

## Complementary and Alternative Treatment Methods Used by Infertile Women in Türkiye: A Cross-Sectional Study

### Türkiye’de İnfertil Kadınların Kullandıkları Tamamlayıcı ve Alternatif Tedavi Yöntemleri: Kesitsel Bir Çalışma

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#### ABSTRACT

**Objective:** This study aims to determine the complementary and alternative therapy (CAM) methods used among infertile women in Türkiye, the prevalence of their use and the factors affecting their use.

**Method:** The sample of the descriptive and cross-sectional study consisted of 142 women who applied to the Assisted Reproductive Treatment Centre of a public hospital and volunteered to participate in the study. The data were collected with "Personal Information Form" and "Complementary and Alternative Medicine Approaches Scale (CAMAS)". Descriptive statistics, Mann-Whitney U, Kruskal Wallis Test were used in the evaluation of the data.

**Results:** While the average age of the women who contributed to the study was found to be 29.77±4.83 years. When the CAM methods used by women are examined, they are mostly prayer (88.0%), prayer (namaz) (78.2%), vow (25.4%), visit to the tomb (24.6%), amulet (20.4%), black pepper (17.6%), ginseng (15.5%), astragalus (13.4%), going to a teacher and having yourself read (13.4%), shark cartilage (13.4%), turtle blood (13.4%), lead casting (4.2%), reiki (2.8%), bioenergy (2.1%) and hypnosis it was determined to be (1.4%). When the mean scores in the CAMAS subscales were examined, it was determined that the highest score was body-mind approaches (40.46±17.37).

**Conclusion:** In line with the research findings, it was determined that the use of CAM was common among infertile women in Türkiye and the most frequently used approaches were spiritual and herbal methods. Health professionals need to evaluate infertile women about their use of CAM methods and inform women about these methods.

**Keywords:** Assisted reproductive therapies, complementary and alternative treatment, infertility, women

#### ÖZ

**Amaç:** İnfertil kadınların kullandıkları tamamlayıcı ve alternatif tedavi yöntemlerinin kullanımının yaygınlığı ve kullanımı etkileyen faktörlerin belirlenmesi amacı ile yürütüldü.

**Yöntem:** Tanımlayıcı ve kesitsel desendeki araştırmanın örneklemini, bir kamu hastanesinin Üremeye Yardımcı Tedavi Merkezine başvuran ve araştırmaya katılmaya gönüllü olan 142 kadın oluşturdu. Veriler, "Kişisel Bilgi Formu" ve "Tamamlayıcı ve Alternatif Tıp Yaklaşımları Ölçeği (TATYÖ)" ile toplandı. Verilerin değerlendirilmesinde tanımlayıcı istatistikler, Mann-Whitney U, ANOVA, Kruskal Wallis Testi kullanıldı.

**Bulgular:** Araştırmaya katkı sağlayan kadınların yaş ortalamasının 29,77±4,83 olduğu tespit edilirken ortalama tedavi süresinin 12,76±16,83 ay olduğu tespit edildi. Kadınların kullandıkları TAT yöntemleri incelendiğinde çoğunlukla dua (%88,0), namaz (%78,2), adak adama (%25,4), yatırı ziyareti (%24,6), muska (%20,4), karabaş otu (%17,6), ginseng (%15,5), astragalus (%13,4), hocaya gidip kendini okutturma (%13,4), köpekbalığı kıkırdağı (%13,4), kaplumbağa kanı (%13,4), kurşun dökürme (%4,2), reiki (%2,8), bioenerji (%2,1) ve hipnoz (%1,4) olduğu belirlendi. TATYÖ alt boyutlarındaki puan ortalamaları incelendiğinde en fazla beden-zihin yaklaşımları (40,46±17,37) olduğu belirlendi.

**Sonuç:** Araştırma bulguları doğrultusunda, Türkiye’deki infertil kadınlar arasında TAT kullanımının yaygın olduğu ve en sık kullanılan yaklaşımların spiritüel ve bitkisel yöntemler olduğu belirlendi. Sağlık profesyonellerinin infertil kadınları TAT yöntemleri kullanma durumları hakkında kadınları değerlendirmeleri ve bu yöntemler hakkında kadınları bilgilendirmeleri gerekmektedir.

**Anahtar Kelimeler:** İnfertilite, kadın, tamamlayıcı ve alternatif tedavi, yardımcı üreme tedavileri

## Introduction

Infertility affects approximately 80-168 million people worldwide. The incidence of female infertility is 6.9-9.3% in developing countries and 3.5-16.7% in developed countries (Kaadaaga et al., 2014; Hwang et al., 2019; Sönmez et al., 2021). It is seen in various studies that infertile women frequently use complementary and alternative treatment methods not only to increase the chance of pregnancy in addition to conventional treatment, but also to alleviate psychological, clinical and physical concerns arising from being diagnosed with infertility and being exposed to various clinical treatment processes (Porat Katz et al., 2016; Hwang et al., 2019; Sönmez et al., 2021).

The World Health Organisation and other studies have reported that more than three-quarters of the world population rely on complementary and alternative medicine for health services (WHO, 2001; Kaadaaga et al., 2014; Ataman et al., 2019). The rate of CAM use among infertile couples in Türkiye is 17.9-92.9% (Özkan et al., 2018; Ataman et al., 2019; Taner & Güneri, 2023), while this rate varies between 41-91% in other countries (Bardaweel et al., 2013; Kaadaaga et al., 2014; Dehghan et al., 2018). Although the CAM methods used vary from country to country according to culture, geography and traditions, it is known that herbal methods, acupuncture, massage, nutritional supplements, mind and body practices (hypnosis, yoga, meditation), homeopathy and psychotherapy are common (Aydın Avcı et al., 2012; Bardaweel et al., 2013; Dehghan et al., 2018).

In a study conducted with infertile women in Israel, it was reported that 34.1% of 323 women used complementary and alternative treatment methods. It was determined that women using CAM improved their quality of life, benefited more from psychosocial support and changed their lifestyle habits (Porat Katz et al., 2016). In a study conducted with Turkish infertile couples, it was determined that 48% of infertile couples used at least one CAM method and the most frequently used CAM method was herbal products (84%). The frequency of CAM use tends to be higher in women than in men. It has been reported that patients who could not achieve pregnancy with previous medical treatments have a higher tendency to use CAM (Sönmez et al., 2021). In a similar study conducted in South Korea, it was determined that 63.5% of the participants used one or more CAM methods during infertility treatment and that CAM use was associated with employment status and duration of infertility treatment. Multivitamin and herbal medicine were found to be the most commonly used CAM methods (Hwang et al., 2019). It

is seen that infertile women in different countries and cultures use various CAM methods for different purposes, and women seek an alternative way to avoid despair in this process (Porat-Katz et al., 2016).

This study aims to determine the CAM methods used among infertile women in Türkiye, the prevalence of their use, and the factors affecting their use. Additionally, the study was designed to shed light on the CAM treatments most frequently used by infertile patients in Türkiye and to identify the main information sources recommending the use of CAM in infertility treatment.

## Method

The population of the descriptive and cross-sectional study consisted of women who applied to the Assisted Reproductive Treatment Centre of a public hospital in Istanbul between January 2021 and October 2022 and received primary or secondary infertility treatment. In order to calculate the minimum sample size, the formula for determining the sample size was used when the number of elements in the universe was unknown. The incidence of infertility in our country varies between 10% and 20% in the literature (Taşçı et al., 2008; Çetinbaş et al., 2014; Okuducu & Yorulmaz, 2020) and therefore, when the prevalence of the event was taken as 10%, the minimum sample size to be included in the study was 139 (95% confidence interval,  $\alpha=0.05$ ,  $d=0.05$ ,  $p=0.10$  and  $q=0.90$ ) and 142 infertile women constituted the sample of the study.

$$n=(t_2 \times p \times q)/(d^2)$$

n: sample size

p: The probability of the event of interest occurring: 0.10

q: 1-p (or the probability of not seeing the event of interest) : 0.90

d: accepted  $\pm$  sampling error rate: 0.05

$t_{(\alpha, sd)}$ :  $\alpha$  critical value of t table according to degrees of freedom at significance level: 1.96

$$(1.962 \times 0.10 \times 0.90) / (0.05 \times 0.05) = 139 \text{ (138.29)}$$

The inclusion criteria were women who were over 18 years of age, diagnosed with primary or secondary infertility, literate, and volunteered to participate in the study, while women with any mental or psychological problems and chronic illnesses were exclusion criteria.

## Data Collection Tools

"Personal information form" and "Complementary and Alternative Medicine Approaches Scale" were applied to the participants.

*Personal Information Form:* This form, designed by researchers based on the literature (Porat-Katz et al., 2016; Hwang et al., 2019; Sönmez et al., 2021), consists of 18 multiple-choice questions. Women's age, week of pregnancy, educational status, professional group, year of marriage, obstetric history and treatment method applied, etc. It consists of questions.

*Complementary and Alternative Medicine Approaches Scale (CAMAS):* Developed by Gülbeyaz Can et al. (2009) to evaluate the complementary and alternative approaches frequently used by cancer patients in our country. Written permission to use the scale was obtained from the author of the scale. The first version of the scale, which consisted of 55 items, was revised in 2012 and the number of items was increased and changes were made in the scale structure. The current version of the scale, which consists of 76 items, has 5 sub-dimensions: Cognitive-Behavioural Approaches (15 items), Manipulative Approaches (6 items), Alternative Medical Systems (1 item), Energy Approaches (2 items) and Biological Approaches (40 items). The use of the approaches in the sub-dimensions is questioned with 2 questions: (1) How often do you use the following interventions for relaxation? (2) What was your attitude towards the use of the following herbal/nutritional approaches after the diagnosis of the disease? The patient's answers to the first question are scored by giving "Never" - 1 point, "Sometimes" - 2 points, "Often" - 3 points and "Always" - 4 points; the answers to the second question are scored by giving "I stopped" - 0 points, "I started" - 1 point, "I was using them before" - 2 points. In addition, the change in the use of these approaches in patients who stated that they had previously used herbal/nutritional approaches: Reduced - 1 point, increased - 2 points and continued as before - 3 points. To show the distribution of the frequency of use in the distribution table, 2 group % distribution is obtained: In Group 1, there are %'s related to use ("I stopped", "I started", "I was using before"), and in Group 2, there are %'s indicating the change ("I decreased, increased and continued") related to the diagnosis in those who have been using since the past. Scale scores are "0" if the patient does not use or apply the interventions. [Never and stopped], and "1" point [Sometimes, frequently, always, started, decreased, increased, continued as it is] if they use

or apply it. The total score of the sub-dimension is calculated by summing the number of items used in the sub-dimension, and the total score of the scale is calculated by summing the total scores of the sub-dimension. The sub-group and total scale scores are converted into a 100-point scale. The minimum score that can be obtained from sub-dimension scores and total score is 0 and the maximum score is 100. An increase in the score is interpreted as an increase in the use of complementary and alternative approaches. For this study, In the study, the Cronbach alpha value of the scale was determined as .87. Cronbach's alpha for this study was determined to be .95.

### **Ethical Principles of Research**

This study was conducted in accordance with the principles of the Declaration of Helsinki. The study was initiated after Ethics Committee approval from a public hospital and permission from the relevant public institution (Zeynep Kamil Women and Children Diseases Training and Research Hospital Clinical Research Ethics Committee, Date: 18.12.2019, Number: 118). Women who met the sample group selection criteria were informed about the purpose and content of the study, and their written and verbal voluntary consent was obtained.

### **Data Evaluation**

The research data were evaluated using SPSS 25 (IBM SPSS Corp., Armonk, NY, USA) package programme. In the evaluation of the data, number, percentage, mean and standard deviation were used as descriptive statistical analyses. The distribution of the data was evaluated using the Kolmogorov Smirnov test. Mann Whitney U, Kruskal Wallis Test were used to evaluate the scale scores according to the variables. Spearman correlation analysis was used to analyse the relationship between the scale scores. "p" values below 0.05 were considered statistically significant.

### **Results**

The mean age of the women who participated in the study was 29.77±4.83 years (min:21, max:45) and their educational status was mostly high school (33.8%). It was determined that 32.4% of the participants were employed, 76.8% lived in metropolitan areas and 74.6% had nuclear families.

It was determined that 63.4% of the women had an income equal to their expenditure, while 19% had no social security. It was also determined that 50.7% of the women had a marriage duration of less than 4 years (Table 1).

**Table 1. Descriptive characteristics of women**

Variables	Mean±SD	Min-max
Age	29.77±4.83	21-45
Year of marriage	4.73±2.71	1-16
	n	%
<b>Education status</b>		
Primary school	17	12.0
Middle school	23	16.2
High school	48	33.8
Associate degree	20	14.1
Undergraduate and postgraduate	34	23.9
<b>Employment status</b>		
Yes	46	32.4
No	96	67.6
<b>Profession</b>		
Housewife	82	57.7
Officer	6	4.2
Labourer	54	38.1
<b>Presence of Health Insurance</b>		
Yes	115	81.0
No	27	19.0
<b>Place of residence</b>		
Village	17	12.0
District	16	11.2
Metropolitan	109	76.8
<b>Economic situation</b>		
Income less than expenditure	33	23.2
Income equals expenditure	90	63.4
Income more than expenditure	19	13.4
<b>Family type</b>		
Nuclear family	108	74.6
Extended family	36	25.4
<b>Year of marriage</b>		
Under 4 years	72	50.7
4 years and above	70	49.3

SD= Standard deviation

When the infertility duration of the participants was analysed, it was found that the women had been diagnosed with infertility for an average of 21.05±21.78 months and 73.9% of them were primary infertile. It was also determined that they had been receiving treatment for an average of 12.76±16.83 months. When the most commonly used treatment methods were investigated, it was found that 68.3% were insemination, 38.3% were in vitro fertilization (IVF) and embryo transfer (ET) and 6.3% were intracytoplasmic sperm injection (ICSI). It was determined that 27.5% of the women consulted a health professional

for these methods. When the purpose of use was analysed, it was found that 43% used it for definitive treatment, 30.3% for supportive treatment and 7% for psychological well-being (Table 2).

**Table 2. Participants' infertility experiences and their knowledge and attitudes towards CAM methods**

Variables	Mean±SD	Min-max
Duration of infertility (months)	21.05±21.78	1-168
Duration of infertility treatment (months)	12.76±16.83	1-120
Pregnancy	0.42±0.8	0-6
Birth	0.9±0.3	0-2
Abortus	0.2±0.5	0-5
Curettage	0.1±0.3	0-2
	n	%
<b>Duration of infertility</b>		
Diagnosis under 5 years	131	92.3
5 years and above diagnosis	11	7.7
<b>Type of infertility</b>		
Primary infertility	105	73.9
Secondary infertility	37	26.1
<b>Infertility treatment duration</b>		
Under 5 years	138	97.2
5 years and over	4	2.8
<b>Infertility treatment method applied</b>		
Intrauterine insemination	97	68.3
IVF-ET	55	38.7
ICSI	9	6.3
<b>Use of CAM for infertility treatment</b>		
Yes	141	99.3
No	1	0.7
<b>Consultation with health personnel for CAM use</b>		
Yes	39	27.5
No	103	72.5
<b>Consulted health personnel</b>		
Physician	33	23.3
Midwife	9	6.3
Nurse	6	4.2
<b>CAM intended use</b>		
Definitive treatment	61	43.0
Supportive treatment	43	30.3
Psychological well-being	10	7.0
Persistence of the environment	4	2.8
I didn't do it	24	16.9
<b>Spouse's perspective on CAM use</b>		
Supporting	101	71.2
Does not support	8	5.6
Undecided	33	23.2

SD= Standard deviation

When the CAM methods used by infertile women who participated in the study (Table 3.) were analysed, it was found that the most frequently used methods were prayer (88.0%), prayer (namaz) (78.2%) and carob (51.4%). In addition, chestnut honey (33.8%), anzer honey (31.0%), votive offerings (25.4%), visit to the mansion (24.6%), fortykilit herb (23.9%), royal jelly (21.1%), amulet (20.4%), black cohosh (17.6%), ginseng (15.5%), yoga (14.5%), juniper herb (14.1%), milk thistle (14.1%), rabbitbane (14.1%), astragalus (13.4%), I go to the religious officer and have him pray for me (13.4%), shark cartilage (13.4%), turtle blood (13.4%), cupping (12.7%), lead pouring (4.2%), acupuncture (3.5%), reiki (2.8%), bioenergy (2.1%) and hypnosis (1.4%).

When the sub-dimension scores of the CAMAS were analysed, the body-mind sub-dimension score was  $40.46 \pm 17.37$  (min: 0, max: 73.3), the manipulative sub-dimension score was  $15.84 \pm 18.11$  (min: 0, max: 66.6), alternative medicine sub-dimension score was  $3.52 \pm 18.49$  (min: 0, max: 100), energy sub-dimension score was  $2.46 \pm 13.74$  (min: 0, max: 100), herbal-biological sub-dimension score was  $39.94 \pm 25.75$  (min: 0, max: 100) and the total score of CAMAS was  $42.93 \pm 21.75$  (min: 0, max: 95.3).

In Table 4, different variables are examined according to the scale total score and subscale scores. It was determined that the presence of health insurance affected the body-mind subscale score. It was determined that the variables of increasing age, increasing education level, occupational status (being a civil servant), working status, having health insurance and living in a big city differentiated the manipulative subscale score. Additionally, it was determined that working status affected the alternative medicine subscale score. When the variables affecting the energy sub-dimension were examined, it was determined that better education status, living in a metropolitan city and increased treatment duration were effective.

*Table 3. CAM methods used by the participants*

*CAM methods used	n	%
Prayer	125	88.0
Prayer (Namaz)	111	78.2
Carob	73	51.4
Black Mulberry	67	47.2
Cantaranon	51	35.9
Yarrow	50	35.2
Chestnut honey	48	33.8
Anzer honey	44	31.0
I make an offering	36	25.4
Yatir visit	35	24.6
Mistletoe	35	24.6
Kirkkilit grass	34	23.9
Beeswax	30	21.1
Amulet	29	20.4
Blackhead weed	25	17.6
Ginseng	22	15.5
Yoga	21	14.8
Juniper herb	20	14.1
Hibiscus	20	14.1
Thistle	20	14.1
Rabbitbane	20	14.1
Swedish syrup	20	14.1
Astragalus	19	13.4
I go to the religious officer and have him pray for me.	19	13.4
Shark cartilage	19	13.4
Turtle blood	19	13.4
Cup	18	12.7
Meditation	16	11.3
I'll have a bullet poured	6	4.2
Acupuncture	5	3.5
Reiki	4	2.8
Bioenergy	3	2.1
Hypnosis	2	1.4

CAM= Complementary and alternative methods

Table 4. Examination of different variables according to CAMAS sub-dimension scores and total score

		Body-Mind Sub-dimension	Manipulative Sub-dimension	Alternative Medicine Sub-dimension	Energy Sub-dimension	Herbal-Biological Sub-dimension	Total Points
		Mean±SD	Mean±SD	Mean±SD	Mean±SD	Mean±SD	Mean±SD
Age	<sup>1</sup> 20-29 years old	40.84±16.52	12.20±16.17	2.81±16.66	2.11±10.12	40.65±23.95	43.22±20.33
	<sup>2</sup> 30-35 years old	40.95±18.85	17.68±19.06	6.12±24.22	4.08±19.99	41.17±26.36	44.29±21.72
	<sup>3</sup> 36-39 years old	38.18±17.23	23.48±19.69	.00±0.00	.00±0.00	34.93±30.32	38.99±26.43
		KW: .378 p: .828	KW: 6.802 p: .033	KW: 1.869 p: .402	KW: .943 p: .624	KW: 2.224 p: .329	KW: 1.716 p: .424
Post Hoc			2>1, 3>1, 3>2				
Education Status	<sup>1</sup> Primary School	37.25±19.58	10.78±15.52	.00±0.00	.00±0.00	33.91±28.72	36.76±24.52
	<sup>2</sup> Middle School	34.20±17.20	9.42±14.05	.00±0.00	.00±0.00	43.13±30.92	43.27±26.85
	<sup>3</sup> High School	39.58±15.33	12.84±15.46	4.16±20.19	.00±0.00	40.19±24.23	42.57±19.96
	<sup>4</sup> Associate Degree	43.00±17.23	20.83±17.83	5.00±22.36	5.00±22.36	35.39±15.78	40.46±11.11
	<sup>5</sup> Undergraduate/Graduate	46.07±18.15	24.01±22.16	5.88±23.88	7.35±21.78	43.13±27.69	47.74±23.72
		KW: 7.157 p: .128	KW: 11.455 p: .022	KW: 2.190 p: .701	KW: 9.985 p: .041	KW: 1.718 p: .633	KW: 2.709 p: .608
Post Hoc			1>2, 3>1, 3>2, 4>1, 4>2, 4>3, 5>1, 5>2, 5>3, 5>4		4>1, 4>2, 4>3, 5>1, 5>2, 5>3, 5>4		
Profession	<sup>1</sup> Housewife	38.29±17.55	11.17±15.72	1.21±11.04	1.21±7.76	40.45±25.66	42.32±21.92
	<sup>2</sup> Officer	35.55±9.10	25.00±17.48	16.66±40.82	.00±0.00	39.54±30.51	42.44±22.63
	<sup>3</sup> Labourer	44.32±17.28	21.91±19.64	5.55±23.12	4.62±20.06	39.21±25.86	43.92±21.78
		KW: 4.403 p: .111	KW: 12.909 p: .002	KW: 4.954 p: .084	KW: 1.203 p: .548	KW: .805 p: .669	KW: .114 p: .944
Post Hoc			2>1, 2>3, 3>1				
Employment Status	Yes	42.46±15.73	21.73±19.83	8.69±28.48	4.34±20.61	40.28±27.91	44.36±22.82
	No	39.51±18.10	13.02±16.61	1.04±10.20	1.56±8.74	39.78±24.80	42.25±21.30
		U: -.665 p: .506	U: -2.566 p: .010	U: -2.308 p: .021	U: -.410 p: .682	U: -.482 p: .630	U: -.109 p: .913
Presence of Health Insurance	Yes	41.97±17.59	17.53±18.31	4.34±20.48	3.04±15.22	40.80±26.80	44.15±22.41
	No	34.07±15.05	8.64±15.58	.00±0.00	.00±0.00	36.31±20.70	37.73±18.11
		U: -2.443 p: .015	U: -2.563 p: .010	U: -1.099 p: .272	U: -1.099 p: .272	U: -.367 p: .714	U: -1.454 p: .146
Place of residence	<sup>1</sup> Metropolitan	41.03±17.73	17.27±18.55	4.58±21.01	3.21±15.62	40.63±25.19	43.79±21.33
	<sup>2</sup> District	34.16±17.53	8.33±16.10	.00±0.00	.00±0.00	39.21±19.21	40.03±16.34
	<sup>3</sup> Village	42.74±14.15	13.72±15.85	.00±0.00	.00±0.00	36.21±34.55	40.16±28.74
		KW: 5.779 p: .056	KW: 11.382 p: .003	KW: 2.161 p: .339	KW: 8.383 p: .015	KW: .256 p: .880	KW: 1.510 p: .407
Post Hoc			1>2, 1>3, 3>2		1>2, 1>3		
Infertility diagnosis time	Under 5 years	40.10±17.34	16.03±18.42	3.81±19.23	2.29±13.67	40.44±26.40	43.26±22.19
	5 years and over	44.84±17.91	13.63±14.56	.00±0.00	4.54±15.07	34.04±15.79	39.06±15.79
		U: -.922 p: .356	U: -.102 p: .919	U: -.657 p: .511	U: -1.016 p: .310	U: -.470 p: .638	U: -.252 p: .801
Treatment duration	Under 5 years	40.28±17.49	15.82±18.04	3.62±18.75	2.17±13.33	39.81±25.53	42.77±21.69
	5 years and over	46.66±12.17	16.66±23.57	.00±0.00	12.50±25.00	44.60±37.00	48.43±26.66
		U: -.776 p: .438	U: -.020 p: .984	U: -.386 p: .699	U: -2.317 p: .021	U: -.290 p: .772	U: -.253 p: .800
Infertility Type	Primary infertility	39.30±16.94	13.80±16.08	3.80±19.23	1.42±8.36	40.59±26.55	42.96±21.81
	Secondary infertility	43.78±18.36	21.62±22.17	2.70±16.43	5.40±22.92	38.10±23.57	42.86±21.87
		U: -1.084 p: .279	U: -1.719 p: .086	U: -.313 p: .754	U: -.764 p: .445	U: -.172 p: .863	U: -.330 p: .741

## Discussion

In this study, which examined the attitudes of infertile women who applied to the Assisted Reproductive Treatment Center of a public hospital in Istanbul, towards complementary and alternative medicine, it was determined that the attitudes of women towards CAM were below the average level. In the study, the total score of the CAMAS was determined as  $42.93 \pm 21.75$ , below the average level. However, it was determined that 99.3% of the participants used at least one CAM method. It can be thought that the reason for this difference is that women do not know that it is among the CAM methods, even though it is a method that they routinely apply in their life habits, in short, they do not have enough information. In a similar study conducted by Emül et al. (2020) it was determined that 61.8% of infertile women used at least one CAM method. In another study conducted by Dehghan et al. (2018) in Iran, 49.6% of infertile couples were found to use a CAM method. In a study conducted in South Korea, it was determined that 63.5% of the participants used any CAM method (Hwang et al., 2019). In a study conducted in Sierra Leone, it was found that 36.5% of women used herbal capsules for infertility treatment (James et al., 2018). It is seen that the rate of CAM use by infertile women in different cultures varies. The reason why more CAM was used in the study compared to other studies may be population-specific, as well as the widespread use of traditional methods in Turkish culture.

When the descriptive characteristics of the women who contributed to the study were examined, it was determined that the average marriage year of the women was  $4.73 \pm 2.71$  (min: 1 max: 16). In a similar study conducted by Kurt and Arslan (2019), women's marriage year was found to be  $7.2 \pm 5.1$ . In a study conducted by Firat et al. (2021) it was determined that the majority of the participants had a marriage duration of 1-5 years. The fact that the couples applying to the infertility clinic mostly have a marriage duration between 1-10 years can be explained by the fact that they apply to treatment processes before the fertile period ends. It was determined that 7.7% of women received infertility treatment for 5 years or more. In a study conducted by Hwang and colleagues, it was found that 65.4% of women received infertility treatment for less than 2 years (Hwang et al., 2019). In a similar study conducted by Kurt and Arslan (2019), it was determined that the average

duration of treatment was 2 years. Treatment durations of women are similar. This may be population-specific, or it is thought that the duration of treatment may not be prolonged due to the occurrence of pregnancy as a result of treatment or the reasons for terminating the treatment process due to hopelessness due to unsuccessful treatments.

It was found that 73.9% of the participants were diagnosed with primary infertility. In a similar qualitative study conducted by Ried and Alfred (2013) in Australia, 21 out of 25 women were diagnosed with primary infertility. In Kurt and Arslan's (2019) study, 66.7% of women were diagnosed with primary infertility. The results of the study are similar to the literature.

It was determined that 27.5% of the women consulted any healthcare personnel regarding the use of CAM and mostly received information from physicians (23.2%), midwives (6.3%) and nurses (4.2%). When the reasons for using CAM by the women who contributed to the research were examined, it was determined that they were definitive treatment (43.0%), supportive treatment (30.3%) and psychological well-being (2.8%). In a similar study conducted by Kurt and Arslan (2019), it was determined that the reason why women mostly use CAM methods is to support the treatment. According to the same study, it was determined that they learned these methods mostly from their relatives (Kurt & Arslan, 2019). It is thought that women use CAM methods in addition to medical treatment because they feel good about themselves, positive stories of other people using them, desire to use a more natural approach, stress management, feeling of control, desire to improve general health, or because they think these methods will be a cure. As a result, while infertile women often explore various treatment options to cope with infertility, there may be many reasons why they choose complementary and alternative treatment methods. These choices may vary depending on personal preferences, experiences, hopes, and health conditions.

When the CAM methods used by women receiving infertility treatment were analysed, it was found that they mostly prayed (88.0%), prayed (namaz) (78.2%), consumed carob (51.4%) and black mulberry (47.2%), and used centaury (35.9%). In addition, it was determined that they mostly practised both herbal and spiritual practices such as making offerings (25.4%), visiting tombs (24.6%), using amulets (20.4%), they go to the religious officer and have

him pray for them (13.4%) were also practised. In a study conducted by Sehgal et al. (2023) in the USA, it was found that infertile women frequently used acupuncture, yoga, massage, meditation and herbal supplements. In a similar study conducted by Dehghan and colleagues, it was determined that infertile women in Iran mostly prayed and used herbal approaches (Dehghan et al., 2018). In a study conducted by Bıçakçı and Türk (2021), it was found that women made offerings, distributed food at the mazar, used the method of sitting in the steam of stone, tea, midwife's bum, cheese syrup and molasses, and made suppositories from various herbs, spices, garlic and beeswax and applied them into the vagina. In a similar study conducted in Jordan, it was determined that women used plants that they believed to be medicinal, aromatherapy, cupping, magic and massage (Bardaweel et al., 2013). In another study conducted in Canada, it was found that infertile women frequently exercised, regulated their diets, used acupuncture and herbal treatments, and prayed as CAM methods (Read et al., 2014). Although the content of CAM methods varies according to countries, cultures and societies, according to the results of the research, it is seen that they mostly use herbal products and prefer spiritual approaches. Although the use of these methods increases due to cultural characteristics, beliefs, social structure or personal preferences, there is not enough research proving their effectiveness (Hwang et al., 2019).

When the variables affecting the total score and sub-dimension scores of the CAMAS were analysed, it was found that the presence of health insurance increased the body-mind sub-dimension score. It was determined that the variables of advancing age, increasing education level, working and working as a civil servant, having health insurance and living in a metropolitan area increased the manipulative sub-dimension score. In addition, it was determined that the alternative sub-dimension score was also high in working people. In addition, increasing education level, living in a metropolitan area, and receiving infertility treatment for 5 years or more were found to affect the energy subscale score. Due to the high costs spent on some CAM methods, socio-economic factors affect their use. In a study conducted in Türkiye, the average per capita cost spent by patients using CAM for

different methods was found to be \$288.26 (Aydın Avcı et al., 2012). Especially for methods such as acupuncture, cupping, reiki, bioenergy and hypnosis, it is necessary to receive services from expert professional practitioners and these services can be costly. For this reason, it is seen as an expected result that the use of some CAM methods increases with the increase in income, education level and social security. In addition, living in a metropolitan city will provide convenience in accessing these opportunities, so it is normal for individuals living in metropolitan cities to be more interested in some methods. In addition, it is thought that the decrease in the chances of fertility with advancing age leads to an increase in the tendency to resort to different methods. However, unlike the results of this study, in a study conducted in Jordan, it was found that young, low- and middle-income women used CAM methods more (Bardaweel et al., 2013). In a study conducted in Canada with different cultures, it was determined that westerners trusted modern medicine more and used CAM mostly for relaxation, while non-westerners used these methods because they were influenced by culture-specific health, illness and fertility awareness (Read et al., 2014). In a study conducted in the USA, similar to the study, an increase in the use of CAM was found in women with higher education, income level and older age (Sehgal et al., 2023). In a study conducted by Kurt and Arslan (2019), it was found that age and duration of treatment affected the use of CAM methods. The use of CAM methods is similar to the literature. Culture, spiritual characteristics and social structure also affect the use of CAM. In addition, in the infertility treatment process, it is seen that women turn to CAM methods for personal reasons such as hope, support and the need to feel psychologically well.

### Conclusion and Recommendations

The findings of the study showed that CAM use is common among Turkish infertile women and the most commonly used methods are spiritual and herbal methods. Furthermore, it was observed that women used CAM methods to supplement conventional allopathic treatment or for psychological well-being. Although there is little proven benefit of spiritual approaches, they may contribute positively to infertility treatment by giving a sense of empowerment or control, or by helping to alleviate some



of the stress. On the other hand, some herbal preparations may even have adverse effects on health and well-being. Health professionals need to approach infertile women sensitively and assess their use of CAM methods and inform them about the effectiveness and side effects of these methods.

Complementary and alternative treatment methods, which are becoming widespread day by day in the treatment of infertility, should be integrated into health services as evidence-based practices with scientifically valid studies.

#### Limitations and Strengths of the Research

The results of this study will be an important data source to determine the level of CAM methods used by infertile women in Türkiye, the methods they use and the factors affecting their use. It will also contribute to the development of a culture-specific scale that can be used to determine the methods used by women to cope with the stress of infertility or to support infertility treatment. The results of this study are limited to the female population who applied to the Assisted Reproductive Treatment Center of a public hospital due to infertility.

**Ethics Committee Approval:** Ethics committee approval for this study was received from Zeynep Kamil Women and Children Diseases Training and Research Hospital Clinical Research Ethics Committee (Date: 18.12.2019, Number: 118).

**Informed Consent:** Verbal consent was obtained from all the participants.

**Peer-review:** Externally peer-reviewed.

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