ORIGINAL RESEARCH ARTICLE

The relationship between internet addiction and fear of childbirth in pregnant women

DOI: 10.29063/ajrh2024/v28i4.4

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Abstract

The aim of this study is to determine the relationship between internet addiction and fear of childbirth in pregnant women. The study was conducted with 200 pregnant women who applied to two hospitals in province located in eastern Türkiye between April and August 2023 and were voluntary to participate in the study. In this descriptive, cross-sectional and correlational study,a"Personal Information Form", the "Internet Addiction Scale", and the "Wijma Delivery Expectancy/Experience Questionnaire" were used. The data were analyzed using independent samples t test, analysis of variance, and regression analysis. The pregnant women 40.5% expressed that they always accessed the information they sought. Pregnant women had high levels of internet addiction and fear of childbirth. In pregnant women, internet addiction was a significant predictor of fear of childbirth. With a multidisciplinary approach a preventive and supportive environment should be established in health services for the internet used during pregnancy. *(Afr J Reprod Health 2024; 28 [4]: 30-40).*

Keywords: Birth, pregnancy, ınternet addiction, fear

Résumé

Le but de cette étude est de déterminer la relation entre la dépendance à Internet et la peur de l'accouchement chez les femmes enceintes. L'étude a été menée auprès de 200 femmes enceintes qui ont postulé dans deux hôpitaux de la province située à l'est de la Turquie entre avril et août 2023 et qui ont volontairement participé à l'étude. Dans cette étude descriptive, transversale et corrélationnelle, un « formulaire d'informations personnelles », l'« échelle de dépendance à Internet » et le « questionnaire sur les attentes/expériences d'accouchement Wijma » ont été utilisés. Les données ont été analysées à l'aide d'un test t pour échantillons indépendants, d'une analyse de variance et d'une analyse de régression. Les femmes enceintes, 40,5%, ont déclaré qu'elles accédaient toujours aux informations qu'elles recherchaient. Les femmes enceintes présentaient des niveaux élevés de dépendance à Internet et de peur de l'accouchement. Chez les femmes enceintes, la dépendance à Internet était un prédicteur significatif de la peur de l'accouchement. Grâce à une approche multidisciplinaire, un environnement préventif et favorable devrait être créé dans les services de santé pour l'utilisation d'Internet pendant la grossesse. *(Afr J Reprod Health 2024; 28 [4]: 30-40).*

Mots-clés: Naissance, grossesse, dépendance à Internet, peur

Introduction

Pregnancy is a turning point in women's lives; however, it leads them to go through physical and psychological changes, as well[1]. Even though this process is a pleasant experience for pregnant women, it can sometimes be worrying and scary for them. In fact, this fear sometimes becomes pathological and turns into tokophobia which is a disease requiring treatment[2]. In the literature, the level of fear of childbirth experienced by women varies between 6.3% and 14.8% across countries[3]. Women suffer from a mild or severe fear of childbirth due to the fact that uncertainty is present in labor, delivery is a process without a known exact outcome, they fear of harm to themselves or their babies, and they also fear of suffering from pain and losing control during birth[4,5]. This fear has an adverse impact on the labor experience and leads the labor to prolong, the woman to feel more pain, the number of obstetric interventions to increase, and her to prefer cesarean section by avoiding vaginal delivery[6,7]. The mood changes experienced by women in the first trimester of pregnancy turn into fear of childbirth in the second and third trimesters of pregnancy, negatively affecting their

daily lives and quality of life [8,5]. In this case, pregnant women seek information about investigating the reasons for the changes occurring in them, finding solutions to the problems they experience, adapting to parenthood, having a healthy birth, and gaining a sense of trust instead of the feeling of distrust toward the team[9]. This information can be obtained from various sources such as healthcare professionals, friends, family, books, pregnancy information classes, television, newspapers and the internet[1]. In fact, upon the ease of access to the internet instead of healthcare professionals, who are the most reliable source, pregnant women generally look for answers to all their problems on the internet and considerably trust in this answer. This shows that the internet has an important place in the lives of pregnant women and is effective in accessing information about health or making decisions[9,10]. A total of more than 5 billion persons use internet worldwide as of 2022 and this rate has reached up to 67.9%[11]. Studies on pregnant women have indicated that the majority of them prefer to use the internet and it is more common in developed countries when compared to developing countries[12-15]. They generally seek information on the internet about physical changes during pregnancy, fetal development, birth process, delivery methods, breastfeeding, newborn care and development of a healthy lifestyle, and recommend the information and practices they have acquired to each other in their daily lives. When this information is imperfect or inaccurate, pregnant women are exposed to inaccurate information, negatively affecting their perception of birth[16]. Some pregnant women stated that the information they accessed about delivery on the internet elevated their levels of fear of childbirth[14]. Because pregnant women do not talk about internet use with healthcare professionals, healthcare professionals are generally unaware of the potential misinformation and false beliefs that mothers have[17]. Internet addiction is defined as uncontrolled and excessive internet use, that results in feeling extremely angry, restless and tense in case of withdrawal and gradually impairing work, social or family life[18] .As the use of the internet for information, entertainment and social interaction has increased in the last decade, the rate of excessive internet use and internet addiction among adults has increased and has become a public health problem[19]. Researchers defined internet addiction by using the DSM (Diagnostic and Statistical Manual of Mental Disorders) criteria and making use of other behavioral addictions such as pathological gambling or sex addiction which are addressed within the scope of DSM[20].

Internet addicts neglect their family, circle, and responsibilities to spend time on the internet, have an impaired quality of life and an increased risk of insomnia, and suffer from psychosomatic symptoms, thus resulting in negative physical and psychosocial consequences such as depression and suicidal thoughts[19]. Considering the negative impact on the individual, it is very important to detect internet addiction at the first stage and take preventive measures accordingly[21]. Although there are studies on internet addiction and fear of childbirth, no study has been found that examines the relationship between internet addiction and fear of childbirth together in pregnant women. The aim of this study is to determine the use of the internet as a source of information during pregnancy, the effect of the internet on decision-making processes, the level of internet addiction and fear of childbirth, and the relationship between them.

Methods

Design of the study

This study was conducted as a cross-sectional, descriptive, and correlational.

Population and sample of the study

The study population consisted of pregnant women who applied to Kafkas University Health Research and Application Center and Kars Harakani State Hospital between April and August 2023. Number of pregnant women to be included in the study was determined as 161 pregnant women at significance level of 0.05, power of 99% and medium effect (0.15) by preferring linear regression analysis at the "a priori" stage in the program G-Power 3.1. The study was conducted with 200 volunteer pregnant women using random sampling method. Data were collected from the pregnant women using face-to-face interview method within an average of 15-25 minutes. Women who were 18 years old and older, were conscious, were able to verbally communicate, suffered from no hearing problems,

and had no neurological or psychiatric diagnosis were included in the study.

Data collection tools

***Personal information form*:** The form prepared by the researchers upon the literature review consists of 3 parts. It has a total of 38 questions about socio-demographic characteristics in the first part, obstetric characteristics in the second part and internet usage characteristics in the third part[5,9].

Internet addiction scale (IAS): The "Internet Addiction Scale" developed by Nichols and Nicki in 2004 is a five-point Likert type scale[22]. It was adapted into Turkish by Selim Günüç in 2010 and consists of 35 items. The lowest and highest scores of the scale is 30 and 150 points, respectively. As the item scores increase from 1 to 5, the level of addiction also elevates. It has four factors: "Withdrawal", "Control Difficulty", "Disorder in Functionality", and "Social Isolation". The internal consistency coefficient (Cronbach's alpha) of the scale is 0.95[23]. In this study, the internal consistency coefficient was determined as 0.96.

Wijma delivery expectancy/Experience questionnaire (W-DEQ): The Wijma Delivery Expectancy/Experience Questionnaire, developed by Wijma et al., in 1998, is a six-point Likert-type scale that measures the stress and fear felt at the time of birth[24].Körükcü et al. adapted the questionnaire into Turkish in 2012 and consists of six subgroups and 33 items. The items of the scale are rated in a six-point Likert type scale ranging from 0 point to 5 points. While 0 indicates "completely", 5 indicates "not at all". The lowest and highest scores of the scale are 0 and 165 points, respectively. A high total score signifies a high level of fear. A W-DEQ score of 37 points indicates a mild level of fear, a W-DEQ score between 38-65 points indicates a moderate level of fear, a W-DEQ score between 66-84 points indicates a severe level of fear, and a W-DEQ score of 85 points indicates a clinical level of fear. The internal consistency coefficient of the scale was found as 0.89[25].In this study, the internal consistency coefficient was determined as 0.84.

Data assessment

The data were analyzed in the SPSS 22.0 statistical software in the computer environment. Frequency and percentage analyses were used to determine the descriptive characteristics of the participants, and mean and standard deviation statistics were used to examine the scale. Kurtosis and Skewness values were examined to determine the normal distribution content of the research variables. In the relevant literature, the results of the kurtosis and skewness values of the variables range between +1.5 and -1.5[26], which is considered as normal distribution. Independent t-test, Mann Whitney U test, one-way analysis of variance and post-hoc Tukey analyses were used to examine the differences at scale levels according to sociodemographic, obstetric and internet use characteristics of pregnant women. Regression analysis was used to evaluate the correlation between the total and subscale scores of the W-DEQ and the internet addiction scale. R^2 shows what percentage of the dependent variable is explained by the independent variables. According to Cohen, R2 values are interpreted as .0196: small effect value, .1300: moderate effect value, and .2600: large effect value, respectively[27].

Ethical considerations

Before starting the research, ethics committee approval was obtained from Kafkas University Faculty of Health Sciences Non-Interventional Research Ethics Committee (date: 17.03.2023, session number 3, number 34) and study permission from the institutions.Permission was received via e-mail from the people who developed the scales used in the study. In addition, the participants were informed about the purpose of the study by signing the informed consent form.

Results

The age of the pregnant women (min:18, max:40) and their mean age were 27.33±5.33, the mean gravidity was 2.23±1.58, the mean parity was 86±1.16, the average number of miscarriages was 0.37±0.83, and the average gestational week was 29.010±9.68. 35.5% of the participants were high school graduates and 85.5% were unemployed. 72% of them had an income equal to their expenses, 67.5% had social security, 64% had a nuclear family, and 6.5% had a smoking habit. 70.5% of the pregnant women were in the third trimester, 72% had a planned pregnancy, 23.5% had a miscarriage, 82% did not receive any prenatal health care service, 78.5% did not receive training in prenatal

Table 1: Minimum and maximum scores, mean and standard deviation of the scales (n:200)

	Minimum	Maximum	$\bar{X}$± SD
Wijma Delivery Expectancy/Experience Questionnaire (W-DEQ)	10	132	81.86±19.62
Internet Addiction Scale	35	175	125.73±30.10
Withdrawal Subscale of Internet Addiction Scale	11	60	36.56±11.47
Control Difficulty Subscale of Internet Addiction Scale	10	50	35.69±9.27
Disorder in Functionality Subscale of Internet Addiction Scale	7	35	26.79±6.41
Social Isolation Subscale of Internet Addiction Scale	7	35	26.69±5.69

health checks, and 81.5% did not find this training sufficient. 88% stated that they did not attend the pregnancy class, 96% stated that they did not have enough time to attend, and 40.7% of the attendees stated that they provided support during the pregnancy, 88.5% did not experience any risky situation and 75% stated that they did not use medication. When examining the internet use of the pregnant women, it was observed that 34.2% were using WhatsApp, 28% Instagram, 27.5% Google, 6.8% Facebook, and 3.5% Twitter. In order to connect to the internet, 83.9% of the pregnant women preferred a mobile phone and 3.4% preferred a desktop computer. 29.5% of the pregnant women stated that they used the internet for 3 hours a day, 40.5% stated that they always accessed the information they sought, and 75.5% stated that the information they sought affected them positively. 55% stated that they consulted healthcare professionals for issues they could not find on the internet and 66% stated that they wanted to have a vaginal delivery. 16.5% of the women looked for fetal development, 15.8% for the fear of childbirth, 13.3% for developing a healthy lifestyle, 11.6% for the method of delivery, 10.1% for labor pain, 5.3% for the stages of birth, and 5.2% for pregnancy complications, 3.9% for screening tests during pregnancy, 3.7% for breastfeeding, 3.6% for postpartum recovery and parenting information, 2.7% for sexuality and medications used during pregnancy, 1.9% for immunization, and 1.8% for smoking during pregnancy and types of anesthesia with alcohol.

The pregnant women had a mean score of 81.86±19.62 points from the W-DEQ and a mean score of 125.73±30.10 points from the internet addiction scale (Table 1). Among the subscales of the internet addiction scale, the withdrawal subscale had the highest mean score of 36.56±11.47 points. When the difference between educational status and the average score of the internet addiction scale and its subscales was found to be statistically significant ($p < 0.05$). It was determined that the mean total score of the internet addiction scale and the score mean of the deprivation, control difficulties and social subscales were higher in pregnant women who were secondary school graduates than in pregnant women who were university graduates or above (b>d). The mean score of the internet addiction scale and its subscales was higher and statistically significant in unemployed ones ($p<0.05$). (Table 2).

A statistically significant correlation was found between status of being at risk during pregnancy and the social isolation subscale of the internet addiction scale ($p<0.05$) (Table 3). The difference between the status of receiving prenatal health care services and the need to seek information during pregnancy and the average score of the internet addiction scale and its subscales was found to be statistically significant ($p<0.05$). It was determined that the total mean score of the internet addiction scale and the score mean of the control difficulty, functionality and social subscales were higher in those who needed to seek information in the first 13 weeks of pregnancy than in those who sought information throughout the pregnancy (a>d). A statistically significant difference was found between the total score average of the deprivation subscale of Internet addiction and the need to seek information during pregnancy ($p<0.05$). A statistically significant relationship was found between women's need to seek information during pregnancy and the wijma birth expectation experience scale score ($p<0.05$).

The regression model established between internet addiction and fear of childbirth was significant ($p<0.05$). It was observed that the pregnant women's internet addiction had a significant negative effect on their fear of

Table 2: Comparison of the pregnant women's total mean score of the Wijma Delivery Expectancy/Experience Questionnaire and their total and subscale mean scores of the Internet Addiction Scale according to their socio-demographic characteristics

	Characteristics	W-DEQ Total Score	IAS–Withdrawal Subscale	IAS–Control Difficulty Subscale	IAS– Disorder in Functionality Subscale	IAS–Social Isolation Subscale	Internet Addiction Scale Total Score
Educational background	Primary school	84.80±22.90	38.85±11.22	37.38±9.75	27.24±7.20	27.96±6.10	131.42±31.41
	Secondary school	80.20±21.33	40.51±9.43	39.55±7.75	28.92±4.85	28.92±4.82	137.90±24.95
	High school	81.86±15.81	35.94±10.94	34.99±7.70	26.86±5.33	25.84±5.20	123.63±26.21
	University and higher education	81.94±21.20	32.68±12.79	32.70±9.30	24.55±7.87	25.20±6.25	114.72±34.40
	Test and p value	F=.309 p=.819	F=4.638 **p=.004* b>d**	F=6.102 **p=.001* b>d**	F=4.217 p=.**006**	F=5.007 **p=.002* b>d**	F=5.906 **p=.001* b>d**
Employment status	Employed	78.96±23.04	31.72±13.31	32.31±10.47	23.10±8.80	34.31±7.64	111.41±38.33
	Unemployed	82.35±19.01	37.38±10.97	36.26±8.96	27.42±5.71	27.09±5.20	128.16±27.89
	Test and p value	t=-.859 p=.392	t=-2.485 p= .**014**	t=.197 p= .**033**	t=-2.571 p= .**015**	t= -2.473 p= .**014**	t= -2.818 **p=.005**
Income level	Income less than expenses	82.73±18.82	40.02±10.29	38.04±8.72	27.95±4.89	27.30±5.12	133.33±27.26
	Income equal to expenses	81.84±18.69	35.54±11.61	34.83±9.39	26.26±6.80	26.22±5.83	122.86±30.78
	Income more than expenses	79.42±30.38	36.64±12.16	37.42±8.74	28.71±5.84	29.71±4.98	132.50±27.88
	Test and p value	F=.148 p=.862	F=2.517 p= 0.83	F=2.245 p= .109	F=1.817 p= .165	F=2.763 p= .066	F=2.380 p=.095
Social security	Yes	80.53±20.51	35.78±11.58	35.18±9.84	26.47±6.98	26.67±6.02	124.11±31.90
	No	84.61±17.44	38.16±11.17	35.78±11.58	27.44±5.03	26.73±4.96	129.09±25.87
	Test and p value	t=-1.381 p=.169	t=-1.379 p=.170	t=-1.110 p= .268	t=-1.003 p=.317	t=-.075 p=.940	t=-1.095 p=.275
Type of family	Nuclear family	81.29±20.03	36.61±11.76	35.98±9.38	26.78±6.26	26.81±5.24	126.20±29.83
	Extended family	82.57±18.93	36.52±11.09	35.08±9.16	26.74±6.75	26.36±6.39	124.71±30.94
	Test and p value	t=-.440 p=.660	t=.056 p=.955	t=.654 p=.514	t=.045 p=.964	t=.531 p=.596	t=.332 p=.740

t:Independent t test, F: One-way Anova test,* Tukey test

Table 3: Comparison of the pregnant women's total mean score of the Wijma Delivery Expectancy/Experience Questionnaire and their total and subscale mean scores of the Internet Addiction Scale according to their pregnancy knowledge and internet use characteristics

Characteristics		W-DEQ Total Score	IAS–Withdrawal Subscale	IAS–Control Difficulty Subscale	IAS– Disorder in Functionality Subscale	IAS–Social Isolation Subscale	Internet Addiction Scale Total Score
Gestational week	1st trimester	81.55±20.31	39.50±13.35	39.50±9.45	29.50±6.20	28.90±5.54	137.40±31.42
	2nd trimester	80.28±24.02	34.97±11.18	34.94±9.45	26.74±6.76	26.61±6.45	123.28±30.69
	3rd trimester	82.34±18.26	36.58±11.27	35.35±9.14	26.41±6.30	26.40±5.45	124.75±29.60
	Test and p value	F=.963	F=.291	F=.074	F=.300	F=1.344	F=.061
		p=.660	p=.955	p=.514	p=.964	p=.596	p=.740
Planned pregnancy	Yes	80.61±19.96	35.38±11.49	34.81±9.08	26.31±6.54	26.24±5.72	122.75±29.82
	No	85.07±18.50	39.58±10.96	37.94±9.46	28.01±5.96	27.85±5.45	133.41±29.71
	Test and p value	t=-.440	t=.056	t=.654	t=.045	t=.531	t=.332
		p=.660	p=.955	p=.514	p=.964	p=.596	p=.740
Status of attending pregnancy information class	Yes	77.04±23.22	35.70±12.81	33.29±10.84	25.33±8.28	25.66±7.44	120±37.43
	No	82.49±19.11	36.74±11.31	36.05±9.03	27±6.13	26.87±5.40	126.67±29.01
	Test and p value	t= -1.276	t=-.413	t=-1.371	t=-1.191	t=-.976	t=-1.018
		p= .203	p=.680	p=.172	p=.235	p=.330	p=.310
Status of being at risk during pregnancy	Yes	72.86±26.82	40.34±9.48	38.73±7.85	28.78±4.95	28.91±4.78	136.78±25.65
	No	83.02±18.26	36.06±11.64	35.29±9.39	26.53±6.55	26.40±5.74	124.29±30.40
	Test and p value	t=-1.764	t=1.690	t=1.684	t=1.589	t=2.003	t=1.883
		p=.090	p=.093	p=.094	p=.114	**p=.047**	p=.061
Status of receiving prenatal health care service	Yes	79.08±22.06	32.97±8.76	31.19±8.27	24.27±7.24	24.22±6.06	112.66±28.06
	No	82.46±19.06	37.34±11.87	36.67±9.21	27.34±6.10	27.23±5.47	128.60±29.85
	Test and p value	t=-.937	t=-2.088	t=-3.290	t=-2.632	t=-2.935	t=-2.931
		p=.350	**p=.038**	**p=.001**	**p=.009**	**p=.004**	**p=.004**
The need to seek information during the periods of pregnancy	First 13 weeks	72.21±22.99	41.92±9.17	42.35±6.54	31.21±4.01	30.82±4.73	146.32±21.55
	14-27 weeks	76±24.03	44.18±4.40	40.63±5.76	30.18±3.51	30.09±3.38	145.09±15.26
	28-40 weeks	81±18.90	35.40±10.92	35.88±10.52	26.60±6.86	25.93±6.94	123.80±33.56
	During the pregnancy period	84.23±18.14	35.07±11.83	34.02±9.15	25.70±6.50	25.72±5.44	120.52±29.90
	Test and p value	F=3.429	Welch=11.433	F=8.259	F=7.528	F=8.606	F=8.150
		p= .018	**p=.000**	**p=.000***	**p=.000***	**p=.000***	**p=.000***
				a>d	**a>d**	**a>d**	**a>d**
The effect of the internet on the pregnancy	Positively	81.31	83.10	83.03	82.90	83.55	83.17
	Negatively	101.21	81.93	82.71	84.07	77.04	81.18
	Test and p value	Mann-Whitney U=802	Mann-Whitney U=1042	Mann-Whitney U=1053	Mann-Whitney U=1042	Mann-Whitney U=973.500	Mann-Whitney U=1031.500
		p=.136	p=.930	p=.981	p=.925	p=.620	p=.881

t:Independent t test, F: One-way Anova test, U:Mann-Whitney U test, Welch: Welch's test, *Tukey test

Table 4: Regression analysis on predicting fear of childbirth by internet addiction (n:200)

Independent Variable	Dependent Variable	Std.Error	(β)	t	P	R	R^2	F	P
Internet addiction	Fear of childbirth	.045	-.256	17.774	0.000	.256	.066	13.935	0.000

childbirth. R^2 value, which is accepted as the explanatory power of the model, was calculated as .066 (R= .256, R^2=.066 $p<0.05$).

Discussion

The findings of the present study revealed that majority of pregnant women were in the third trimester, had a planned pregnancy, wanted to have a vaginal delivery, and did not attend pregnancy information class. The related studies indicated that most of pregnant women were in the third trimester[19,28]. In their study, Öztürk *et al*., found that women had planned pregnancies and 76.7% did not attend pregnancy information classes[29]. In the study by Özgan, it was determined that the majority of pregnant women wanted to have a vaginal delivery[30]. These studies support the result of the present study. It was determined that pregnant women preferred vaginal delivery due to its short recovery period[31]. In the present study, the pregnant women stated that they did not have any knowledge about the pregnancy information classes in the hospital and they learned about their presence during the study. Moreover, it is thought that the participation rate of those in the third trimester of pregnancy in the present study was high because they frequently come for check-ups at the gynecology and obstetrics outpatient clinic.

In our research, it was found that pregnant women generally use their phones to connect to the internet, they can always access all the information they search for, they research the development of the fetus the most, and this affects them positively.In their study, Pelik Hadımlı et al., found that 38.8% of the pregnant women used mobile phones to connect to the internet[32]. The related studies reported that almost all of pregnant women frequently found the information they needed by searching it on the internet[33,34].Other studies revealed that the topic most commonly searched by pregnant women on the internet was the development of the fetus[13,28,32]. It was determined that information accessed from the internet positively affected the decisions they made during pregnancy[33-35]. Pregnant women used the internet for reasons such as insufficient information they received from healthcare professionals or having no enough time to ask questions to healthcare professionals[36].These studies reported results similar to the present study. Nowadays, pregnant women commonly use phones to access information on the internet. Pregnant women who prefer to use the internet for information sharing on the social media or mobile health consultancy are positively affected. It is also thought that pregnant women resort to the internet because it is easy to access the topics they search.

In the present study, it was found that the pregnant women's mean scores were 125.73±30.10 points for the Internet addiction scale and 81.86±19.62 points for the W-DEQ. It was observed that the pregnant women's internet addiction had a significant negative effect on their fear of childbirth. A study conducted on nurses reported that the mean score of the internet addiction scale and its subscales was 69.66±24.43 points[37]. In the study conducted by Yang et al., with Chinese pregnant and postpartum women, they found that internet addiction was common and negatively affected the quality of life of the pregnant women and caused them to develop physical, psychological and psycho-somatic symptoms[19]. In a study conducted on the W-DEQ, it was detected that pregnant women received a moderate score (55.35±21.94)[38]. Some other studies reported that women received severe scores from the wijma delivery expectancy/experience questionnaire[25,39]. In a study conducted by Do Souto Spa et al., with Portuguese pregnant women, they found that 10% of pregnant women had a severe fear of childbirth[40].The mean scores of the internet addiction scale and W-DEQ in the present study were similar to the mean scores reported in the related studies. Since there is no study examining the relationship between internet addiction and fear of childbirth, a direct comparison could not be made.

Pregnant women mostly prefer to use the internet and after their use has reached the level of

addiction, this is considered as a public health concern[15,19]. In their study, Serçekuş et al., determined that the level of fear of childbirth elevated in 14.8% of women due to the information accessed on the internet[14]. Inaccurate or incomplete information about birth that pregnant women access on the internet, their inability to access scientific and reliable sources, and reading or watching negative birth experiences increase the fear of childbirth in pregnant women. It is thought that this situation causes pregnant women to have a negative perception of the internet and to avoid internet use or limit the time they spend on the internet.

In the study, it was found that the mean score of the internet addiction scale and its subscales was higher in pregnant women who were secondary school graduates and unemployed. In our study, the rate of internet addiction was found to be higher in pregnant women who were secondary school graduates and not working, and it was determined that income level, social security status and family type did not affect it. In the study, a statistically significant correlation was found between the educational background of the nurses and the internet addiction scale and its subscales[41]. In another study, it was found that the scores of young adults with a master's degree on the internet addiction scale and its subscales scale were lower than the scores of university graduates or lower[42]. In their study, Yang et al., stated that women with high educational level who were addicted to the internet had mild to moderate internet addiction and none of them were seriously addicted[19]. Other studies revealed that women used the internet more when they were unemployed[29,43]. In their study, Arslantaş *et al*., reported no statistically significant correlation between internet use of pregnant women and their educational level, income level, social security status, family type and employment status[39]. There are studies that support the results of the present study. In the study, it was stated that as the educational level of the pregnant women increased, their knowledge awareness about pregnancy increased[44]. It is thought that since the majority of the pregnant women participating in the present study were secondary school graduates and housewives, they need more information about the pregnancy and as access to the internet is easy or cheap, their internet usage time increases and they become internet addicts.

In this study, internet addiction was found to be high in pregnant women who were at risk during pregnancy, who did not receive prenatal health care and who needed to search for information in the first 13 weeks of their pregnancy. The fear of birth experienced by those who sought information during their pregnancy was higher ($p<0.05$). In their study, Gao et al., stated that 81.5% of Chinese pregnant women used the internet more in the first trimester. Furthermore, they determined that the rate of internet use of pregnant women decreased since prenatal health care services started to be provided from the 20th gestational week in China[13]. Other studies reported that pregnant women sought more information on the internet in the first trimester[34,35,45]. In the study by Lagan, it was determined that pregnant women turned to the internet during their pregnancy because they could not meet with healthcare professionals as a result of inadequate information provided by healthcare professionals to pregnant women and the decrease in prenatal health care services[36]. It was also reported that pregnant women needed constant information about issues such as protecting their health during pregnancy, giving a healthy birth, and adapting to parenthood[17]. The fear of childbirth experienced by pregnant women during pregnancy is high and negative expectations affect birth resulting in a negative experience and positive expectations affect birth resulting in a positive experience[46] .The result of the present study is similar to the results of previous studies. Women who do not receive prenatal services and pregnant women have risky pregnancies use the internet more due to their lack of information about the process, and pregnant women in the first trimester use the internet more due to their lack of experience and many topics they are curious about during the early period. In addition, it is thought that reading false, incomplete or frightening scenarios on the internet during pregnancy causes women to have unnecessary anxiety and an increased fear of childbirth.

Limitation

The study was limited to pregnant women living in the province of Kars in the eastern Turkey and applying to two hospitals in a certain period of time. In addition, the data obtained are limited to the

answers given by pregnant women to the survey questions.

Conclusion and Recommendations

As a result of the present study, it was determined that the internet addiction scale and Wijma Delivery Expectancy/Experience Questionnaire mean scores of the pregnant women were high. In this study, the mean scores of the internet addiction scale and its subscales were higher among pregnant women who were secondary school graduates, unemployed, did not receive prenatal health care, were at risk during pregnancy, and were in the first 13 weeks of pregnancy. The pregnant women who sought information during their pregnancy had a higher fear of childbirth. Their internet addiction had a significant negative effect on their fear of childbirth. Nowadays, with the increase in internet use rate, pregnant women meet their information needs online. The fact that the information they obtain is unscientific, incomplete or inaccurate negatively affects the pregnancy process and labor, causing pregnant women to have fear of childbirth and negatively affecting the maternal and infant health. In this case, pregnant women stay away from the internet by reducing their internet usage time. In addition, it is important to identify the negative effects experienced by pregnant women who are internet addict and to detect them early and take precautions. It is necessary to expand prenatal health care services and increase the number of midwives and nurses who provide education and follow up pregnant women to prevent internet addiction. It is recommended to increase the accessibility of accurate, reliable and quality health information by creating pages or mobile applications that provide education and consultancy to women about the pregnancy process on the internet.

Conflicts of interest

The authors report no actual or potential conflicts of interest

Funding

No external or intramural funding was received.

Contribution of authors

ÖK designed the study and CMA collected data. ÖK and CMA were involved in data analysis and drafted the manuscript. All authors read, edited and approved the final manuscript.

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