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Traditional and complementary medicine attitudes and practices of pregnant women for abnormal vaginal discharge

Öznur Yaşar^{1*} and Hediye Kalıpcıoğlu²

Abstract

Background During pregnancy, vaginal flora pH changes and vaginal discharge may increase. Pregnant women may resort to traditional methods for vaginal discharge, but some traditional practices may cause health problems. This study aimed to examine the attitudes of pregnant women in Turkey towards traditional and complementary medicine attitude and the traditional practices they use for abnormal vaginal discharge.

Methods This descriptive study was conducted with 306 pregnant women using an online survey via social media platforms. The Personal Identification Form and the Complementary, Alternative and Conventional Medicine Attitudes Scale were used as data collection tools.

Results 60.5% of participants had not received genital hygiene education. 15% of participants used traditional and complementary medicine methods for vaginal discharge, and 57.1% of those who used these methods used niaouli oil. The mean score obtained from the Complementary, Alternative and Conventional Medicine Attitudes Scale was 106.32 ± 21.76 . The attitude scores of non-working participants were significantly higher than those of working participants ($p=0.018$). Participants who had fewer than four prenatal visits and those who did not receive genital hygiene education had higher total scale scores ($p=0.001$ and $p=0.026$). Additionally, visiting a doctor when experiencing abnormal vaginal discharge was found to negatively affect the total scale score ($p=0.010$).

Conclusion Pregnant women's attitudes toward traditional and complementary medicine practices were generally moderate, while the rates of using traditional and complementary medicine methods for vaginal discharge and receiving genital hygiene education were low. Therefore, it is recommended that healthcare professionals inquire about pregnant women's use of CAM methods during prenatal checkups, provide genital hygiene education, and incorporate CAM methods into prenatal education programs based on evidence-based information.

Keywords Health, Pregnancy, Traditional medicine, Vaginal discharge

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Introduction

Vaginal discharge is a frequent gynaecological complaint in women during their reproductive life and especially during pregnancy [1]. Normal physiological vaginal discharge is white or clear, non-offensive and can vary over time. It is thick and sticky for most of the menstrual cycle but becomes clearer, wetter, and stretchy for a short period around the time of ovulation [2]. It is heavier and more noticeable during pregnancy, with contraceptive use, and with sexual stimulation. It decreases in volume at menopause due to a fall in estrogen levels. Abnormal vaginal discharge is characterized by changes in colour, consistency, volume, and/or odour and may be associated with symptoms such as itching, soreness, dysuria, pelvic pain, intermenstrual or postcoital bleeding [2, 3]. Untreated vaginal infections (bacterial vaginosis, vaginal candidiasis, trichomonas vaginalis) have been associated with low birth weight in the fetus, premature labor, miscarriages, and postpartum endometritis during pregnancy [1, 4, 5]. It is also reported that women resort to traditional methods to address the problems they encounter [6, 7]. The rate of use of complementary alternative medicine (CAM) use has been increasing in recent years. Reasons for using CAM include a desire to have control over one's own health, drug side effects, and dissatisfaction with traditional treatments. However, some CAM methods may also cause health problems [8]. There is insufficient evidence regarding the efficacy and safety of some complementary alternative methods during pregnancy [9, 10]. Therefore, it is important to identify the CAM methods used in pregnant women. Different rates are found in countries regarding the use of CAM in pregnant women. It is reported that 89.9% of pregnant women in Iran, 89.3% in Ethiopia, and 57.1% in England use CAM [9, 11, 12]. All of these countries have different cultural characteristics and healthcare systems. Therefore, determining the rate of CAM use in different countries is important for identifying the prevalence of its use and the factors influencing it. The use of various plants in the treatment of diseases dates back to ancient times. These practices were also used in Anatolia, where Turkey is located. These practices, passed down through cultural accumulation from the past to the present, are still used today [13]. Pregnant women may be considered as a first option because CAM is seen as harmless [8]. In the literature review, it was seen that there are a limited number of studies on the use of CAM by pregnant women in Turkey [7, 14]. In Turkey, by investigating pregnant women using CAMs in frequently encountered cases, the CAMs used can be identified and the factors influencing them at the national level can be determined. This allows pregnant women to be correctly informed about CAMs.

Considering all of this; this study aimed to examine the attitude of pregnant women towards traditional and

complementary medicine practices and traditional and complementary medicine practices for vaginal abnormal discharge in Turkey.

Research questions

Research question 1. What is the level of attitudes of pregnant women in Turkey toward traditional and complementary medicine practices?

Research question 2. What are the demographic determinants of traditional and complementary medicine practices among pregnant women in Turkey?

Research question 3. What CAM method/s are used by pregnant women in Turkey for abnormal vaginal discharge?

Methods

Study design

The descriptive study was conducted with pregnant women living in Turkey via Google Forms on social media (WhatsApp, Facebook, Instagram) platforms between July - August 2023. Given the high level of social media usage today, and to reach participants from multiple geographic regions, online data collection was chosen as the method. To determine the sample size in the study, the number of individuals in the population was determined as at least 91 with the unknown sampling method formula ($t = 1.96$, $\sigma = 7.71$, $d = 0.05$), taking into account the standard deviation of a study using the Traditional Complementary Medicine Attitude Scale in pregnant women at a 95% confidence interval [14]. Pregnant women were reached online by convenience sampling method. In this study, convenience sampling was chosen to collect data faster and reach a larger number of people. However, in this sampling method, the probability of selecting each individual in the target population is not equal. To increase statistical power and improve generalizability, more questionnaires were administered, and data collection was completed with 306 participants.

Data collection tools

An individual introduction form and the Traditional and Complementary Medicine Attitude Scale were used to collect data. Being pregnant, being literate, being over 18 years of age, and volunteering to participate in the study were accepted as inclusion criteria. Research data were collected by sharing the research link survey via Google Forms on social media platforms. The research link contained information about the research and a consent checkbox on the first page. Participants could not access the questions unless they read this page and checked the consent box. The data collection process was terminated when the desired number of research data points was reached. The data were then converted into written form for analysis, and responses deemed inconsistent (those

who did not complete the questionnaire) were excluded from the research ($n=8$), resulting in the final data set ($n=306$).

Individual introduction form

A form consisting of 27 questions to determine sociodemographic and obstetric information and traditional practices for abnormal discharge was developed by the researchers through a literature [2, 7]. Expert opinions were not sought for the survey questions.

Complementary, alternative and conventional medicine attitudes scale (CACMAS)

It was developed by Mc Fadden et al. (2010) to assess individuals' attitudes toward Traditional Complementary Medicine. The scale, which was adapted into Turkish by Köse et al. (2018), is a 7-point Likert-type scale ranging from "strongly disagree" (1) to "strongly agree" (7). The scale (1–189 points) comprises three sub-dimensions and 27 items. The subdimensions of the scale: intellectual view of complementary medicine (1–56 points) consists of 8 items (5,7,9,18,19,21,22,24), dissatisfaction with modern medicine (1–70 points) consists of 10 items (1,4,8,11,14,16,17,20,26,27), holistic view of health (1–63 points) consists of 9 items (2,3,6,10,12,13,15,23,25). Five items (1,4,8,9,26) are reverse-scored. An increase in the total score on the scale indicates positive attitude towards traditional complementary medicine. The Cronbach Alpha value of the scale was found to be 0.80 [15]. In this study, the Cronbach Alpha value for the scale was 0.87.

Table 1 Socio-demographic data distribution of the participants

Variable	Mean $\pm$ SD (min-max)	
Age	29.45 $\pm$ 3.87 (19.00–44.00)	
Age at first marriage	25.94 $\pm$ 3.24 (17.00–40.00)	
Marriage years	3.31 $\pm$ 2.85 (1.00–22.00)	
	<i>n</i>	%
Education level		
Primary school-high school graduate	26	8.5
University degree and above	280	91.5
Employment status		
Working	160	52.3
Not working	146	47.7
Income level		
Income is more than expenditure	64	20.9
Income equal to expenditure	151	49.3
Income is less than expenditure	91	29.7
Chronic disease status		
Chronic diseases exist	26	8.5
No chronic diseases	280	91.5
Total	306	100.0

This value indicates that the internal consistency of the scale used in the study is at an acceptable level.

Data analysis

The research data were analyzed using SPSS (Statistical Package for Social Sciences) for Windows 22.0. Frequency and percentage values, which are descriptive statistics, were used for the information obtained. In the study, the normality distribution of the data was evaluated by examining the skewness and kurtosis values. To determine the relationship between two variables, a t-test was used to compare the averages of two groups with normal distribution, a one-way ANOVA test was used to compare multiple group averages, and equivalent nonparametric tests (Mann-Whitney-U test and Kruskal Wallis test) were used for data that did not show normal distribution. To determine the level of influence of factors affecting attitudes towards traditional and complementary medicine approaches, variables that were found to be significant in preliminary analyses were evaluated using multivariate linear regression analysis.

The ethical dimension of the research

Approval was obtained from Balıkesir University Non-Interventional Ethics Committee (11/07/2023:-E-11811414-050.03-272462). In addition, participants were informed about the research via the form used before the study, and their online consent was obtained, confirming that they participated voluntarily. Scale use permission was obtained for the research. The study was conducted in accordance with the principles of Good Clinical Practice and the Declaration of Helsinki. That no identifiable information was stored and responses remained anonymous.

Results

This study presents data on the traditional and alternative medicine methods and attitudes towards traditional and complementary medicine practices applied by pregnant women living in Turkey for abnormal vaginal discharge. The pregnant women participating in the study were in a young age group (29.45 $\pm$ 3.87), had not been married for a very long time (3.31 $\pm$ 2.85), the majority (91.5%) were university graduates or higher, and the majority (91.5%) did not have a chronic disease (Table 1).

When the distribution of obstetric and gynecological data among the study participants was examined, the mean gestational week was 25.50 $\pm$ 10.24 weeks, 96.7% had no sexually transmitted diseases, 85.6% went to four or more pregnancy controls, and 60.5% did not receive genital hygiene education. 15% of the participants used traditional practices for discharge, and of those using traditional methods for abnormal vaginal discharge, 57.1% were using niaouli oil (Table 2).

Table 2 Distribution of obstetric and gynecologic data of the participants

Variable	Mean ± SD (min-max)	
Pregnancy week	25.47 ± 10.31 (4.00–40.00)	
Number of pregnancies	1.36 ± 0.76 (1.00–6.00)	
	<i>n</i>	%
Miscarriage status		
Having a history of miscarriage	58	19.0
Having no miscarriage history	248	81.0
Use of family planning methods		
Using family planning methods	180	58.8
Not using family planning methods	126	41.2
History of sexually transmitted diseases		
Having a history of sexually transmitted disease	10	3.3
Having no sexually transmitted diseases	296	96.7
Pregnancy check-up status		
Less than four	44	14.4
Four and more than four	262	85.6
Status of genital hygiene training		
No training	185	60.5
Receiving training from health personnel	73	23.9
Receiving information from the internet	48	15.7
Abnormal discharge condition		
Having abnormal discharge	146	47.7
Having no abnormal discharge	160	52.3
Total	306	100.0
Method applied in the presence of abnormal discharge ^a		
Not making any application	38	26.0
Going to the doctor	86	59.0
Using traditional, complementary methods	22	15.0
Total	146	100.0
Method used for abnormal discharge ^a		
Niaouli oil	12	57.1
Vinegar	7	33.3
Onion juice, parsley,	1	4.8
Deodorizing oil	1	4.8
Not specified	1	-
Total	22	100.0

^aDistribution of those who practiced only for abnormal vaginal discharge

Table 3 Participants' mean scores on the complementary, alternative and conventional medicine attitudes scale

	Mean ± SD	Min.-Max.	Cronbach-Alpha
Mean total score of the Complementary, Alternative and Conventional Medicine Attitudes Scale	106.32 ± 21.76	61.00–177.00	0.87
Subdimension means of an intellectual view of complementary medicine	34.15 ± 10.80	8.00–56.00	0.89
Subdimension means of dissatisfaction with modern medicine	23.34 ± 11.32	10.00–64.00	0.87
Subdimension means a of holistic view of health	48.82 ± 6.51	28.00–63.00	0.55

In the study, the total mean score of the Traditional and Complementary Medicine Attitude Scale was 106.32 ± 21.76 (min: 61.00-max: 177.00). In the study, the Cronbach's Alpha value of the scale was found to be 0.87; values above 0.70 indicate acceptable internal consistency (Table 3).

According to the characteristics of the scale used in the research, since an increase in the total score indicates an attitude towards complementary and alternative

medicine, comparisons were made using the mean/median total scores of the variables on the scale; comparisons were not made for the subgroups of the scale. In study, non-working participants had higher total scale score averages than working participants, and those who had fewer than four prenatal visits during pregnancy had higher scale score averages than those who had four or more visits. Additionally, those who did not receive

genital hygiene education had a higher average scale score than those who did. ($p < 0.05$) (Table 4).

Multivariate linear regression analysis examining the effect of dependent variables on the total scale score: When the general fit of the model is examined, the R^2 value, which shows the explanatory power of the independent variables on the dependent variable, is 0.120 and shows that the model explains 12% of the variance (Since people's behavior is influenced by many variables, this level of explanation is considered sufficient.) of the dependent variable. Although the model generally has low explanatory power, the effects of the significant variables range from small to moderate (standardized β values range from -0.18 to $+0.14$). This suggests that other variables not included in the model may also effect the dependent variable.

The F test result ($F = 7.963$, $p = 0.000$) reveals that the model is significant. The Durbin-Watson statistic (1.998) indicates no autocorrelation in the error terms indicating the model is reliable.

When the effects of independent variables are analyzed, employment status is significant ($B = -5.515$, $p = 0.020$). It is evident that working individuals have lower attitudes toward traditional and complementary medicine attitudes than non-working individuals. Pregnancy check-up status was also a significant variable, and individuals who had fewer than four check-ups had higher complementary medicine attitudes. In contrast, this attitude was lower in individuals with more check-ups ($B = -11.095$, $p = 0.001$). In the variable of receiving genital hygiene training, the effect of receiving training from health personnel on complementary medicine attitudes was not statistically significant ($p = 0.091$). In contrast, traditional and complementary medicine attitudes were lower in individuals who received training from the Internet ($B = -6.948$, $p = 0.036$).

Visiting a doctor when experiencing abnormal vaginal discharge negatively affected the attitude towards complementary medicine ($B = -6.904$, $p = 0.010$). On the contrary, individuals who practiced traditional and

Table 4 Comparison of complementary, alternative and conventional medicine attitudes scale according to socio-demographic, obstetric and gynecologic characteristics

Variables	Complementary, Alternative and Conventional Medicine Attitudes Scale total mean score-Median value	Subgroup mean of the intellectual view of complementary medicine	Subgroup mean of dissatisfaction with modern medicine	Mean subgroup mean of a holistic view of health
	Mean $\pm$ SD Median (Min-Max)	Mean $\pm$ SD Median (Min-Max)	Mean $\pm$ SD Median (Min-Max)	Mean $\pm$ SD Median (Min-Max)
Employment status				
Working	101.00(61.00-172.00)	32.56(8.00-56.00)	20.00(10.00-63.00)	49.00(23.00-63.00)
Not working	106.00(67.00-177.00)	35.56(10.00-56.00)	21.00(10.00-64.00)	49.00(28.00-63.00)
MW-U /p	9849.50/0.018	9432.50/0.004	10406.50/0.099	11321.50/0.642
Use of family planning methods				
Using the method	104.30 $\pm$ 21.52	32.95 $\pm$ 10.74	22.87 $\pm$ 11.19	48.48 $\pm$ 6.39
Not using the method	109.21 $\pm$ 21.86	35.88 $\pm$ 10.70	24.02 $\pm$ 11.51	49.30 $\pm$ 6.69
t/p	-1.94/0.053	-2.35/0.019	-0.87/0.385	-1.09/0.276
Pregnancy check-up status				
Fewer than four visits	119.22 $\pm$ 26.99	39.97 $\pm$ 13.96	28.09 $\pm$ 13.85	51.15 $\pm$ 6.23
Four or more check-ups	104.16 $\pm$ 20.01	33.17 $\pm$ 9.88	22.54 $\pm$ 10.66	48.43 $\pm$ 6.49
t/p	3.54/0.001	3.10/0.003	2.53/0.014	2.59/0.010
Status of receiving genital hygiene education				
^a Receiving no training	109.03 $\pm$ 22.14	34.76 $\pm$ 10.91	24.54 $\pm$ 11.67	49.72 $\pm$ 6.42
^b Receiving training from health personnel	102.17 $\pm$ 19.97	33.61 $\pm$ 10.68	21.23 $\pm$ 9.73	47.32 $\pm$ 6.26
^c Online training	102.20 $\pm$ 21.66	32.61 $\pm$ 10.61	21.93 $\pm$ 11.80	47.62 $\pm$ 6.79
F/p	3.62/0.026	0.85/0.429	2.71/0.068	4.60/0.011
a > b,c (Post-hoc test)				
^d Application in abnormal discharge				
^a Not using anything	108.50(65.00-156.00)	35.50(10.00-56.00)	23.50(10.00-53.00)	50.50(36.00-61.00)
^b Seeing a doctor	99.00(61.00-151.00)	31.00(8.00-51.00)	19.00(10.00-52.00)	48.00(30.00-63.00)
^c Practicing traditional, complementary practices	124.00(81.00-169.00)	41.00(20.00-56.00)	29.50(10.00-63.00)	49.00(35.00-62.00)
KW/p	23.26/0.000	17.48/0.000	13.38/0.001	7.27/0.026

^{b<a,c}(Pairwise comparisons) t test Independent sample t test, F Anova test, MW-U test Mann-Whitney U test, KW Kruskal Wallis test, Post-hoc test Games-Howell test

^dComparison made for those practicing for abnormal discharge

Table 5 Factors Affecting Attitudes towards Traditional and Complementary Medicine

Independent Variable	Unstandardized Coefficients		Standardized Coefficients β	t	p	95% Confidence Interval	
	B	SE				Upper	Lower
Constant	122.033	3.497		34.893	0.000	115.150	128.915
Employment Status (Ref=Not working)	-5.515	2.354	-0.127	-2.343	0.020	-10.147	-0.883
Check-ups during Pregnancy (Ref= Less than four check-ups)	-11.095	3.444	-0.179	-3.221	0.001	-17.872	-4.317
Status of receiving genital hygiene training (Ref=No education)							
Receiving Training from Health Personnel	-4.821	2.844	-0.095	-1.695	0.091	-10.417	0.775
Online Training	-6.948	3.307	-0.116	-2.101	0.036	-13.457	-0.440
Practice in abnormal discharge (Ref=Not using anything)							
Going to the Doctor	-6.904	2.677	-0.142	-2.579	0.010	-12.173	-1.636
Traditional Complementary Practitioner	11.610	4.675	0.138	2.483	0.014	2.409	20.811

$R=0.371$, $R^2=0.120$, $F=7.963$, $p=0.000$, Durbin Watson value = 1.998

complementary practices in case of abnormal discharge had more positive attitudes towards these medical methods ($B=11.610$, $p=0.014$). These findings reveal that attitudes towards traditional and complementary medicine methods are influenced by factors such as the individual's employment status, health checks during pregnancy, hygiene education status, and approach health problems (Table 5).

Discussion

In this study, traditional and complementary medicine attitudes and traditional and complementary methods used by pregnant women for abnormal vaginal discharge were examined. In study, pregnant women's attitudes toward traditional and complementary medicine practices were generally moderate, while the rates of using traditional and complementary medicine methods for vaginal discharge and receiving genital hygiene education were low. The most commonly used method for abnormal vaginal discharge was niaouli oil.

The use of complementary and alternative medicine practices has been increasing in recent publications. This rate was found to be 76.2%, 77.8%, and 91.5% in pregnant and puerperal women in Malaysia, Turkey and Palestine respectively [16–18]. In this study, only traditional practices for vaginal discharge were questioned, so the rate of traditional and complementary approaches is low. In the study, the rate of using traditional methods for abnormal vaginal discharge was found to be 15.0%. Similarly, Özcan et al. (2020) found that 14.2% of the participants used traditional methods for genital discharge [7]. In a study conducted by Dursun et al. (2019) with individuals aged 18–65 years, it was found that 39.3% of the participants used traditional complementary medicine methods, the most commonly used traditional, complementary medicine method was herbal methods with 34.6% [19]. These differences in CAM attitudes across countries may stem from economic disparities, variations in healthcare

services, and differences in the practices of alternative and complementary medicine practitioners [20].

In Kılavuz and Okumuş (2022) study with pregnant women, the most frequently used method was herbal methods [21]. In some communities, complementary alternative medicine methods may be considered more natural and safe [14, 22]. This may be why herbal methods were the first complementary and alternative methods used by pregnant women in this study and in other studies. This study did not question the reasons for using traditional methods. It is suggested that future studies should investigate the reasons for using these methods.

In this study, the product most commonly used in the presence of abnormal vaginal discharge was niaouli oil. Turkey, with its rich flora (the variety of plants that grow in a particular region or country), is home to numerous medicinal and aromatic plants. Medicinal and aromatic plants are those used as medicine to prevent diseases, maintain health, or cure illnesses [23]. In Turkish history, the use of non-pharmaceutical methods to treat illnesses dates back to ancient times. Today, herbalists sell a range of herbal products used for various purposes. It is evident that these practices, which have been ongoing for centuries, have become a cultural accumulation [13]. Upon reviewing the literature, it is seen that In Turkey, plants are used in the treatment of many diseases [24, 25].

The Myrtaceae family is a rich source of essential oils, with hundred genera and approximately 3800 species. Belonging to the Myrtaceae family, Melaleucas include a diverse range of forms, from woody shrubs to tall timber-producing trees [26]. Niaouli essential oil (*Melaleuca quinquenervia*) is reported to have antioxidant, antifungal, antiviral, anti-inflammatory, vasodilator, antiseptic, deodorizing, and analgesic properties [26–29]. Its use is not recommended in infants and young children due to the risk of adverse effects on the central nervous and respiratory systems. However, people with liver disease, gastrointestinal tract, and bile duct inflammation are not recommended to use niaouli oil internally [30].

During pregnancy, they can cross the placental barrier. One study indicates that niaouli oil does not cause cellular changes during pregnancy, but it does alter hormone levels [31]. There is a lack of research on the toxicity and safety of niaouli oil during pregnancy. More research is needed in this area.

The study's mean score CACMAS was 106.32 ± 21.7 . Similarly, in a study Öztürk et al. (2022) on the use of traditional and complementary medicine for pregnancy and labor pain in Turkey, the mean score on the traditional and complementary medicine attitude scale was 108.37 ± 7.71 [14]. Because the studies were conducted in the same country, it is expected that the mean scores are very close to each other. In another study conducted with healthcare professionals in the same country, the mean score of the traditional and complementary medicine attitude scale was 104.2 ± 21.7 [32]. In a study conducted with pregnant women in Iraq, 83.7% of pregnant women stated that they were satisfied with CAM use [33]. In another study based in New Haven, Connecticut, the use of CAM for low back pain was found to be high among pregnant women [34]. Looking at studies conducted with pregnant women, we can say that they have a moderate attitude towards CAM. This finding raises the question of whether pregnant women are using these methods as part of a conscious health-seeking behavior. Pregnant women who are moderate about these methods may use them without consulting healthcare professionals, which could lead to potential health risks. Considering all this, it is important for healthcare professionals to inquire about CAM use and provide evidence-based guidance on CAM.

The study shows that non-working participants have higher average scale scores. Previous research indicates that CAM attitudes are influenced by numerous sociodemographic factors. For example, positive attitudes toward CAM among women have been shown to increase with information obtained from personal networks such as friends and family. In this context, a study conducted in Turkey found that obtaining information through friends and employment status were related to women's CAM attitudes [35]. Furthermore, a systematic review revealed that influence from social networks, accessibility, and traditions are significant factors in CAM adoption across different populations [36]. Sayın Kasar et al. (2020) found no significant difference between working and non-working participants in the study in which they evaluated the complementary alternative medicine attitude of elderly individuals toward pain, and no significant difference was found in the study of Özer et al. (2020) [37, 38].

In the study, the mean scale score of the participants who went to less than four pregnancy controls was found to be high. Low levels of knowledge may contribute to this. According to the Health Belief Model, difficulties

in accessing healthcare services or limited contact can increase perceived barriers to modern medicine, while strengthening the perceived benefits of traditional and complementary medicine. In addition, individuals' belief in naturalness may also have an impact. The increasingly technology-driven development of modern medicine may cause anxiety in some individuals who value naturalness. Therefore, these individuals may turn to alternative methods rather than healthcare facilities. In Küçükkaya and Işık (2023) study, the mean score for complementary and alternative medicine was higher among participants who did not attend pregnancy check-ups [17].

In the study, the mean scale score of the participants who did not receive genital hygiene training was high. In other words, participants who did not receive genital hygiene training had more positive attitudes towards complementary and alternative medicine. Genital hygiene education or information on correct genital hygiene behaviors during pregnancy check-ups may be a barrier to traditional practices for the genital area. There are not many studies on this subject. Therefore, examining the traditional, complementary attitude after genital hygiene education in pregnant women is recommended for different studies.

When the method applied in vaginal discharge is examined, the average total score of those who went to a doctor is low. A study conducted in New Zealand showed that approximately 25% of general practitioners practiced traditional and complementary medicine, and 82.3% referred patients to CAM practitioners. It was concluded that 48.4% of physiotherapists treating pregnant women used CAM methods, and 37.3% of midwives recommended CAM methods them [39]. A study conducted in New Haven found that 61% of prenatal healthcare providers would recommend using CAM for low back pain in pregnant women [34]. During the specialist examinations, all information about pregnancy and childbirth is provided by the specialist doctors. We did not address this aspect of the study. Still this finding suggests that traditional methods may have been less well included. At the same time, the low scale scores of those who mostly attended prenatal check-ups and those with knowledge of genital hygiene also indicate that the study's findings are consistent.

Conclusion

In the study, while the attitude of pregnant women towards traditional and complementary medicine was found to be moderate, the rate of using traditional and complementary methods for abnormal vaginal discharge was low, the rate of receiving genital hygiene education was also low, the mean scale score of those who did not receive genital hygiene training was high, and the mean scale score of those who used traditional practices for

vaginal discharge was high. Therefore, it is recommended that health care professionals provide genital hygiene training to pregnant women, which is a neglected issue during pregnancy.

Since the study found that pregnant women had a positive attitude towards CAM methods, it is important for healthcare professionals to inquire about the use of CAM methods during antenatal care and provide guidance based on evidence-based information. Integrating CAM methods into prenatal care can contribute to women's health by ensuring that pregnant women have access to the correct and effective method.

Strengths and limitations

This study examined the traditional and complementary methods used by pregnant women living in Turkey for vaginal discharge abnormalities and their attitudes towards traditional and complementary medicine. The number of studies on the use of CAM by pregnant women in Turkey is limited, and only one study was found, except for this study, which included CAM methods applied by pregnant women for abnormal vaginal discharge. In this study, it was determined that niaouli oil was the most commonly used product for vaginal discharge. Revealing this information in Turkey is a strength of the study. However, this study does not cover the larger study to be conducted to better understand the situation in Turkey.

The reasons for the use of CAM by pregnant women were not questioned in the study. It is recommended to examine this issue further for research purposes.

The research data were collected through self-reporting. Data collected through self-reporting methods enables faster data collection, but it also carries risks such as the individual's inability to evaluate themselves objectively and the possibility of providing inaccurate information. To mitigate these risks, personal information such as names and surnames was not included in the surveys, and a valid and reliable measurement tool was used.

The mean Cronbach's alpha value for the holistic view of health subdimension of the Traditional and Complementary Medicine Attitude Scale used in the study was found to be 0.55. At this point, we believe that the data is not homogeneously distributed. Due to the low reliability of one sub-dimension of the scale and the unique nature of the scale's usage, the sub-dimension means were not prioritized, and the scale was evaluated based on the total score.

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Authors' contributions

O.Y. and H.K.: Conceptualization, methodology, writing—original draft, reviewing, and editing. H.K.: Data collection. O.Y.: Statistical Analysis.

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Data availability

The dataset can be accessed by contacting the corresponding author.

Declarations

Ethics approval and consent to participate

The study was approved by the Balıkesir University Non-Interventional Ethics Committee (11/07/2023-E-11811414-050.03-272462), and informed consent was obtained from the study participants. Furthermore, the study was conducted in accordance with the principles of Good Clinical Practice and the Declaration of Helsinki.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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