Smoking and Maras Powder Use by Pregnant Women Living in Kahramanmaras and Associated Factors

Kahramanmaraş'da Yaşayan Gebelerin Sigara ve Maraş Otu Kullanım Durumları ve İlişkili Faktörler

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Abstract

Objective: This study aimed to determine the smoking and Maras powder use by pregnant women living in Kahramanmaras and associated factors.

Method: This research, a cross-sectional study method, was carried out in a state hospital in Kahramanmaras with 669 pregnant women. Research data were collected by the face-to-face meeting method through a questionnaire form.

Results: 12.9% of the pregnant women smoked cigarettes, and 4.9% used Maras powder. The probability of smoking during pregnancy was high for women who graduated from primary school (OR=1.80; 95% CI=0.57-5.72), with a low-income level (OR=7.95; 95% CI=2.91-21.68), women without health insurance (OR=0.05; 95% CI=0.01-0.30), women who lived in the city (OR=4.40; 95% CI=1.14-16.93), women who perceived the relationship with their spouse negatively (OR=7.26; 95% CI=1.24-42.33), women who were smoking before pregnancy (OR=269.61; 95% CI=202.76-351.32), and whose spouses were smoking cigarettes (OR=1.29; 95% CI=1.14-1.47) and using Maras powder (OR=0.15; 95% CI=0.04-0.54). The rate of Maras powder use during pregnancy was high for women who had a negative relationship with their spouses (OR=3.29; 95% CI=1.32-8.16), whose spouses used Maraş powder (OR=4.41; 95% CI=1.83-10.65), and who also used Maras powder during pre-pregnancy (OR=2.41; 95% CI =0.94-6.15).

Conclusion: This study determined that a considerable number of women smoked cigarettes and used Maras powder during their pregnancies. It is recommended that new studies be planned to determine the use of Maras powder during pregnancy in Kahramanmaraş and its surrounding provinces.

Keywords: Midwifery, pregnancy, Maras powder, cigarettes

Öz

Amaç: Bu araştırmada Kahramanmaraş'da yaşayan gebelerin sigara ve Maraş otu kullanım durumları ve ilişkili faktörleri belirlemek amaçlanmıştır.

Yöntem: Kesitsel çalışma yönteminde olan bu araştırma, Kahramanmaraş'da bir devlet hastanesinde 669 gebe ile yürütülmüştür. Araştırma verileri bir anket formu aracılığı ile yüz-yüze görüşme yöntemiyle toplanmıştır.

Bulgular: Gebelerin %12,9'unun sigara ve %4,9'unun Maraş otu kullandığı belirlendi. Gebelikten sigara kullanma olasılığı ilkokul mezunu olan (OR=1.80; 95% CI=0.57-5.72), gelir düzeyi düşük olan (OR=7.95; 95% CI=2.91-21.68), sağlık güvencesi bulunmayan (OR=0.05; 95% CI=0.01-0.30), kentte yaşayan (OR=4.40; 95% CI=1.14-16.93), eşiyle ilişkisini olumsuz olarak algılayan (OR=7.26; 95% CI=1.24-42.33), gebelik öncesi sigara kullanan (OR=269.61; 95% CI=202.76-351.32), eşi sigara kullanan (OR=1.29; 95% CI=1.14-1.47), eşi Maraş otu kullanan (OR=0.15; 95% CI=0.04-0.54) kadınlarda yüksekti. Eşiyle ilişkisi olumsuz olan (OR=3.29; 95% CI=1.32-8.16), eşi Maraş otu kullanan (OR=4.41; 95% CI=1.83-10.65) ve gebelik öncesi de Maraş otu kullanan (OR=2.41; 95% CI=0.94-6.15) kadınlarda gebelikte Maraş otu kullanma oranı daha yüksekti.

Sonuç: Bu araştırmada kadınların önemli bir bölümünün gebeliklerinde sigara ve Maraş otu kullandıkları belirlenmiştir. Kahramanmaraş ve çevresindeki illerde gebelikte Maraş otu kullanımını belirlemeye yönelik yeni çalışmaların planlanması önerilmektedir.

Anahtar kelimeler: Bağımlılık, depresyon, ergenlik, gelişmeleri kaçırma korkusu, sosyal medya bağımlılığı

Introduction

Substance dependence is a burning community healthcare question increasing across the world (1). Substance addiction is expressed as a strong need for the drug used by individuals following long-term and regular use of certain substances (2). Tobacco is one of the leading addictive substances which may be divided into two types: smoked and smokeless. Smoked tobacco is inhaled, whereas smokeless tobacco is chewed or absorbed from the mouth or nasal mucosa (3). Smoking is the most common form of tobacco use around the world, and more than one billion people worldwide smoke cigarettes, according to the World Health Organization (4). In our country, the rate of tobacco use is 28% according to the health survey data of the Turkish Statistical Institute of 2019 (5). Although smoking is at a lower rate in women than in men, the addiction rate of women is reported to be higher than that of men (6,7). Smoking, especially during pregnancy, is a considerable public health problem as well as an antenatal risk factor because of its maternal and fetal effects (8).

Smoking during pregnancy is one of the root causes of preventable pregnancy-related morbidity and mortality. Studies indicate that smoking during pregnancy causes fetal and maternal outcomes including abortus, stillbirth, prematurity, low birth weight, intrauterine growth retardation, congenital abnormalities, sudden infant death syndrome, premature rupture of membranes, and placental anomalies (9–13). In addition, it has been determined that asthma, learning disability, and hyperactivity problems are more common in the childhood period of newborns of women who smoked during pregnancy (14,15). Despite all these adverse smoking-caused conditions during pregnancy, a significant portion of women continue to smoke during pregnancy (16,17). In Turkey, 14.9% of women smoke, and the rate of smoking during pregnancy is 11% (5,6). In studies conducted in different provinces of our country, it is seen that the rate of smoking during pregnancy is between 3.9% and 20.5% (18–20).

Maras powder, a type of smokeless tobacco, is used as frequently as cigarettes in the Eastern Mediterranean and southeast regions of Turkey, especially in the provinces of Kahramanmaras and Gaziantep (21,22). Maras powder is produced in Kahramanmaras and consumed directly after pulverizing or absorbing for 10-25 minutes after rolling in a cigarette paper and placing it between the lower lip and the teeth (21,23). It is been observed that Maras powder is used at a significant level by women in Kahramanmaras province. Maras powder was determined to be used at a rate of 13.4% of women in the city center (24). In the study of by Nazlıcan et al., with 1541 senior students studying in 47 high schools in the city center of Kahramanmaras, the rate of Maras powder use among female students was 2.3% (21).

Smokeless tobacco is commonly thought to be less dangerous than smoking (25). However, it has been reported that the nicotine content of Maras powder is higher than that of cigarettes (3,22). Studies have shown that Maras powder increases the risk of cardiovascular disease, DNA damage, tumorigenesis in the buccal mucosa, oral Candida albicans and Candida tropicalis, oxidative stress, and anxiety disorder (3,22,26–28).

The American College of Obstetricians and Gynecologists (ACOG) recommends examining the substance use of pregnant women (29). Although studies examined cigarette use during pregnancy, no research has been attained on the use of Maras powder during pregnancy and its effects on pregnancy. It was determined in studies conducted in Kahramanmaras that a significant number of smokers also used Maras powder (24,27). Therefore, there was a need to determine the smoking and Maras powder use by pregnant women living in Kahramanmaras. In addition, since the studies revealed the fact that the use of Maras powder in women is at a significant rate and that it can be used during pregnancy, it is important issue to be investigated. This research was planned to determine the rate of smoking and Maras powder use of pregnant women living in Kahramanmaras and associated factors. In this way, the aim is that the findings to be obtained from this research form the basis for future research. In this context, the research questions are as follows: (a) What is the cigarette use frequency during pregnancy? (b) What is the Maras powder use frequency during pregnancy? (c) What are the factors affecting cigarette use during pregnancy? and (d) What are the factors affecting Maras powder use during pregnancy?

Methods

Sample

This research, which was conducted using a cross-sectional method, was carried out in a state hospital in Kahramanmaras between April 26, 2021 and June 20, 2022. The population consisted of 18,843 pregnant women who applied to the outpatient clinic according to hospital records in 2020, and the research sample of 669 pregnant women was determined from the population by the non-probability method. The research sample was calculated using the rate of smoking during pregnancy in a previous study conducted in our country. The smoking rate was reported as 12% in this study (30). Based on these data, the minimum number of individuals to be sampled was calculated as 162 using values N=10958, p=0.12, q=0.88, and t=1.96 (α=0.05). The sample constitutes 669 pregnant women who were included in the study between the data collection dates.

The inclusion criteria of the research were determined as being at least a primary school graduate, residing in Kahramanmaras, speaking and understanding Turkish, and agreeing to participate in the research. Pregnant women who gave incomplete answers to the questions in the questionnaire and who were not Turkish citizens were excluded from the study. A total of 989 pregnant women were interviewed during the research process. Of these, 320 were not included in the study because they were Syrian, eight did not speak Turkish, 15 did not reside in Kahramanmaraş, three were illiterate, and two wanted to leave the study. As a result, the study was concluded with the participation of 669 pregnant women.

Procedure

In order to conduct the study, approval was obtained from the Kahramanmaras Sutcu Imam Non-Invasive Clinical Research Ethics Committee on April 22, 2021 (No: 2021/168). The pregnant women included in the study were informed about the research, and the data were collected after their verbal and written consent. Researchers collected the research data using a survey form consisting of 26 questions shaped after scanning the literature (3,10,11,18).

Measure

The survey form consists of 10 questions examining socio-demographic characteristics, six for obstetric and 10 for substance use characteristics. In order to improve the apprehensibility and utility of the questions in the questionnaire form and to standardize the data collection process, a preliminary application was made with ten women. As a result of the pre-application, necessary changes were made to the questionnaire, and the form was finalized. Since the study was performed during the COVID-19 pandemic, social distance, infection, and transmission measures were considered, and the data were collected through face-to-face interviews.

Statistical Analysis

The research data were analyzed with the SPSS 22.0 (SPSS Inc., Chicago, IL, USA) program. The study's dependent variables consisted of smoking and Maras powder use in the pregnancy. The independent variables of the study are the age of the women, education level, family type, place of residence, employment status, income level, education level and employment status of the spouse, number of pregnancies, number of births, number of living children, antenatal follow-up status, health problems during pregnancy, smoking before pregnancy, Maras powder use before and during pregnancy, the spouse's use of Maras powder, knowing the harm of smoking during pregnancy, and knowing the harm of using Maras powder on pregnancy during pregnancy. Data were analyzed by descriptive statistics, a chi-square test, a t-test, correlation, and simple and multiple logistic regression. Analyses of the data were carried out in two stages. First, the relationship between dependent and independent variables was examined using the chi-square and t-tests. The odds ratio (OR) and confidence interval (CI) were calculated by the chi-square test for categorical

variables and a simple logistic regression analysis for continuous variables (Tables 3 and 4). Then, $p < 0.05$ was accepted statistically to determine the conditions associated with smoking and Maras powder use during pregnancy.

Table 1. Descriptive characteristics of pregnants (n=669)

Characteristic	n	%
Age, year		
≤24	231	34.5
25-29	214	32.0
30-34	150	22.4
≥35	74	11.1
Educational level		
Primary and secondary school	287	42.9
High school	255	38.1
University	127	19.0
Working status		
Working	74	11.1
Housewife	595	88.9
Family income level		
Low	224	33.5
Middle	445	66.5
Family type		
Nuclear family	537	80.3
Extended family	132	19.7
Health insurance		
Yes	606	90.6
No	63	9.4
Living place		
Urban area	537	80.3
Rural area	132	19.7
Perception of her relationship with her husband		
Positive	589	88.0
Negative	80	12.0
The planned state of pregnancy		
Planned	509	76.1
Unplanned	160	23.9
Desired state of pregnancy		
Wanted	657	98.2
Unwanted	12	1.8
Status of receiving antenatal care		
Yes	556	83.1
No	113	16.9

Results

A total of 669 pregnant women were included in this research during the data collection process. The age average of the pregnant women in the study was 26.99 ± 5.22 (range: 18-42). It was determined that 42.9% of the pregnant women completed primary and secondary education, and 88.9% were housewives. It was observed that 33.5% of the pregnant women had a low perceived income, and most of them (80.3%) had a nuclear family and lived in the city center (80.3%). Of the pregnant women who participated in the study, 12% reported that they perceived their relationship with their spouse as bad, 23.9% did not plan the pregnancy, 1.8% did not want the pregnancy, and 83.1% reported that they received antenatal care during their pregnancy (Table 1).

Table 2. Features of smoking and Maras powder use during and before pregnancy

Characteristic	n	%
Smoking before pregnancy		
Yes	142	21.2
No	527	78.8
Smoking during pregnancy		
Yes	86	12.9
No	583	87.1
Daily smoking during pregnancy, pieces/day (n=86)		
1-5 pieces	63	73.3
5 or more pieces	23	26.7
Spouse's smoking status		
Yes	318	47.5
No	351	52.5
Using Maras powder before pregnancy		
Yes	68	10.2
No	601	89.8
Status of using Maras powder during pregnancy		
Yes	33	4.9
No	636	95.1
Daily Maras powder use during pregnancy, pieces/day (n=33)		
2 pieces	19	57.6
3 and more pieces	14	42.4
Reasons for using Maras powder during pregnancy (n=33)		
Relieve toothache	15	48.5
Relieve headache	4	12.1
Enjoy and relax	6	15.1
Reducing smoking	8	24.3
Spouse's use of Maras powder		
Yes	126	18.8
No	543	81.2
Thinking that smoking during pregnancy is harmful (n=86)		
Yes	51	59.3
No	35	40.7
Thinking that the use of Maras powder during pregnancy is harmful (n=33)		
Yes	8	24.2
No	25	75.8

21.2% of the women included in the study reported that they had smoked before pregnancy and 12.9% during pregnancy, and 47.5% stated that their spouses smoked. Again, it was determined that 10.2% of the pregnant women used Maras powder before pregnancy, and 4.9% during pregnancy. 18.8% of the pregnant women reported that their spouses used Maras powder. Women who used Maras powder during pregnancy stated that they used it to relieve toothaches (48.5%), to relieve headaches (12.1%), for enjoyment and relaxation (15.1%), and to reduce smoking (24.3%). Among the pregnant women participating in the study, 40.7% of them reported not thinking smoking during pregnancy was harmful while 75.8% of those who used Maras powder reported not knowing the use of Maras powder was harmful to pregnancy (Table 2).

Table 3. Comparison of smoking and Maras powder use during pregnancy according to some characteristics of pregnants (n=669)

Variable	Smoking during pregnancy					MP use in pregnancy				
	Yes (n=86)		No (n=583)			Yes (n=33)		No (n=636)		
Age (mean ± SD, years)	26.81 ± 5.14		30.61 ± 5.48		0.000	22.71 ± 3.17		27.63 ± 5.17		0.000
	n	%	n	%	p^*	n	%	n	%	p^*
Educational level										
Primary and secondary school	5	5.8	122	20.9	0.001	21	63.6	269	42.3	0.016
High school	43	50.0	247	42.4	0.182	2	6.1	38	6.0	0.984
University	38	44.2	214	36.7	0.181	6	18.2	121	19.0	0.904
Housewife	78	90.7	517	88.7	0.577	28	84.8	567	89.2	0.442
Low-income	51	59.3	173	29.7	0.000	12	36.4	212	33.3	0.719
No health insurance	21	24.4	42	7.2	0.000	4	12.1	59	9.3	0.585**
Living in an extended family	18	20.9	114	19.6	0.765	9	27.3	123	19.3	0.264
Living in the urban area	80	93.0	457	80.3	0.001	27	81.8	510	80.2	0.819
Negative relationship with husband	33	38.4	47	8.1	0.000	11	33.3	69	10.8	0.000
Unplanned pregnancy	24	27.9	136	23.3	0.353	8	27.2	152	23.9	0.964
Unwanted pregnancy	12	14.0	1	0.2	0.000	6	18.2	246	38.7	0.018
Not receiving antenatal care	2	2.3	111	19.0	0.213	11	33.3	102	16.0	0.010
Pre-pregnancy smokers	83	96.5	59	10.1	0.000	8	24.2	134	21.1	0.664
Husband smokes	63	73.3	255	43.7	0.000	15	45.5	303	47.6	0.806
Husband uses MP	24	27.9	102	17.5	0.021	19	57.6	107	16.8	0.000
Using MP before pregnancy	12	14.0	56	9.6	0.213	8	24.2	60	9.4	0.006
Using MP during pregnancy	8	9.3	25	4.3	0.045	-	-	-	-	-
Smoking during pregnancy	-	-	-	-	-	8	24.2	78	12.3	0.045

MP: Maras powder, SD: Standard Deviation, *Chi-square Test, **Fisher Exact test

Table 3 exhibits the comparison of smoking and Maras powder use during pregnancy according to some characteristics of pregnant women and the statistical analysis results. According to the results of the chi-square test, those with a lower age average, a university degree, a low income, no health insurance, a spouse using cigarettes and Maras powder and those who lived in the city, perceived the relationship with their spouse adversely, did not want to be pregnant, smoked before pregnancy, and used Maras powder during pregnancy were smoked cigarettes during pregnancy at a statistically significant rate. In addition, when the conditions affecting the use of Maras powder by pregnant women were examined, it was evident that Maras powder use was higher in women who had a lower age average, were primary and secondary school graduates, perceived their relationship with their spouses negatively, did not want to be pregnant, did not receive antenatal care, used Maras powder before pregnancy and smoked during pregnancy, and whose spouse used Maras powder.

The results of multiple logistic regression analyses performed to determine the conditions affecting smoking in pregnancy may be seen in Table 4. According to the analysis results, being a primary school graduate (OR=1.80; 95% CI=0.57-5.72; p=0.006), perceiving low-income levels (OR=7.95; 95% CI=2.91-21.68; p=0.000), having no health insurance (OR= 0.05; 95% CI=0.01-0.30; p=0.001), living in the city (OR=4.40; 95% CI=1.14-16.93; p=0.031), perceiving the relationship with the spouse negatively (OR=7.26; 95% CI=1.24-42.33; p=0.027), smoking before pregnancy (OR=269.61; 95% CI=202.76-351.32; p=0.000), having a smoking spouse (OR=1.29; 95% CI=1.14-1.47; p=0.000), and having a Maras powder-using spouse (OR=0.15; 95% CI=0.04-0.54; p=0.004) was seen to have a positive correlation with smoking during pregnancy and a statistically significant negative correlation with using Maras powder during pregnancy (OR=121.68; 95% CI=9.79-1512.00; p=0.000) (Table 4).

Table 4. Logistic regression analysis results of independent variables affecting smoking during pregnancy and Maras powder use during pregnancy

	B	OR Exp (B)	%95 CI	p
Smoking during pregnancy				
Age	0.59	1.80	0.570-5.721	0.315
Primary school graduate	2.66	14.37	2.131-97.023	0.006
Low-income	2.07	7.95	2.918-21.684	0.000
No health insurance	2.88	0.05	0.010-0.305	0.001
Living in the urban area	1.48	4.40	1.148-16.934	0.031
Negative relationship with husband	1.98	7.26	1.248-42.337	0.027
Unwanted pregnancy	18.88	0.00	0.000-	0.999
Pre-pregnancy smokers	7.89	269.61	202.765-351.326	0.000
Husband smokes	0.26	1.29	1.142-1.478	0.000
Husband uses MP	1.89	0.15	0.041-0.546	0.004
Using MP during pregnancy	-4.80	121.68	9.793-1512.008	0.000
Use of MP during pregnancy				
Age	0.14	1.15	0.442-3.02	0.768
Primary school graduate	-0.44	0.64	0.237-1.74	0.388
Negative relationship with husband	1.19	3.29	1.332-8.16	0.010
Unwanted pregnancy	18.76	140.60	0.000-	0.999
Not receiving antenatal care	-0.54	0.58	0.240-1.41	0.234
Husband uses MP	1.48	4.41	1.831-10.65	0.001
Using MP before pregnancy	0.88	2.41	0.949-6.15	0.044
Smoking during pregnancy	-0.10	0.90	0.836-0.97	0.011

B: Regression Coefficient, OR: Odds Ratio, CI: Confidence Interval
Smoking: Hosmer and Lemes how goodness-of-fit test, p=0.066, Nagelkerke R^2=0.436
MP used: Hosmer and Lemes how goodness-of-fit test, p=0.072, Nagelkerke R^2=0.503
MP: Maras powder.

The conditions regarding the Maras powder use during the pregnancy of the women participating in the study were examined and summarized in Table 4. In the regression analysis, a positive relationship was determined between the use of Maras powder during pregnancy and the pregnant woman's negative perception of the relationship with her spouse (OR=3.29; 95% CI=1.32-8.16; p=0.010), the spouse's use of Maras powder (OR=4.41; 95% CI=1.83-10.65; p=0.001), and the use of Maras powder before

pregnancy (OR=2.41; 95% CI=0.94-6.15; p=0.044) while a negative correlation was detected with smoking during pregnancy (OR=0.90; 95% CI=0.83-0.97; p=0.011).

Discussion

The study was conducted with 669 pregnant women to determine the smoking and Maras powder use by pregnant women living in Kahramanmaras and associated factors. Our research is epochal in terms of being the first study in the literature to reveal findings on Maras powder use in pregnancy.

It was found that 21.2% of the women included in the study smoked before pregnancy and 12.9% during pregnancy. Similarly, according to the Turkish Statistical Institute data, the rate of smoking among women in Turkey was 14.9% in 2019, and the rate of smoking during pregnancy was 11% in the Turkey Demographic and Health Research Series - Institute of Population Studies study in 2008 (5,6). However, in studies conducted in different provinces of our country, the rate of smoking during pregnancy was observed to be between 3.9% and 20.5% (18–20,31). These findings indicate that smoking is a prevalent behavior among pregnant women. Smoking during pregnancy is acknowledged as an essential public health concern (1), and study findings highlight a need for national-level strategies to reduce smoking during pregnancy.

We determined in our study that 10.2% of women used Maras powder during pre-pregnancy. In studies conducted in Kahramanmaras, the rate of Maras powder use was observed as 16.8% and 13.4% in women (24,27). However, in our research,, the rate of Maras powder use during pregnancy was 4.9% in our research. In the literature, no review was found on the use of Maras powder during pregnancy, and our research is unique as being the first research conducted on this subject.

Smokeless tobacco types are known to be used widely during pregnancy because people believe that its use is less harmful than smoking (32). Again, Maras powder is thought to be less dangerous as smoking and is frequently used to quit smoking (33). Similarly, it was determined in this study that women used Maras powder to reduce smoking during pregnancy. However, Nicotiana rustica L., the raw material of Maras powder, is known to contain 8-10 times more nicotine than Nicotiana tabacum, the raw material of cigarettes (34,35). According to the WHO and the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW), it is the fundamental right of every pregnant woman to be informed about the harms of tobacco use (36). Therefore, pregnant women should be questioned regarding cigarette or tobacco product addiction at the first encounter with health professionals, and information on the potential harms of the use of such products should be provided.

Pregnant woman frequently suffer from headache due to the pressure created by the increased blood volume in the arteries during pregnancy and the effect of changing reproductive hormones on the trigeminovascular system (37,38). In addition to the anatomical changes experienced, hormonal changes, nausea-vomiting, and deterioration in oral hygiene due to nutritional deficiency can be observed, and as a result, dental caries and toothache are typically experienced (39). During pregnancy non-pharmacological methods are recommended for pain and women search for different methods for stemming the tide of pain (38). Some of the pregnant women in this study stated that they used Maras powder to relieve toothaches and headaches. In the literature, in addition to studies reporting nicotine as having an analgesic effect, there are studies reporting that chronic exposure may increase sensitivity to pain over time (40–42). In research conducted in Kahramanmaras, the severity of pain felt by people who used Maras powder chronically was concluded to be higher than those who did not, and users' pain threshold and pain tolerance were lower (43). Based on these findings, it can be said that Maras powder, used to reduce pregnancy complaints, can increase the need for use due to reducing pain tolerance.

In this study, after eliminating other factors, it was seen that the probability of smoking during pregnancy was higher in primary school graduates. In the literature, in addition to studies reporting that the smoking level is higher during the pregnancy of women with a low education level (30,44), there are also studies reporting that a higher education level increases smoking (45). Based on these findings, more research is needed to examine the effect of the education level on smoking among pregnant women.

In this research, women, who perceive their income level as low and have no social security, smoke more cigarettes during pregnancy. Similarly, in the literature, some studies show that the rate of smoking during pregnancy increases as the income level decreases (8,30,36,46). This case can be explained by the fact that people with low-income levels have higher stress levels and tend to use substances to reduce stress and to relax.

In this study probability of smoking in urban areas was 4.4 times higher than for those living in rural areas. Nevertheless, a study conducted in China by Xu et al. (2017) uncovered that the smoking rate is higher in pregnant women in rural areas. Again, it was detected in a study analyzing the factors affecting cigarette consumption in Turkey that fewer cigarettes were used in urban areas (47). Smoking in rural areas can be explained by the fact that social sharing is higher compared to urban areas (48). In addition, the limited access to health education information and low health literacy of people in rural areas may affect smoking. On the other hand, easy access in urban areas may affect smoking. These findings display a need for more studies examining smoking during pregnancy and the individual's place of residence.

Problems experienced in the relationship with the spouse are accepted as an essential source of stress during pregnancy; on the flip side, spousal support is known to be effective in reducing pregnancy stress (49–51). Individuals gravitate towards substances to reduce stress and to relax (52). It was discovered in a study that the smoking rate of pregnant women with high stress levels was five times higher than for those with low stress levels (53). Our research revealed the rate of smoking was 7.26 times and the rate of using Maras powder was 3.29 times higher in pregnant women, who perceived their relationship with their spouses as bad. This study is significant in revealing that the negative partner relationship during pregnancy increases the smoking rate and smokeless tobacco use.

In the present study women who smoked before pregnancy were more likely to smoke during pregnancy. Similarly, Yılmaz and Tarhan (2016) reported that women who smoked before pregnancy continued to smoke during pregnancy (30). Again, in this study, women who used Maras powder pre-pregnancy were 2.41 times more likely to use it during pregnancy. In a similar vein, Nair et al. (2015) reported that women who used smokeless tobacco before pregnancy continued to use it during pregnancy (54). This can be explained by the habit and addiction caused by substance use. These findings show the importance of women quitting substance use in the preconception period.

It was discovered in this study that pregnant women whose spouses smoked and used Maras powder smoked more. In some similar studies, the smoking rate is higher in pregnant women whose spouses or partners smoke at home (18,30). That can be explained by the fact that close interaction with the spouse leads to behavioral changes. It is known that the smoking behavior of social network members increases the probability of smoking in individuals (45). It was revealed in a study conducted in China that the rate of smoking during pregnancy was higher in women whose mothers-in-law also smoked (45). Again, this study showed that the probability of using Maras powder during pregnancy was 4.41 times higher in women whose husbands used Maras powder. Similarly, in a study conducted in India the spouses of men who use Gutka and similar smokeless tobacco like Maras powder use it more than whose husbands did not use such substances (54). That can be explained by the fact that spouses support access to Maras powder, cigarettes, and similar types of tobacco. In addition, as in cigarette use, partner interaction may have affected this situation in Maras powder use. These findings show the importance of providing counseling not only to women but also to their spouses and other family members about smoking and Maras powder use during pregnancy.

This research has some limitations. Firstly, since this study was conducted with the improbable sampling method, the results represent only the pregnant women included in the study and cannot be generalized. Secondly, the collection of research data by the face-to-face interview method may have affected the responses of pregnant women regarding the use of Maras powder.

In this study that a significant number of the women smoked cigarettes and Maras powder before pregnancy and during pregnancy, and they used Maras powder during their pregnancies to relieve toothaches and

headaches, for enjoyment and relaxation, and to reduce smoking. In addition, the factors that increased smoking during pregnancy were low education level, low-income level, living in the city, a negative perception of the relationship with the spouse, smoking before pregnancy, and the smoking of the spouse; the factors that increased Maras powder use during pregnancy were a negative perception of the relationship with the spouse, the use of Maras powder by the spouse, and the use of Maras powder before pregnancy.

Based on these results, (1) health professionals should question pregnant women in terms of smoking or tobacco product addiction at the first contact and provide counseling on the harms, (2) women and their spouses should be informed about the harms of smokeless tobacco types, especially Maras powder, in the preconceptionally period, (3) health institutions should develop and implement a guide to reduce the use of all forms of tobacco during pregnancy, and new studies regarding the detection of Maras powder use during pregnancy should be planned in Kahramanmaras and its surrounding provinces.

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