined as restlessness, anxiety, irritability, or pain due to the inability to interact with a cell phone (Pavithra et al., 2015). Nomophobia, a highly prevalent disorder, especially among the younger generation, is a condition that has often been ignored. However, if not intervened, it may turn into a condition that can seriously harm a person's academic, work, and social life (Pavithra et al., 2015).

Health literacy addresses the capacity of individuals to obtain, process, and understand the basic medical information and services they require to make the right decisions related to health (Dadipoor et al., 2017). Globally, approximately 16% of the adult population still lacks basic literacy skills, and two-thirds of them are women (United Nations Educational Scientific and Cultural Organization [UNESCO], 2013). The level of literacy directly affects not only the level of knowledge

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related to health but also the ability to take control of one's health as an individual, family, and community (World Health Organization [WHO], 2009). Today, low health literacy appears to be a global problem (Dadipoor et al., 2017; Solhi et al., 2019). In a study, although the health literacy level of pregnant women was found to be generally adequate, it was reported that a significant proportion of pregnant women had inadequate and problematic limited health literacy (Gök et al., 2022). It is reported that women with adequate health literacy levels have positive differences in the time and frequency of starting prenatal care, weight gain during pregnancy, maternal hematocrit, use of folic acid and iron tablets, gestational week of delivery, and mode of delivery (Dadipoor et al., 2017). Based on this, women's health literacy level affects not only their own health care but also pregnancy, fetus, newborn and child health (Gök et al., 2022).

In the literature, it is seen that nomophobia studies were mostly conducted in groups such as high school and university students, teachers, and nurses (Aktas & Yılmaz, 2017; Erdem et al., 2016; Gutiérrez Puertas et al., 2019). In the literature, it has been determined that personality traits affect being nomophobic. It has been reported that people who sacrifice their own goals for others are more nomophobic than those who do not (Arpaci, 2019). Studies on the effect of gender on nomophobia are contradictory. Yasan and Yıldırım (2018) and Yıldırım et al. (2016) found that female university students showed more nomophobia than males. However, there are studies indicating that gender does not affect nomophobia (Gezgin & Cakır, 2016, Bekaroğlu & Yılmaz, 2020). Upon the literature review, it has been observed that there is no study to determine the correlation between nomophobia during pregnancy and health literacy. However, it is also considered that health literacy may be effective if pregnant women use smart devices more. Accordingly, the study was designed to determine the correlation between nomophobia during pregnancy and health literacy.

Methods

Aim and design of the study

The study is a descriptive and cross-sectional study designed to determine the correlation between nomophobia during pregnancy and health literacy.

Population and sample

The population consisted of pregnant women who applied to the Obstetrics and Gynaecology Outpatient Clinic of a university hospital between 20/07/2022 and 20/08/2022. A total of 215 pregnant women who applied to the outpatient clinic between these dates and who voluntarily agreed to participate in the study were included in the study. The data were collected by using face-to-face interview method.

G*Power 3.1.9.7 program was used to determine the sample of the study (Faul et al., 2007). The sample of the study was calculated by considering Cohen's (1988) small effect size recommendation and the data of the study conducted by Akca et al. (2020) on health perception and health literacy in pregnant women. Accordingly, H1=0.24 (Cohen, 1988), the confidence interval was 95% (Akca et al., 2020), the margin of error was determined as 5%, and it was determined that a total of 215 pregnant women should be reached. According to the posthoc power analysis at the end of the study, an effect size of 0.24 and 95% power was reached with 215 pregnant women (1-β=0.95).

Data collection tools

Personal description form

The researchers prepared the form upon the literature review (Hadımlı et al., 2018; Pavithra et al., 2015; Polit & Beck, 2017; Yılmaz & Karahan, 2019). The form has a total of 12 questions, including 7 questions about the socio-demographic characteristics of pregnant women (age, employment, educational level, etc.) and 5 questions about obstetric characteristics (gravida, gestational week, parity, etc.).

Nomophobia Scale

The Nomophobia Scale developed by Yildirim and Correia (2015) consists of a total of 20 items. The scale is a 7-point Likert-type, with the options ranging from 1 (Strongly Disagree) to 7 (Strongly Agree). It has four subscales. These subscales are organised as "Not being able to access information (4 items), "giving up convenience" (5 items), "Not being able to communicate" (6 items), and "Losing Connectedness" (5 items). Total score of the Nomophobia Scale ranges from 20 to 140 points. If the respondent gets a score of 20 points, this means that he/she has no nomophobia; a score between 20 and 60 points indicates mild nomophobia; a score between 60 and 100 indicates moderate nomophobia; and finally, a score between 100 and 140 indicates severe nomophobia. In the original version of the scale, the reliability coefficient was calculated as 0.95. The reliability coefficients of the subscales are 0.94 for "not being able to communicate", 0.87 for "losing connectedness", 0.83 for "not being able to access information", and 0.81 for "giving up convenience". Yildirim et al. (2015) adapted the scale into Turkish. It has 20 items just like in its original version. The reliability coefficient for the Turkish version of the scale was calculated as 0.92. The reliability coefficients for its subscales are 0.90, 0.74, 0.94, and 0.91, respectively. In the present study, the total Cronbach's Alpha Value of the scale was found to be 0.70 (Table 1).

Health Literacy Survey-European Union Questionnaire (HLS-EU-Q)

Sorensen initially developed the scale with 47 items. Toçi, Bruzari, and Sorenson then simplified this scale and reduced it to 25 items (Sorenson, 2013). Aras and Bayık Temel (2017) conducted the Turkish validity and reliability study of the scale and calculated the reliability coefficient as 0.92. This scale consists of four subscales accessing information, understanding information, appraising information, and applying information. The scale is a 5-point Likert scale (1= I have no difficulty at all, 2= I have little difficulty, 3= I have some difficulty, 4= I have a lot of difficulty, 5= I am unable to do it), and there are no items that need to be reverse coded. In the present study, the total Cronbach's Alpha Value of the scale was found to be 0.91 (Table 1).

Table 1. Distribution of nomophobia and health literacy scales sub-dimensions and total scores and cronbach alpha values

Scales	X̄±SS (min-max)	Cronbach Alpha
Nomophobia total	71.78±27.47 (20-137)	**0.70**
Health Literacy Scale total	40.91±17.27 (25-100)	**0.91**

Ethical considerations

Ethics committee approval for this study was obtained from Tokat Gaziosmanpaşa University Social and Human Sciences Ethics Committee and approved by the scientific committee (Decision No: 10-40, Date: 16/06/2022). The required permissions were obtained from the relevant institution

(Decision No: 189262, Date: 01.08.2022) to conduct the study. The study was conducted in accordance with the Declaration of Helsinki, and the pregnant women who agreed to participate in the study gave their consent by signing the informed consent form.

Data analysis

The data were analysed using SPSS 22.0 software. The descriptive data were analysed using frequency, percentage, mean, minimum, maximum, and standard deviation. Kolmogorov-Smirnov and Shapiro-Wilk tests were used to examine whether or not the data were normally distributed, and Mann-Whitney U and Kruskal-Wallis Variance tests were run to assess non-normally distributed data. The Pearson's and Spearman Correlation analyses were done to examine the correlation between the data.

Results

The study was carried out with a total of 215 pregnant women. The mean age of the pregnant women included in the study was 28.14±4.52 (min:19-max:42). According to the socio-demographic data of the participants, it was determined that 65.6% were aged between 26 and 35 years, 34.9% were high school graduates, 37.7% of their husbands had a bachelor's degree or higher, and 64.2% resided in the city centre. According to the obstetric data, it was reported that 40.5% experienced their first pregnancy, 73% delivered one child, 58.6% were in the third trimester of their pregnancies, and 76.3% had no problems in their current pregnancy (Table 2).

When the total and subscale scores of the nomophobia scale were compared with sociodemographic and obstetric histories, a significant difference was found between age and "not being able to communicate", "losing connectedness", "not being able to access information" subscales and the total score of the nomophobia scale ($p<0.05$). The score fell as the age increased. A significant difference was found between the educational background of the pregnant woman and the subscale of her "not being able to communicate" ($p<0.05$). As educational level elevated, so did the nomophobia scale score. There was a significant difference between the place of residence of the pregnant woman and the subscale of "losing connectedness" ($p<0.05$). Those who were living in villages or towns had higher scores. A significant difference was determined between gravida and the subscale of "not being able to access information" ($p<0.05$). The score reduced as gravida increased. A significant difference was found between the gestational week and total scores of "giving up convenience" and "not being able to communicate" subscales and the nomophobia scale ($p<0.05$). A significant difference was found between the condition of the pregnant woman who experienced distress in her current pregnancy and the total scores of "giving up convenience", "losing connectedness" and "not being able to access information" subscales and the nomophobia scale ($p<0.05$). Higher nomophobia scores were obtained by those who experience difficulties during pregnancy (Table 3). When the total and subscale scores of HLS-EU-Q were compared with sociodemographic and obstetric histories, a significant difference was found between the educational background of the pregnant women and their spouses and all subscales, and the total score of the scale ($p<0.05$). As educational level elevated, health literacy reduced.

Table 2. Pregnant women's personal and obstetric characteristics (n=215)

Features	n	%
Age		
19-25	63	29.3
26-35 years old	141	65.6
36 years and above	11	5.1
Educational background		
Primary education	41	19.1
High school	75	34.9
Associate degree	29	13.5
Bachelor's degree and above	70	32.6
Spouse educational status		
Primary education	31	14.4
High school	71	33.0
Associate degree	32	14.9
Bachelor's degree and above	81	37.7
Where you live		
Province	138	64.2
District	61	28.4
Village/Town	16	7.4
How many pregnancy are you?		
1	87	40.5
2	57	26.5
3	41	19.1
4 and above	30	14.0
Your birth number		
1	157	73.0
2	33	15.3
3	17	7.9
4 and above	8	3.7
Your pregnancy week		
1.trimester	34	15.8
2.trimester	55	25.6
3.trimester	126	58.6
Your current pregnancy problems		
Yes	51	23.7
No	164	76.3
Total	**215**	**100.0**

A significant difference was found between the place of residence and the total scores of accessing information, understanding information, appraising information subscales and the total score of the scale ($p<0.05$). Those who were residing in villages or towns had higher HLS-EU-Q scores. A significant difference was found between the gravida and the total scores of understanding information, appraising information, and applying information subscales and the total score of HLS-EU-Q ($p<0.05$). The HLS-EU-Q score increased so did the gravida. A significant difference was found between parity and all subscales and the total score of the scale ($p<0.05$). As parity increased, so did the HLS-EU-Q score (Table 4).

A moderately positive significant correlation was found between the total scores and subscales of both scales ($p<0.005$) (Table 5). It was determined that the "giving up convenience" subscale had a moderately positive and significant correlation with the total scores of the "not being able to communicate", "losing connectedness", "not being able to access information" subscales and the total score of the nomophobia scale. As the score of the "giving up convenience" subscale increased, so did the scores of the "not being able to communicate", "losing connectedness", "not being able to access information" subscales, and the total score of the nomophobia scale.

Table 3. Comparison of pregnant women's personal, obstetric characteristics and nomophobia scale total and sub-dimensions (n=215)

Features		Nomophobia Scale				
		Device Deprivation X̄ ±SS	Inability to Communicate X̄ ±SS	Losing Online Connection X̄ ±SS	Inability to Access Information X̄ ±SS	Total Score X̄ ±SS
Age						
19-25		19.28±0.92	28.47±1.21	15.22±0.97	13.79±0.77	76.77±2.95
26-35 years old		16.92±0.68	26.51±0.91	14.15±0.69	13.04±0.56	70.63±2.40
36 years and above		17.72±2.55	20.36±3.72	10.18±1.67	9.54±2.20	57.81±9.38
	X²*/p	-0.510/0.610	**-2.117/0.034**	**-2.273/0.023**	**-2.564/0.010**	**-2.242/0.025**
Educational background						
Primary education		16.56±1.25	22.63±1.73	13.34±1.23	12.07±1.09	64.60±4.57
High school		18.20±0.97	26.81±1.25	14.80±0.93	13.04±0.73	72.85±3.25
Associate degree		16.34±1.23	28.31±1.67	13.48±1.18	12.65±1.09	70.79±3.86
Bachelor's degree and above		18.27±0.95	28.51±1.25	14.55±1.05	13.90±0.81	75.24±3.31
	X²*/p	-0.983/0.326	**-2.833/0.005**	-0.577/0.564	-1.575/0.115	-1.904/0.05
Spouse educational status						
Primary education		17.93±1.44	25.22±1.88	13.70±1.47	12.41±1.19	69.29±5.36
High school		17.42±0.94	25.56±1.28	14.64±0.97	12.90±0.73	70.53±3.18
Associate degree		19.09±1.42	27.15±1.99	13.78±1.41	15.93±1.36	75.96±5.13
Bachelor's degree and above		17.19±0.89	28.27±1.14	14.33±0.89	12.37±0.69	72.17±2.97
	X²*/p	-0.600/0.548	-1.301/0.193	-0.387/0.699	-0.148/0.883	-0.615/0.539
Where you live						
Province		17.73±0.67	26.94±0.89	13.63±0.66	13.02±0.55	71.32±2.27
District		16.81±0.99	25.88±1.41	14.45±0.99	12.73±0.87	69.90±3.63
Village/Town		20.25±2.26	28.68±2.68	19.00±2.51	14.93±1.59	82.87±7.48
	X²*/p	-1.125/0.261	-0.586/0.558	**-2.428/0.015**	-1.242/0.214	-1.697/0.09
How many pregnancy are you?						
1		16.82±0.73	27.40±1.03	14.02±0.83	14.51±0.70	72.77±2.64
2		17.66±1.08	26.54±1.43	14.26±1.05	10.91±0.74	69.38±3.53
3		20.39±1.25	28.26±1.73	16.21±1.38	14.12±1.00	79.00±4.71
4 and above		16.33±1.78	23.33±2.24	12.30±1.42	11.63±1.34	63.60±5.71
	X²*/p	-0.891/0.373	-1.656/0.098	-1.427/0.154	**-2.320/0.020**	-1.733/0.083
Your birth number						
1		17.71±0.60	27.61±0.80	14.20±0.62	13.30±0.51	72.83±2.06
2		17.48±1.43	26.84±2.01	14.60±1.44	12.66±1.19	71.60±5.31
3		15.94±2.00	18.88±2.33	12.82±2.03	11.17±1.39	58.82±6.56
4 and above		21.00±4.50	26.75±5.41	17.12±3.91	14.50±3.16	79.37±14.85
	X²*/p	-0.836/0.403	-0.310/0.756	-0.842/0.400	-0.259/0.795	-0.839/0.402
Your pregnancy week						
1.trimester		20.02±1.48	30.08±1.84	16.38±1.54	14.11±1.24	80.79±5.23
2.trimester		17.96±1.12	27.41±1.44	14.70±1.21	13.60±0.91	73.69±3.73
3.trimester		16.84±0.67	25.59±0.93	13.50±0.64	12.57±0.56	68.51±2.32
	X²*/p	**-2.078/0.038**	**-2.345/0.019**	-1.454/0.146	-0.968/0.333	**-2.142/0.032**
Your current pregnancy problems						
Yes		19.62±1.14	28.68±1.36	16.92±1.30	15.13±0.93	80.37±3.95
No		17.04±0.61	26.17±0.85	13.43±0.58	12.44±0.50	69.10±2.08
	Z*/p*	**3.916/0.048**	2.022/0.155	**5.577/0.018**	**6.240/0.012**	**6.073/0.014**

* Kruskal Wallis test; ** Mann Whitney U test; Significant at p<0.05 significance level.

The “not being able to communicate” subscale had a moderately positive significant correlation with the total scores of the “losing connectedness” and the “not being able to access information” subscales and the total score of the nomophobia scale, and as the score of the “not being able to communicate” subscale increased, so did the scores for the “losing connectedness” and the “not being able to access information” subscales, and the total score of the nomophobia scale. The “losing connectedness” subscale had a moderately positive significant correlation with the total and subscale scores of both scales (nomophobia scale and HLS-EU-Q), and as the score of the “losing connectedness” subscale increased, so did the total and subscale scores of all scales. There was a moderately positive significant correlation between the total scores of the “not being able to access information” subscale and the nomophobia scale, and it appeared that as the score of the “not being able to access information” subscale increased, so did the total score of the nomophobia scale (Table 5).

The accessing information subscale had a positive significant correlation with the total scores of the understanding information, appraising information, applying information subscales, and the total score of HLS-EU-Q, and as the score of the accessing information subscale increased, so did the scores of understanding information, appraising information, and applying information subscales, and the total score of HLS-EU-Q (p<0.005) (Table 4). The understanding information subscale had a moderately positive significant correlation with the total scores of the appraising information and applying information subscales, and the total score of HLS-EU-Q, and as the score of understanding information subscale increased, so did the scores for appraising information and applying information subscales, and the total score of HLS-EU-Q.

Table 4. Comparison of pregnant women's personal and obstetric characteristics and health literacy scale total and sub-dimensions (n=215)

Features		Health Literacy				
		Access to Information X̄ ±SS	Understanding Information X̄ ±SS	Valuing Information X̄ ±SS	Applying Information X̄±SS	Total Score X̄ ±SS
Age						
19-25		8.04±0.45	12.42±0.65	13.65±0.75	7.53±0.43	41.66±2.08
26-35 years old		7.60±0.30	11.68±0.42	12.77±0.50	7.82±0.30	39.89±1.41
36 years and above		9.45±1.77	14.72±2.23	16.27±2.71	9.18±1.54	49.63±7.72
	X²*/p	-0.172/0.863	-0.733/0.464	-0.681/0.496	-1.076/0.282	-0.639/0.523
Educational background						
Primary education		10.70±0.75	15.51±1.00	17.60±1.19	10.36±0.72	54.19±3.38
High school		7.98±0.41	12.90±0.62	13.65±0.74	7.81±0.43	42.36±1.99
Associate degree		6.65±0.55	10.51±0.76	12.17±0.92	6.65±0.55	36.00±2.62
Bachelor's degree and above		6.47±0.28	9.77±0.34	10.58±0.41	6.78±0.26	33.61±1.07
	X²*/p	**-5.716/<0.001**	**-5.249/<0.001**	**-5.553/<0.001**	**-4.388/<0.001**	**-5.716/<0.001**
Spouse educational status						
Primary education		10.29±0.87	14.67±1.21	16.32±1.29	**9.48**±0.78	50.77±3.81
High school		8.42±0.46	13.00±0.67	14.66±0.87	8.50±0.51	44.59±2.35
Associate degree		7.71±0.69	12.84±0.90	12.31±1.01	7.31±0.61	40.18±2.93
Bachelor's degree and above		6.41±0.24	9.92±0.32	11.09±0.39	6.75±0.24	34.19±1.01
	X²*/p	**-4.674/<0.001**	**-3.598/<0.001**	**-3.789/<0.001**	**-3.171/0.002**	**-4.287/<0.001**
Where you live						
Province		7.28±0.27	11.09±0.35	12.52±0.47	7.34±0.27	38.24±1.24
District		8.47±0.53	13.62±0.82	13.93±0.88	8.57±0.55	44.60±2.62
Village/Town		10.12±1.20	14.43±1.61	16.31±1.78	8.93±0.97	49.81±5.14
	X²*/p	**-2.625/0.009**	**-2.111/0.035**	**-2.226/0.026**	-1.676/0.094	**-2.130/0.033**
How many pregnancy are you?						
1		7.39±0.34	11.10±0.45	12.11±0.54	7.24±0.30	37.85±1.49
2		7.85±0.50	11.24±0.66	13.07±0.80	7.68±0.50	39.85±2.24
3		7.60±0.51	13.21±0.82	13.73±1.03	8.12±0.59	42.68±2.71
4 and above		9.36±0.95	14.80±1.23	15.93±1.47	9.26±0.88	49.36±4.24
	X²*/p	-1.598/0.110	**-2.823/0.005**	**-2.303/0.021**	**-1.714/0.087**	**-2.378/0.017**
Your birth number						
1		7.22±0.24	11.15±0.34	12.23±0.40	7.21±0.23	37.83±1.09
2		8.36±0.72	13.39±1.06	14.18±1.27	8.57±0.73	44.51±3.51
3		9.47±1.23	14.05±1.56	16.41±2.20	9.82±1.28	49.76±5.95
4 and above		14.00±1.80	20.12±2.49	21.50±2.51	12.00±1.84	67.62±7.40
	X²*/p	**-3.643/<0.001**	**-3.616/<0.001**	**-3.661/<0.001**	**-3.029/0.002**	**-3.941/<0.001**
Your pregnancy week						
1.trimester		7.55±0.70	11.79±1.12	13.32±1.35	8.17±0.78	40.85±3.79
2.trimester		7.96±0.51	12.20±0.67	13.70±0.88	8.25±0.56	42.12±2.43
3.trimester		7.84±0.32	12.07±0.43	12.96±0.49	7.51±0.27	40.39±1.37
	X²*/p	-1.144/0.253	-1.403/0.161	-0.873/0.383	-0.94/0.925	-1.343/0.179
Your current pregnancy problems						
Yes		8.21±0.58	12.68±0.77	13.80±1.00	8.29±0.60	43.00±2.69
No		7.71±0.28	11.86±0.39	12.02±0.45	7.65±0.26	40.26±1.29
	Z/p**	0.143/0.705	0.798/0.372	<0.001/0.976	0.176/0.675	0.331/0.565

*Kruskal Wallis test; ** Mann Whitney U test; Significant at p<0.05 significance level.

The appraising information subscale had a positive significant correlation with the applying information subscale, and the total score of HLS-EU-Q, and as the score of appraising information subscale increased, so did the scores of applying information subscale and the total score of HLS-EU-Q. The applying information subscale had a moderately positive significant correlation with total scores of HLS-EU-Q, and as the score of applying information subscale increased, so did the total scores of HLS-EU-Q (Table 5).

Discussion

Nomophobia is generally a problem that appears in youth, and there are studies mostly related to students in the literature (Durak, 2019; Gurbuz & Ozkan, 2020). Therefore, the current study provides information about nomophobia in pregnancy and gives important clues in today's conditions where health literacy has reduced. The present study revealed that the total mean score of the pregnant women on the nomophobia scale was 71.78±27.47, and this result suggested that the pregnant women were moderately nomophobic. A previous study including nursing and medical faculty students reported that the total mean score of the participants on the nomophobia scale was 78.7±24.6, and the individuals were moderately nomophobic (Okuyan et al., 2019). Likewise, another research on nomophobia including medical faculty students revealed that the total mean score of the students on the nomophobia scale was 70.1±25.1 and they were moderately nomophobic (Aksu & Dogan, 2021). The present study is compatible with the literature and showed that the pregnant women were nomophobic in today's conditions.

The present study indicated that the mean age of the pregnant women was 28.14±4.52, and there was a significant

Table 5. Relationship between nomophobia scale and health literacy scale total and sub-dimensions

		Device Deprivation	Inability to Communicate	Losing Online Connection	Inability to Access Information	Nomophobia Total	Access to Information	Understanding Information	Valuing Information	Applying Information	Health Literacy Scale Total
Device deprivation	r	1	**0.641**	**0.690**	**0.594**	**0.885**	0.100	0.132	0.123	0.084	0.124
	p		**<0.001**	**<0.001**	**<0.001**	**<0.001**	0.144	0.053	0.073	0.218	0.070
Inability to communicate	r			**0.515**	**0.455**	**0.835**	-0.100	-0.021	-0.036	-0.112	-0.65
	p		1	**<0.001**	**<0.001**	**<0.001**	0.142	0.762	0.604	0.100	0.345
Losing online connection	r				**0.520**	**0.819**	**0.201**	**0.155**	**0.213**	**0.238**	**0.217**
	p			1	**<0.001**	**<0.001**	**0.003**	**0.023**	**0.002**	**<0.001**	**<0.001**
Inability to Access information	r					**0.742**	0.081	0.024	-0.003	0.026	0.029
	p				1	**<0.001**	0.239	0.730	0.966	0.701	0.670
Nomophobia total	r						0.068	0.082	0.083	0.057	0.082
	p					1	0.319	0.233	0.223	0.406	0.234
Access to information	r							**0.744**	**0.768**	**0.770**	**0.0881**
	p						1	**<0.001**	**<0.001**	**<0.001**	**<0.001**
Understanding information	r								**0.825**	**0.714**	**0.911**
	p							1	**<0.001**	**<0.001**	**<0.001**
Valuing information	r									**0.851**	**0.955**
	p								1	**<0.001**	**<0.001**
Applying information	r										**0.900**
	p									1	**<0.001**
Health literacy scale total	r										
	p										1

difference between age and the nomophobia scale. Many studies in the literature have determined that individuals aged 20–25 years and especially the female gender are more nomophobic (Vagka et al., 2023; Yildiz et al., 2020). In the present study, as age decreased, the total scores of the scale obtained from these subscales increased. This finding suggests that it may be due to the faster adoption of new technologies in young adults, the higher rate of use of technological tools, and the large population in the young age group who participated in the study. In the present study, it was found that there was a significant difference between educational background and the “not being able to communicate” subscale of the nomophobia scale. As educational level elevated, so did the scores on this subscale.

Likewise, a previous study indicated found that there was a significant difference between educational level and nomophobia and people with higher educational level were more nomophobic (Ankara et al., 2020). Another study reported that there was no correlation between educational background and nomophobia (Gezgin et al., 2017). The findings of the present study suggest that pregnant women with high educational level achieve their communication through technological means in their work or social lives and they may be more nomophobic due to feeling more anxious when they are not able to communicate.

The present study revealed that there was a significant difference between the place of residence of pregnant women and the “losing connectedness”, one of the subscales of the nomophobia scale. The literature contains studies suggesting that there is no correlation between the place of residence and nomophobia (Celebi et al., 2020; Güzel & Özen, 2022). Conversely, the present study indicated that the pregnant women who lived in the village had higher total scores on the “losing connectedness” subscale. This finding is interpreted as the fact that pregnant women who live in rural area are more likely to have problems with communication and access to services, which may therefore lead them to feel more nomophobic.

In the present study, it was determined that there was a significant difference between the gravida and the “not being able to access information”, one of the subscales of the nomophobia scale, i.e., primiparous pregnant women were more nomophobic. Although the literature lacks studies on nomophobia and pregnancy, it is interpreted as the fact that the women go through the pregnancy process for the first time, the uncertainties are too much for the first expectant mother, and when they are unable to access the information they are looking for, they may suffer from anxiety.

The present study revealed that there was a significant difference between the “giving up convenience” and the “not being able to communicate” subscales of the nomophobia scale and the total score of the scale when the pregnant women were classified according to the trimesters. When the studies were reviewed, it was determined that the pregnant women sought more information from the Internet in their first trimester, and this appeared to allow them to adapt to the new process (Jacobs et al., 2019; Lupton, 2016). As mentioned above, the primiparity of the majority of pregnant women and the presence of uncertainties in the first trimester may have contributed to their anxiety and therefore led them to be more nomophobic. In the present study, it was found that the HLS-EU-Q total score of the pregnant women was 40.91±17.27, which is below the average. A study reported that the total score of the pregnant women on the HLS-EU-Q was 111.52±13.28 and the level of health literacy was high (Akca et al., 2020). Another study comparing the health literacy levels of primiparous and multiparous pregnant women reported that their mean scores on health literacy were lower in multiparous pregnant women (Pazarozyurt & Ozkan, 2023). This difference between the present study and the literature is thought to be due to the differences in the population size of the studies and the accessibility of pregnant women to health services.

The present study indicated a significant difference between the educational background of pregnant women and their spouses and their total scores on the HLS-EU-Q, and as educational level elevated, health literacy reduced. However,

contrary to the present study, the literature reports that health literacy increases with higher educational level (Khorasani et al., 2018; Yesilcınar et al., 2021). The result of the present study may be associated with the fact that there may be differences between the populations of the studies, they were expectant mothers from the younger age group and they more frequently use technology.

The present study revealed that there was a significant difference between the place of residence and the HLS-EU-Q. The pregnant women residing in rural areas had more health literacy. In the literature, it is reported that pregnant women who reside mostly in the city centre have more health literacy (Demirli, 2019; Yesilcınar et al., 2021). This difference between the literature and the present study suggests that it may be due to the regions and institutions where the studies were conducted, the number of samples reached, and the varying personal characteristics of the participants. The present study revealed that there was a significant difference between gravida and parity and the scores of understanding information, appraising information, and applying information subscales of HLS-EU-Q, and the total score of HLS-EU-Q. As the gravida and parity rose, so did the scores of these subscales. Contrary to the present study, a study reported that there was no significant difference between the gravida and parity and health literacy (Akca et al., 2020). Another study reported that the level of health literacy lowered as the gravida rose (Demirli, 2019). This difference in the present study suggests that it may be due to changes in the demographic characteristics of pregnant women and differences in the populations in the studies.

The present study revealed that there was a moderately positive significant correlation between the total and subscales of the nomophobia scale and HLS-EU-Q. The “giving up convenience” subscale of the nomophobia scale was significantly correlated with “not being able to communicate”, “losing connectedness”, “not being able to access information” subscales and the total score of the nomophobia scale. Moreover, the “not being able to communicate” subscale was significantly correlated with “losing connectedness”, the “not being able to access information”, and the total score of the nomophobia scale. Since there is no similar study in the literature, it is not possible to compare this finding with other studies. These findings in the study suggest that the lack of devices in pregnant women may have been caused by their lack of ability to communicate, difficulty in searching for information on online platforms, and heightened anxiety about accessing people and services in case of any health problem.

Research Strengths

In the literature, nomophobia studies were mostly conducted in groups such as high school and university students, teachers and nurses. In the literature review, no study was found to determine the relationship between nomophobia and health literacy during pregnancy. In this respect, the study has a unique value.

Limitations of the Study

The limitation of this study is that the results cannot be generalized to the whole population as they reflect only the responses of pregnant women who participated in the study.

Conclusion and Recommendations

The results of the present study showed that there was a correlation between nomophobia and health literacy in pregnant women. It has become more popular to use mobile devices and get information from the internet, along with changing and developing world conditions. Nomophobia turns into a disease of our time. In particular, accessing to all information on the internet negatively affects health literacy and makes it difficult to access the correct information from the right sources.

It is important for pregnant women to get information about the pregnancy process in order to reduce maternal/neonatal health risks during pregnancy, birth, and postpartum. Primary healthcare workers, especially midwives, assume important responsibilities in transferring accurate and reliable information in delivery of primary healthcare service, and effective internet use and counselling services should be concentrated. Based on these results, it can be recommended to develop programmes and practices to increase accessibility to accurate and reliable information and resources related to health in a way that meets the needs and preferences of women through computers or mobile phones using modern technologies.

Conflict of Interest

The authors have no conflicts of interest relevant to this article.

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Ethics Committee Approval

Ethics committee approval for this study was obtained from the social and humanities ethics committee of Tokat Gaziosmanpaşa University and approved by the scientific board (Decision no: 175031, Date: 16.06.2022).

Informed Consent

Before the study, all the mothers participated in the study were explained the purpose of study and the consent was obtained from them. The study was conducted in accordance with the ethical standards set forth in the 1964 Declaration of Helsinki and its subsequent amendments.

Peer-Review

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Author Contributions

G.Ç.: Design, Methodology, Data Collection, Data Analysis, Methodology, Writing - Original Draft.

Ö.A.: Writing - Original Draft.

Y.Y.: Design, Writing.

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