

# Gebelerin Covid 19'a Karşı Geleneksel, Tamamlayıcı ve Alternatif Tedavi (GETAT) Yöntemlerini Kullanma Durumlarının İncelenmesi

## Examination of the Use of Traditional, Complementary and Alternative Treatment Methods for Covid-19 by Pregnant Women

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### ÖZ

**Amaç:** Doğal ve güvenli hamilelik geçirmek ve doğum yapmak isteyen kadınlar geleneksel, tamamlayıcı ve alternatif tedavi yöntemlerini tercih etmektedirler. Ayrıca Covid-19 pandemisi döneminde virüsten korunmak için birçok ülkede tamamlayıcı ve alternatif tedaviler önerilmiş ve kullanılmaya başlanmıştır. Bu çalışmada bir aile sağlığı merkezine kontrol (takip) için gelen gebelerin Covid-19 pandemisinde geleneksel, tamamlayıcı ve alternatif tedavi yöntemlerini (TAT) kullanım durumları incelenmiştir.

**Yöntem:** Çalışma tanımlayıcı tiptedir. Aile sağlığı merkezine kontrol için gelen toplam 162 gebe çalışmaya dahil edilmiştir. Araştırmada üç bölümden ve 43 sorudan oluşan anket formu kullanılmıştır. Anket formları yüz yüze görüşülerek doldurulmuştur.

**Bulgular:** En çok kullanılan tamamlayıcı ve alternatif tedavi yöntemlerinin dua, masaj, bitkisel tedavi ve vitamin takviyesi olduğu tespit edildi. Ayrıca evden dışarı çıkmamak, sirke ile su içmek veya gargara yapmak, klorlu çamaşır suyu ile temizlik yapmak korunma amaçlı yapılan diğer davranışlardır.

**Sonuç:** Gebe kadınların GETAT yöntemlerinden en çok bitkisel tedavileri, vitamin desteği, hidroterapi, akupunktur, kupa, masaj, hacamat, dua, sülük uygulaması, hipnoz, meditasyon ve müzik terapi uygulamalarını bildikleri belirlenmiştir. Gebe kadınların Covid-19 sürecinde en çok dua, masaj, vitamin desteği ve bitkisel tedavi uygulamalarını kullandığı görülmektedir.

**Anahtar Kelimeler:** Covid-19, Gebelik, Tamamlayıcı ve Alternatif Tedavi.

### ABSTRACT

**Objective:** Women who want to have a natural and safe pregnancy and birth choose traditional, complementary and alternative treatment methods. Also, during the Covid-19 pandemic, complementary and alternative treatments were recommended and used in many countries for protection against the virus. In this study, an examination was made of the use of traditional, complementary and alternative treatment methods (CAM) in the Covid-19 pandemic by pregnant women coming to a family health center for checkup (monitoring).

**Method:** The study is descriptive type. A total of 162 pregnant women who came to the family health center for control were included in the study. A questionnaire form consisting of 43 questions in three sections was used in the research. Questionnaire forms were filled through face-to-face interviews.

**Results:** It was found that the most used complementary and alternative treatment methods were prayer, massage, herbal treatment and vitamin supplements. Also, other behaviors conducted with the aim of protection were not going out of the house, drinking or gargling water with vinegar, and cleaning with chlorine bleach.

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**Conclusion:** The women stated that the CAM methods which they used the most were herbal remedies, vitamin supplements, hydrotherapy, acupuncture, cupping, massage, phlebotomy, the use of leeches, hypnosis, meditation and music therapy. It was seen that the pregnant women mostly used prayer, massage, vitamin supplements and herbal remedies during the time of Covid-19.

**Key words:** Covid-19, Pregnancy, Complementary and Alternative Treatment.

## 1. INTRODUCTION

Covid-19 was first detected in China in December 2019 and has caused great problems worldwide (1). It has affected everyone physically, psychologically and socioeconomically, in particular disadvantaged groups such as the old, the chronically ill, health workers, those in poor socioeconomic conditions, refugees, the uneducated, the disabled, women, and also pregnant women (2). Pregnancy is a time when the immune system is under pressure and sensitivity to viral infections is increased. Cesarean birth, stillbirth, neonatal death, preterm birth, miscarriage, fetal distress and neonatal asphyxia have been reported as negative results of Covid-19. For this reason, it is very important for pregnant women to be protected from Covid-19 (3).

Women throughout their lives choose various different treatment methods according to their cultural characteristics to deal with illnesses or complaints such as dysmenorrhea, insomnia, menopause, stress or cancer (4). It has been reported that the use of methods of traditional complementary and alternative medicine (CAM) is greater in women, and that these are particularly chosen in pregnancy and at birth (5-7). The most important reason for these methods to be chosen in pregnancy is the desire to protect the babies from the harmful effects of chemical medicines (6). Women generally prefer CAM to treat the complaints caused by pregnancy such as stomach upset, tiredness, anxiety or urinary tract infections. In Türkiye, the most commonly chosen CAM treatments in pregnancy are herbal remedies and massage (8).

Pregnancy itself and the baby's health can be causes of concern for the new mother. In addition, pregnant women fear the Covid-19 virus and the effects of the disease, and this can make the process more difficult for them. In order to cope with this, their tendency to use alternative methods may increase. The negative effects of the methods chosen may cause more serious situations in pregnancy (6,9), and for this reason it is important to know the state of use of CAM by pregnant women and the methods which they prefer. It is reported that there is insufficient data in the literature on the use of CAM in pregnancy (5,6,10). At the same time, it is seen that in Türkiye as in other countries of the world, there is interest in CAM in pregnancy, and that research is being conducted on this topic (5,6,8,10- 13). Also, because of the Covid-19 pandemic, the tendency to use CAM has increased, and research on this topic has gathered pace. In the literature, there are studies on the use of CAM in pregnancy (5,6,8,10-13) and on the preference for these methods in the non-pregnant population during the Covid-19 pandemic (7,14-17). However, no studies were found on the use of CAM during pregnancy in the Covid-19 pandemic.

### Aim

The aim of this study was to investigate the use of CAM methods in pregnancy during the Covid-19 pandemic. The research hypotheses were as follows:

H0: Pregnant women do not use CAM during the pandemic.

H1: Pregnant women use CAM during the pandemic.

## **2. METHOD**

### **Design**

This descriptive type study was conducted with 162 pregnant women.

### **Settings**

The research was performed between February and June 2022 at a Family Health Center in the province of xxxx in Turkiye.

### **Subject**

The research sample consisted of pregnant women who came to the family health center for checkups. The lowest number was calculated as 197 with the program Epi Info for an unknown prevalence of 50%, a deviation of 0.05, a confidence interval of 95%, and a design effect of 1.0. The lowest number necessary for a 90% confidence interval on the program Epi Info was calculated as 162, and 90% of the calculated sample number was achieved (18).

### **Inclusion criteria**

Pregnant women were included in this study who were aged 18 years or more, who were in a suitable physical and mental condition to complete the questionnaire forms correctly, who had education to at least the level of literacy, and who agreed voluntarily to participate in the study.

### **Data collection tools**

A questionnaire form consisting of 43 questions in three sections was used in the research.

Personal information form: This form contained questions on the participants' sociodemographic characteristics and gathered information on their pregnancy.

Form with questions on measures taken by the pregnant women to protect from Covid-19 during the pandemic: This form was created based on the form '14 Rules Against Coronavirus Risk' published by the Ministry of Health (19). Participants were asked whether they practiced each of the Covid-19 protective measures, and the answers were in the form of 'yes' or 'no'. The form consisted of 14 questions.

Form with questions on the pregnant women's knowledge and use of CAM: This form was developed by the researchers in line with the literature (6,11,16). It consisted of 12 questions. The form contained both multiple choice and open-ended questions to determine the pregnant women's knowledge and use of CAM methods.

### **Data collection**

Oral and written approval was obtained from women who participated voluntarily in the research and who met the inclusion criteria, and the questionnaire forms were completed by face-to-face interview. Each interview, with only the participant and the researcher, lasted 15-20 minutes.

### Data analysis

The program package SPSS for Windows 22.00 was used in the evaluation of the research data. The descriptive statistical analysis method was used in the analysis of data. Means (minimum-maximum) and standard deviation were used with descriptive statistics relating to continuous variables, and numerical values and percentages were used with descriptive statistics relating to categorical data.

### 3. RESULTS

The mean age of the pregnant women was  $27.65 \pm 5.6$  years (min:18, max:39) and 40% were high school graduates. It was found that 83.3% had not worked at a paying job, most (95.7%) did not have a chronic illness, 81.5% did not smoke, 98.1% did not have a history of allergy, and 91.4% had not had a surgical operation (Table 1).

**Table 1.** The Women's Sociodemographic Characteristics

Sociodemographic Characteristics	n	%
<b>Age group (mean age <math>27.65 \pm 5.6</math>. Min:18, Max:39)</b>		
27 years or less	82	50.6
28 years or more	80	49.4
<b>Education level</b>		
Primary school	13	8.0
Middle school	29	17.9
High school	65	40.1
University	55	34.0
<b>Income status</b>		
No regular income	25	15.4
Income less than expenditure	16	9.9
Income and expenditure equal	106	65.4
Income more than expenditure	15	9.3
<b>Salaried employment</b>		
Yes	27	16.7
No	135	83.3
<b>Chronic Illness</b>		
Yes (6 thyroid and 1 diabetes)	7	4.3
No	155	95.7
<b>Smoking</b>		
Yes	11	6.8
No	132	81.5
<b>Not during pregnancy</b>	19	11.7
<b>History of allergy</b>		
Yes	3	1.9
No	159	98.1
<b>Surgical operations</b>		
Yes	14	8.6
No	148	91.4
<b>Total</b>	162	100.0

29.6% of the pregnant women stated that they were using CAM. When they were asked for their thoughts on the effectiveness of CAM, 54.2% stated that medical treatment and CAM together were effective, and 37.5% that medical treatment was more effective. The women's reasons for using CAM were, in order, to preserve their health (75.1%), thinking that CAM was beneficial (12.5%), and to relieve pain (8.3%). When the women were asked whether they

would recommend CAM to others, 72.2% said that they would (Table 2). When the women's sources of information on CAM methods was investigated, it was found that 77.2% got their information from the internet, 45.7% from friends, and 36.4% from family members. Also, 20.4% of the women stated that they obtained their information on CAM from health professionals (Table 2).

**Table 2.** Information on the Women's CAM Use

<b>CAM use (n=162)</b>		
<b>Yes</b>	48	29.6
<b>No</b>	114	70.4
<b>Thoughts on CAM effectiveness (n=48)</b>		
<b>CAM is more effective</b>	1	2.1
<b>Medical treatment is effective</b>	18	37.5
<b>The two together are not effective</b>	1	2.1
<b>The two together are effective</b>	26	54.2
<b>I am undecided</b>	2	4.2
<b>Reason for CAM use (n=48)</b>		
<b>To protect health</b>	36	75.1
<b>To relieve pain</b>	4	8.3
<b>Because it's useful</b>	6	12.5
<b>Because it has a quicker effect</b>	2	4.1
<b>Recommending CAM (n=48)</b>		
<b>I would recommend it</b>	35	72.3
<b>I wouldn't recommend it</b>	6	12.8
<b>I am undecided</b>	7	14.9
<b>Total</b>	48	100.0
<b>The Women's Sources of Knowledge for CAM Methods</b>		
<b>Internet</b>		
<b>Yes</b>	125	77.2
<b>No</b>	37	22.8
<b>Newspapers</b>		
<b>Yes</b>	11	7.0
<b>No</b>	151	93.0
<b>Health professionals</b>		
<b>Yes</b>	33	20.4
<b>No</b>	129	79.6
<b>Friends</b>		
<b>Yes</b>	74	45.7
<b>No</b>	88	54.3
<b>Family</b>		
<b>Yes</b>	59	36.4
<b>No</b>	103	63.6
<b>Total</b>	<b>162</b>	<b>100.0</b>

It was found that 55.6% of the pregnant women were in their second trimester, 63.6% had had two or more births, and the previous birth of 29.0% was a normal vaginal birth (Table 3).

Looking at the women's conformity to Covid-19 precautions, it was found that the four rules most followed were wearing a mask (100.0%), frequently ventilating the place where they were (100.0%), frequent hand washing with soap (99.4%), and observing social distancing rules (99.4%) (Table 4).

When the women were asked about other things which they did for protection against Covid-19, the three answers most frequently given were not going out of the house without a reason (30.5%), drinking or gargling with dilute vinegar (18.5%), and cleaning with chlorine bleach (18.3%) (Table 4).

**Table 3.** The Women’s Characteristics Regarding Pregnancy

<b>Characteristics</b>	<b>n</b>	<b>%</b>
<b>Mean week of pregnancy: 25.20±6.47 Min:18, Max:39</b>		
<b>Week of pregnancy</b>		
First Trimester	1	0.6
Second Trimester	90	55.6
Third Trimester	71	43.8
<b>Number of pregnancies</b>		
First pregnancy	50	30.9
2 -3 pregnancies	82	50.6
4 pregnancies or more	30	18.5
<b>Number of births</b>		
First birth	59	36.4
2 births or more	103	63.6
<b>Number of living children</b>		
None	59	36.4
1	73	45.1
2 or more	18.5	18.5
<b>Previous birth type</b>		
Normal vaginal birth	47	29.0
Emergency cesarean	18	11.1
Elective cesarean	33	20.4
Interventional vaginal birth	4	2.5
<b>Miscarriage</b>		
Yes	50	30.9
No	112	69.1
<b>Total</b>	<b>162</b>	<b>100.0</b>

When the pregnant women’s knowledge of CAM methods was investigated, it was found that the five best known methods were herbal treatment (79.0%), vitamin supplements (78.4%), massage (60.5%), prayer (59.3%), and cupping (55.6%). The methods most used by the pregnant women were prayer (35.4%), massage (22.9%), herbal treatment (19.8%), vitamin supplements (19.8%), a special diet (10.4%), and hydrotherapy (10.4%) (Table 5).

**Table 4.** Compliance with COVID-19 Preventive Measures in Pregnancy

<b>Precautions Against COVID-19</b>	<b>n</b>	<b>%</b>
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<b>Hand washing</b>		
Yes	161	99.4
No	1	0.6
<b>Social distancing</b>		
Yes	161	99.4
No	1	0.6
<b>Wearing a mask</b>		
Yes	162	100.0
No	0	0
<b>Avoiding close contact</b>		
Yes	151	93.3
No	11	6.8
<b>Using a handkerchief</b>		
Yes	155	95.7
No	7	4.3
<b>Ventilating the area</b>		
Yes	162	100.0
No	0	0
<b>Surface cleaning</b>		
Yes	143	88.3
No	19	11.7
<b>Keeping a distance from those who are ill</b>		
Yes	156	96.3
No	6	3.7
<b>Use of own personal effects</b>		
Yes	142	87.7
No	20	12.3
<b>Washing clothes at a high temperature</b>		
Yes	136	84.0
No	26	16.0
<b>Drinking plenty of liquid</b>		
Yes	154	95.1
No	8	4.9
<b>A balanced diet</b>		
Yes	155	95.7
No	7	4.3
<b>Regular sleep</b>		
Yes	124	76.5
No	38	23.5
<b>Going to health institutions</b>		
Yes	156	96.3
No	6	3.7
<b>Other protective measures performed</b>		
Drinking or gargling with diluted vinegar	30	18.5
Getting vaccinated	4	2.5
Drinking herbal teas	26	16.0
Eating fresh fruit and vegetables	23	14.2
Cleaning with bleach	29	18.3
Not leaving the house unnecessarily	50	30.5
<b>Total</b>	<b>162</b>	<b>100.0</b>

**Table 5.** The Women’s Knowledge and Use of CAM Methods

	Knowledge of CAM methods		Using CAM methods	
	n	%	n	%
<b>Apitherapy</b>				
Yes	4	2.5	3	6.3
No	158	97.5	159	93.8
<b>Herbal remedies</b>				
Yes	128	79.0	32	19.8
No	34	21.0	130	80.2
<b>Special diet (gluten-free, vegan, etc.)</b>				
Yes	52	32.1	5	10.4
No	110	67.9	157	89.6
<b>Vitamin supplements</b>				
Yes	127	78.4	32	19.8
No	35	21.6	130	80.2
<b>Acupressure</b>				
Yes	7	4.3	-	-
No	155	95.7	162	100.0
<b>Hydrotherapy</b>				
Yes	61	37.7	5	10.4
No	101	62.3	157	89.6
<b>Chiropractic</b>				
Yes	2	1.2	-	-
No	160	98.0	162	100.0
<b>Cupping</b>				
Yes	72	44.4	2	4.2
No	90	55.6	160	95.8
<b>Massage</b>				
Yes	98	60.5	11	22.9
No	64	39.5	151	77.1
<b>Osteopathy</b>				
Yes	3	1.9	-	-
No	159	98.1	162	100.0
<b>Reflexology</b>				
Yes	12	7.5	-	-
No	150	92.5	162	100.0
<b>Therapeutic touch</b>				
Yes	5	3.1	-	-
No	157	96.9	162	100.0
<b>Acupuncture</b>				
Yes	59	36.4	-	-
No	103	63.9	162	100.0
<b>Homeopathy</b>				
Yes	17	10.6	-	-
No	145	89.4	162	100.0
<b>Mesotherapy</b>				
Yes	14	8.6	-	-
No	148	91.4	162	100.0
<b>Prolotherapy</b>				
Yes	1	0.6	-	-
No	161	99.6	162	100.0
<b>Aromatherapy</b>				
Yes	10	6.2	1	2.1
No	152	93.8	161	97.9

**Table 5.** The Women's Knowledge and Use of CAM Methods (continue)

	Knowledge of CAM methods		Using CAM methods	
	n	%	n	%
<b>Cupping</b>				
Yes	90	55.6	1	2.1
No	72	44.4	161	97.9
<b>Larva Application</b>				
Yes	9	5.6	-	-
No	153	94.4	162	100.0
<b>Leeches</b>				
Yes	89	54.9	1	2.1
No	73	45.1	161	97.9
<b>Prayer</b>				
Yes	96	59.3	17	35.4
No	66	40.7	145	64.6
<b>Hypnosis</b>				
Yes	61	37.7	-	-
No	101	62.3	162	100.0
<b>Meditation</b>				
Yes	56	34.6	-	-
No	106	65.4	162	100.0
<b>Music therapy</b>				
Yes	52	32.1	4	8.3
No	110	67.9	158	91.7
<b>Total</b>	<b>162</b>	<b>100.0</b>	<b>162</b>	<b>100.0</b>

#### 4. DISCUSSION

The desire for a natural and safe pregnancy and birth is the main factor in women's inclination towards CAM (10). Looking at studies which have been conducted on this subject, different sociodemographic results are seen in the literature. Bishop et al. (2011) found that the probability of the use of CAM increased with age, that the rates of CAM use were greater in women who were working and whose education levels were high, and that CAM users were of a higher social class level professionally (20). In another study conducted with pregnant women at low risk whose mean age was similar to those in our study (n=1500), it was found that there was no significant correlation between age and CAM use, but that the probability of CAM use in women who had a chronic illness or who smoked or drank alcohol during pregnancy was higher. It was also found in the study that women with a high education level used CAM more, but that the difference was not statistically significant (12).

It is reported that the rate of use of CAM in pregnancy varies between 1% and 87% (11,12). There are studies in the literature investigating CAM use in pregnancy in different countries. In a retrospective cohort study conducted in the UK (n=14115), it was found that more than a quarter of the women (26.7%) had used CAM at least once (20). In a study in Australia carried out as part of a wide-ranging study of women's health (n=2445), it was found that half of the pregnant women had consulted a CAM specialist (11). In a study conducted in the Netherlands (n=1500), it was found that the rate of consultation with any kind of CAM practitioner by pregnant women at low risk was 9.4% (12). It was reported in a study conducted in Türkiye (n=350) that 88% of the pregnant women had made use of CAM approaches (6).

In many countries, CAM methods were recommended and began to be used in the pandemic, even though there is no evidence that they are effective in preventing or treating Covid-19 (21). The main factor in recommending CAM methods for protection from Covid-19 was their positive effects in strengthening the immune system (22) and it is seen that research on the topic began during the pandemic. In a study in India in which the use of CAM products by asymptomatic Covid-19 patients was investigated (n=495), it was found that 25.8% of the participants used some CAM product or home remedy during or after treatment (23). In a qualitative study by Kaplan (2020) in Türkiye (n=37), the use of traditional treatments to protect against Covid-19 was investigated, and it was found that the preferred CAM application was herbal treatments, particularly ginger and turmeric, and that prayer was found under the heading of religious or magical practices. In another study conducted in Türkiye (n=3597), it was found that 41.45% of participants used CAM methods as an individual precaution against Covid-19, and a large proportion (86%) tended to use prayer and worship as a coping strategy (24). In a study in Ghana in a population with a majority (53.9%) of women (n=1195), it was found that approximately 82.5% of the participants used CAM during Covid-19. It was also reported that the female participants were 41% more likely to use CAM than the males (22).

The estimated 29.6% rate of CAM use in our study is broadly similar to the rates of CAM use in pregnancy indicated in the literature (Table 2). The results of studies examining CAM use conducted in the pandemic in normal non-pregnant populations are, as seen above, variable. The cultural makeup and attitudes to the pandemic of societies in different countries may affect this. Also, in our study, we only interviewed a limited number of women who had come to the family health center for pregnancy checkups.

In the literature, the reasons for the use of CAM by pregnant women is reported to be to protect against harm to the mother and baby, to ease the physiology of pregnancy, birth and breastfeeding, and to relieve problems such as stomach upset, vomiting, constipation, anxiety, urinary tract infection and backache (11,25,26). In the pandemic, CAM methods were recommended and chosen with the idea that they could be a preventative approach because of their antiviral, anti-inflammatory, immune system regulating and organ protecting characteristics (3,9,22). It was reported in a study by Senyuva and Baysal (2021) that pregnant women were afraid of infection with the Covid-19 virus and potential bad outcomes (9). In our study, we asked ‘What was your reason for using CAM in the pandemic?’ The most frequent answer (75.1%) was ‘to preserve health in the pandemic’.

It is reported in the literature that pregnant women’s perceptions of the effectiveness of CAM methods are generally positive (5). In our study also, many of the participants (54.2%) reported that CAM methods together with medical treatment were effective, and that they could be recommended to others (72.3%). When the participants were asked about the sources of their information on CAM, the three sources which were used the most were found to be the internet (77.2%), friends (45.7%), and family (36.4%) (Table 2). It is reported in the literature that women’s sources of information on CAM during pregnancy are health workers and the advice of family, friends or colleagues (10,22). Also, midwives have been shown to be a common source of information on CAM methods (11). Barnes et al. (2018) also conducted a systematic review examining studies aimed at determining the CAM methods used by women in pregnancy and/or the breastfeeding period and their sources of information for this. They found that the most-used sources of information were sharing cultural knowledge and traditional practices,

old women in their families and others close to them, and health workers. They also reported differently that women in high-income countries accessed knowledge of CAM through the internet (26).

It was seen that the CAM methods determined in our study and which our participants knew best and used the most were in accordance with the literature. The CAM methods preferred in pregnancy were herbal products, vitamins, massage, aromatherapy and prayer (5,10,11,12,20,26). Apart from these, it is reported that acupuncture, acupressure, chiropractic, homeopathy, and yoga were also popular among pregnant women (5,11). It was also seen that our results were in accordance with the CAM methods chosen in pregnancy in Turkiye (6,8).

Scientific studies on the effectiveness of herbal products have increased recently and have shown that medicinal plants can be effective in protection from and treatment of viral illnesses (27). The results obtained by a study by Kretchy et al. (2021) conducted in the normal population are similar to our study, except that the order is different. In that study, the five CAM methods most chosen for protection against Covid-19 were found to be vitamin supplements (88.1%), spiritual healing and prayer (23.3%), mineral supplements (22.3%), herbal medicines (22.2%) and diet therapy (19.4%) (22). Also, it is reported that drinking herbal tea (87.5%), oils and massage, and ayurvedic drinks obtained from various plants have been used against Covid-19 (16,23). Traditional Chinese medicine has also been widely used in the treatment of Covid-19 for its genomic similarities and clinical characteristics (28). It has been reported that traditional Chinese medicine and some methods such as relaxation have a positive effect in relieving the psychological and physiological symptoms of Covid-19 illness (29). For example, it has been found that liquorice extract, which is used in many Chinese medicinal formulas, is of benefit against Covid-19 because of its antiviral, antioxidant anti-inflammatory and immunomodulatory effects (28). *Nigella sativa* seeds are recommended for having the same effects and are reported to have a positive effect on Covid-19 (1). In our study, most of the pregnant women are took precautions against Covid 19, such as drinking herbal teas or eating fresh fruit and vegetables (Table 4).

The participants were asked about the precautions which it was necessary to take against Covid-19. It was seen that all of them followed most of the rules. The rules which were most followed were wearing a mask and frequent ventilation of the place where they were (100%), washing hands with soap for at least 20 seconds and following the rule of social distancing (99.4%). It was also seen in the studies that positive behaviors were adopted regarding preventive behaviors against infection with coronavirus. The most observed precautions were found to be hand washing, hygiene, isolation, social distancing, using a handkerchief when sneezing, ventilating the area, keeping a distance from those with signs of illness, and cleaning frequently used surfaces (16,24). A positive attitude to preventive measures in the pandemic was determined in pregnant women (9). The women were also asked what they had done during pregnancy to protect themselves from Covid-19 apart from the protective measures. The three behaviors most practiced were not leaving the house (30.5%), drinking or gargling with dilute vinegar and cleaning with bleach (18.5%), and drinking herbal tea (16%). The physiology of pregnancy is the same for all women, but there are differences in culture, traditions, individual characteristics, belief, the environment and value judgments (26). The use of vinegar is a practice against outbreaks of disease suggested by Ibni Sina (30). It is seen in studies conducted in Turkiye that vinegar was used in the pandemic. In a study examining consumer behavior, it

was reported that one of the products for which there was a great increase in demand after the virus was first found in Türkiye was vinegar (31). It was thought that washing products brought from outside with dilute vinegar would prevent infection (32). In a study by Aydın (2020), it was stated that it was claimed on social networks during the pandemic that gargling with vinegar was effective against Covid-19, but that no scientific studies had been conducted on the topic (20). In a study conducted with 1074 participants from Lebanon, Jordan and Tunisia, a significant increase was found in behaviors relating to hygiene and disinfection compared with the time before Covid-19, and that the cleaning products most used in all three countries were vinegar, bleach and soap (34). In our study, vinegar was more used for gargling and drinking, and for cleaning, as in a study by Faour-Klingbeil, chlorine bleach was preferred.

### **Limitations of the study**

This study has two limitations. The first is that the results cannot be generalized to the whole of Türkiye because it was a single-centered study. The second is that because it was conducted with the pregnant women who came to the family health center during the time of Covid-19, it did not include other women, and the number of participants was limited to 162.

## **5. CONCLUSION**

It was found that a majority of the pregnant women participating in the research took precautions such as hand washing, mask wearing, avoiding close contact, washing clothes at a high temperature, consuming plenty of liquid, eating a healthy diet, sleeping regularly, visiting health institutions and not leaving the house unnecessarily and drinking or gargling with diluted vinegar in order to protect themselves from Covid-19 during the pandemic. The women stated that the CAM methods which they used the most were herbal remedies, vitamin supplements, hydrotherapy, acupuncture, cupping, massage, phlebotomy, the use of leeches, hypnosis, meditation and music therapy. It was seen that the pregnant women mostly used prayer, massage, vitamin supplements and herbal remedies during the time of Covid-19.

### **Implications for midwifery or nursing care and future research**

Despite these limitations we thought that the pregnant women who participated in the study openly and frankly shared with the researchers their knowledge of Covid-19 protection measures and CAM applications, and the methods which they used. A future study with a large sample group to represent the whole of Türkiye will provide information on how much women know about and use CAM. In this way, nurses and midwives will be able to benefit from this knowledge.

### **Ethical Consideration of the Study**

This study was approved by the Ethics Committee of the Medical Faculty of xxxxxx University in Türkiye (1 December 2021). Informed oral and written approvals were obtained from all participants. The study was registered in the clinical research register of Türkiye (registration code: xxxxxxxx). In addition, institutional permission was obtained from xxxxxx before the collection of data.

### **Conflict of interest statement**

The authors declare that they had no conflicts of interest.

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We confirm that we have not taken any funding support.

### **Data availability**

The authors will discuss with departments involved in the provision of datasets upon reasonable request.

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