

Determining the Use of Traditional and Complementary Therapies Among Infertile Women

İnfertil Kadınların Geleneksel ve Tamamlayıcı Tedavileri
Kullanım Durumlarının Belirlenmesi

Aylin TANER¹
Orcid: 0000-0002-3386-4863

Sezer ER GÜNERİ¹
Orcid: 0000-0002-6097-841X

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¹Ege University Faculty of Nursing, Women Health and Diseases Department.
Bornova, İzmir, Türkiye.

Sorumlu Yazar (Corresponding Author):
AYLIN TANER
aylintaner@gmail.com

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Geleneksel tıp; tamamlayıcı
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ABSTRACT

Objective: The aim of the study is to determine the use of traditional and complementary therapies by infertile women.

Methods: This descriptive and cross-sectional research was carried out with 270 infertile women who visited the In-vitro Fertilization Centre of a public hospital in İzmir, Turkey. Scientific ethical committee approval was obtained to conduct the research and permission was obtained from the hospital and the women participating in the research in order to conduct the research. Data were collected via a face-to-face interview in the hospital with a questionnaire developed by researchers.

Results: Of the women, 98.9% had knowledge of traditional and complementary therapies and the main source of the information was friends/family (71.2%). The use of traditional and complementary therapies in infertile women is 92.9%. Of the women, 62.1% believed that traditional and complementary therapies would be effective, and 82.3% did not disclose their traditional and complementary therapies use to the health professionals. The most common three traditional and complementary therapies methods in the study were: hip and leg elevation after sexual intercourse; consuming herbs/herbal products; and changes in daily life.

Conclusions: The use of traditional and complementary therapies was found to be high in infertile women, and most of the women did not disclose traditional and complementary therapies to health professionals.

ÖZ

Amaç: Çalışmanın amacı infertil kadınların geleneksel ve tamamlayıcı tedavileri kullanma durumlarını belirlemektir.

Yöntem: Tanımlayıcı ve kesitsel tipteki bu araştırma, İzmir'de bir devlet hastanesinin Tüp Bebek Merkezi'ne başvuran 270 infertil kadın ile yürütülmüştür. Araştırmanın yapılabilmesi için bilimsel etik kuruldan, hastaneden ve araştırmaya katılan kadınlardan izin alınmıştır. Veriler, araştırmacılar tarafından geliştirilen bir anket formu ile hastanede yüz yüze görüşülerek toplanmıştır.

Bulgular: Kadınların %98.9'unun geleneksel ve tamamlayıcı tedaviler hakkında bilgi sahibi olduğu ve bu bilgilerin ana kaynağı arkadaş/aile (%71.2) olduğu belirlenmiştir. İnfertil kadınlarda geleneksel ve tamamlayıcı tedavi kullanımı %92.9'dur. Kadınların %62.1'i geleneksel ve tamamlayıcı tedavilerin etkili olacağına inanmaktadır ve %82.3'ü geleneksel ve tamamlayıcı tedavi yöntemleri kullandığını sağlık profesyonellerine söylememiştir. Çalışmada en yaygın üç geleneksel ve tamamlayıcı tedavi yöntemi: cinsel ilişki sonrası kalça ve bacakların kaldırılma; otlar/bitkisel ürünler tüketme ve günlük yaşam değişiklikleridir.

Sonuç: İnfertil kadınlarda geleneksel ve tamamlayıcı tedavi kullanımı yüksek düzeyde bulunmuş ve kadınların çoğu geleneksel ve tamamlayıcı tedavileri sağlık profesyonellerine açıklamamıştır.

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INTRODUCTION

Although the frequency of infertility varies between regions and countries, it is a problem that concerns 15% of the world population (Gurunath, Pandian, Anderson and Bhattacharya 2011; Vander Borcht and Wyns, 2018; WHO, 2010). It is estimated that infertility prevalence varies between 10.0% and 20.0% in industrialized countries and approximately 1.1 million of 11 million married couples are infertile in Turkey (Duman, and Koçak, 2016). According to the results of the Turkish Demographic and Health Survey (2018), infertility among married women aged between 15-49 years old was reported to be 9.4% in Turkey. Infertility rates among Turkish women are similar to other developing countries (Çakı and Sohbet, 2021; Hacettepe University Institute of Population Studies, 2019).

Childbearing plays a key role in determining and guaranteeing the position of the family in society as an indispensable, traditional and social institution of Turkish society. As in many countries, the concepts of womanhood and motherhood are perceived synonymously in Turkey, and the continuity of society is related to the children who are born (Engin and Pasinlioğlu, 2002; Yılmaz, Yazici and Benli, 2020).

Although pregnancy and labor are physiological processes, they are affected by social and cultural features of the society, beliefs, and traditions. Therefore, infertility causes social pressure on women and in some cultures, motherhood is believed to be the single way of improving the status of women (Topdemir Koçyiğit, 2012; Yılmaz et al., 2020). As the role of the woman in the family and society has been associated with fertility and childcare since ancient times, infertility is believed to be a problem of the woman and it is thought that even the sex of the child depends on the woman in some parts of the world and in certain regions of Turkey (Şen, Bulut and Şirin, 2014). Islam, in particular, attaches great importance to having children. Adoption as an alternative is not preferred in Turkey. Giving birth is accepted as the only way of shedding the stigma of being an infertile woman (Hacettepe University Institute of Population Studies, 2019; Şimşek, 2013). The most common causes of female infertility are infections, hormonal factors and endometriosis while infections are the most common factors for male infertility.

The treatment of infertility usually requires complicated diagnostic procedures and long-term therapies. In some cases, the efficacy is low despite all interventions. As a result, women experience stigma and anxiety about having children and apply traditional and complementary therapies (TCT) due to the pressure of society (Hacettepe University Institute of Population Studies, 2019; Pozza, Dettore and Coccia, 2019; Şimşek, 2013; Teskereci, 2010).

Turkey is a country where many civilizations have been established since ancient times and therefore has a rich culture. Despite the developments in modern medicine, TCT is commonly used as well in Turkey (Sevindik, Açıık, Gülbayrak and Akgün, 2007). The aim of the study was conducted to determine the knowledge and use of TCT among infertile women.

METHODS

Research Design

The study used a descriptive and cross-sectional design.

Population and Sample

Data were collected from the participants admitted to the In-vitro Fertilization Centre of a public hospital in İzmir between 15 February and 15 September 2015. The women who have been diagnosed with infertility for one year or more and agreed to participate were included in the study. The population of the study consisted of 865 women admitted to the center. Cohen's criteria were used to determine the sample size. According to this criterion, the sample size was calculated as 266 (95% confidence interval, $\alpha=0.05$, $d=0.05$, $p=0.50$, and $q=0.5$). The study was terminated after 270 women voluntarily participated in the study.

Data Collection

Data were collected anonymously by the researchers via a face-to-face interview in 5-10 minute periods in the waiting room before or after the examination and after the necessary permissions were obtained.

Data Collection Tools

To collect data, a questionnaire consisting of 33 questions was developed by the researchers with regard to relevant literature to determine the socio-demographic attributes (age, place of residence, marital status, income status, social insurance, people they live with) of the women in the sample and their knowledge of and practice related to TCT for conception (Bardaweel et al., 2013; Engin and Pasinlioğlu, 2002; Şimşek, 2013). After developing the data collecting form, it was evaluated by five experts and revised with respect to their suggestions. The final version of the questionnaire was assessed by five patients for its comprehensibility was not included in the study.

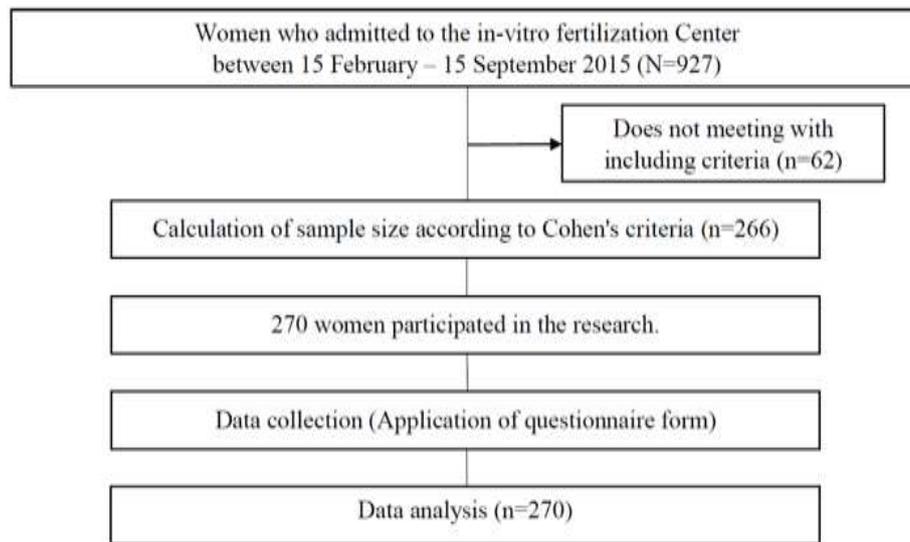


Figure 1. Flow diagram of the study

Data Analysis

Data were analyzed using SPSS version 25.0. Descriptive data in the study are presented as numbers (n) and percentages (%). Kolmogorov-Smirnov (KS) analysis used to determine the normality of the data ($p=0.339$). A Chi-square test used to evaluate categorical variables. Independent sample t-test was used to compare mean attitudes scores between groups based on data normality.

Ethical Consideration

Written approvals were obtained from Ege University Faculty of Nursing Scientific Ethical Committee (Protocol.2015-13, Date: 23/02/2014) and written permission was taken from the In-vitro Fertilization Center Training Unit (date: 09/03/2015, number:10342988-115) to conduct the study. Informed consent was read and signed by the participants. All principles of the Helsinki declaration were followed throughout the study.

RESULTS

The mean age of the women was 32.20 ± 5.15 years, 37.4% were born in the metropolis, 30.7% were graduates of primary school, 64.4% were unemployed and 67% reported that their income equals their expenses. The mean duration of marriage was 7.41 ± 4.67 years (Table 1).

Table 1. Socio-Demographical Characteristics of Women

Socio-Demographical Characteristics of Women (n=270)	Mean \pm SD or n	IQR or %
The mean age of the women	32.20 \pm 5.15	19-45
The mean duration of marriage	7.41 \pm 4.67	1-24
Birthplace		
Village	42	15.6
District	71	26.3
City	56	20.7
Metropolis	101	37.4
Education		
Literate	22	8.1
Primary school	83	30.7
Secondary school	52	19.3
High school	68	25.2
University	45	16.7

Employment		
Employed	96	35.6
Unemployed	174	64.4
Income Status		
Income less than expenses	77	28.5
Income equals expense	181	67.0
Income more than expenses	72	4.5

Of the participants, 87.8% reported that they had no kinship with their husbands and 13.7% of women were living with other family members (parents and/or relatives of the husband) in the same house. Family history of infertility among women was 33.0%. When they experienced problem around pregnancy, 62.2% first applied to a hospital and 54.1% reported that they consulted healthcare professionals/institutions to get information about becoming pregnancy. After they first realized that they need professional help, the mean duration for applying to health professionals was 5.4 ± 4.05 years, the mean duration of diagnosed infertility was $4.47 (\pm 3.83)$ years, and the mean duration of professional treatment was 4.06 ± 3.87 years.

Among the treatment options, intrauterine insemination (IUI) was used by 62.6% of the women, in-vitro fertilization (IVF) was used by 41.9% of the women, and 16.3% of those women stated that they had experienced problems with these treatment methods. These problems included pain, bleeding, personal and family problems, financial distress, psychological problems and other medical problems. These problems mostly occurred when TCT used by women was ineffective (40.9%).

Almost all the women (98.9%) in the study had information about TCT and the main source of the information was friends and families (71.2%). Of the women, 92.9% used TCT, and of these women, 62.1% believed in the advantages and effectiveness of the methods. Among the women who used TCT, 41.5% stated that they rarely used these methods and 69.4% reported that they did not experience any changes in their feelings and emotions while 8.1% experienced side effects. The most common side effect was pain (5.0%). Among the women who used TCT, 82.3% did not disclose their TCT use to health professionals, 53.6% reported that they do not want to use TCT again and 59.3% reported that they would not recommend TCT to others (Table 2).

Table 2. Distribution of TCT-Related Characteristics and Experiences of Infertile Women

	n	%
Had an information about TCT (n=270)		
Yes	267	98.9
No	3	1.1
Source of the information (n=267)		
Not preferred to say	11	4.1
Friend/family	190	71.2
Media (internet, magazine, journal, television...)	48	18.0
Healthcare professionals	14	5.2
Companies on herbs and medical products	4	1.5
TCT use (n=267)		
Yes	248	91.9
No	22	8.1
Reasons for TCT use (n=248)		
Have not get a positive outcome from the current treatment	31	12.5
Feeling that no other alternatives is available	19	7.7
Believing their effectiveness	154	62.1
Other	44	17.7

TCT use frequency (n=248)		
One time	80	32.3
Regularly	65	26.2
Rarely	103	41.5
How do you feel after TCT use (n=248)		
Better both physically and psychologically	54	21.8
No change	172	69.4
Worse both physically and psychologically	22	8.8
Experience of side effects (n=248)		
Yes	20	8.1
No	228	91.9
Side effects experienced by women (n=20)		
Pain	9	45.0
Infection	1	5.0
Hormonal Imbalance	2	10.0
Bleeding	2	10.0
Itchiness/Irritation	2	10.0
Menstrual Irregularity	1	5.0
Nausea	1	5.0
Virilization	2	10.0
Disclosure to health professionals (n=248)		
Yes	44	17.7
No	204	82.3
Willingness to TCT use again (n=248)		
Yes	56	22.6
No	133	53.6
Maybe	59	23.8
Do you offer TCT to others? (n=248)		
Yes	101	40.7
No	147	59.3

The five most common TCTs known by women were: elevating the hip and legs after sexual intercourse (96.7%); consuming herbs/herbal products (86.7%); not having a viral cold; not lifting heavy objects and not beating carpets (84.1%), visiting preachers to have them say prayers and write amulets (81.9%); and bathing in thermal springs (64.4%). As for practices, the most common methods were elevating hip and legs after sexual intercourse (75.9%), not having a viral cold, not lifting heavy objects and not beating carpets (51.9%), consuming herbs/herbal products (39.6%), eating the meat that comes pilgrim's journey (28.9%) and having a midwife pull the waist of the woman (17.4%); all methods are presented in Table 3.

Table 3. Types of TCT Used by Infertile Women

Traditional and Complementary Treatment Methods (n=270)	Informed		Used	
	n	%	n	%
Visiting a preacher to get him/her to say prayers/write an amulet	221	81.9	42	15.6
The woman lies down with elevates her hip and legs after sexual intercourse	261	96.7	205	75.9

A midwife pulls, measures the waist of the woman (if midwife detects stiffness, infection, etc. in the pubic area, she puts healing herbs into the uterus or wraps the pubic area with a belt and lifts uterus up)	170	63.0	47	17.4
Inserting a cotton piece blended with herbs and species believed to be healing such as sugar, tar, vegetable oil, onion, etc. into the uterus.	111	41.1	18	6.7
Those who cannot have a baby go on pilgrimage and when they stop at Mount Arafat, they draw a baby on the soil of the mount and say prayers.	97	35.9	8	3.0
Consuming herbs/herbal products	234	86.7	107	39.6
Money that collected from forty pregnant women is given to a person who is going on pilgrimage.	97	35.9	13	4.8
Woman eats the meat, wheat or date brought from the Hejaz or pilgrimage.	156	57.8	78	28.9
The infertile woman sits on the placenta of a woman who has given birth until it cools down.	34	12.6	3	1.1
Bath in the hot springs.	174	64.4	33	12.2
The woman sits over a boiler where healing herbs are boiled.	154	57.0	41	15.2
The woman tries not to have a viral cold, does not lift heavy objects and does not beat carpets, etc.	227	84.1	140	51.9
Yoga, meditation, hypnosis etc.	96	35.6	9	3.3
Massage, cupping, reflexology and acupuncture etc.	102	37.8	16	5.9

TCT was utilized more frequently by women with a long mean treatment duration, and there was a significant difference between them and those who did not ($t=2.136$, $p=0.033$). There was no difference between TCT use and other variables ($p>0.05$) (Table 4).

Table 4. Distribution of Mean Duration of Treatment According to TCT Use

TCT use	n	The mean duration of professional treatment \pm SD	t	p
Yes	248	4.21 \pm 3.94	2.149	0.033
No	22	2.37 \pm 2.50		

DISCUSSION

Infertile women's knowledge and use of TCT's were investigated in this study. This study shows that many infertile Turkish women are using TCT in addition to those used in medical practice. Almost all the infertile women had information about TCT. The prevalence of TCT use varies by country. It was reported that TCT use prevalence was 49.6% in Iran, 44.7% in Jordan, 41.0% in Lebanon, 39.8% in Israel, 36.5% in Sierra-Leone, 30.6% in Denmark, and 29.5% in the USA (Ayaz and Yaman Efe, 2008; Boivin and Schmidt, 2009; Edirne, Arica, Gucuk, Yildizhan, Kulusari, Adali ve Can 2010; Günay, Cetinkaya, Nacar and Aydin, 2005; Kırca and Sis Çelik, 2016; Timur Taşhan and Aksoy Derya, 2013). In Turkey, the prevalence ranged from 9.3%-82.0% in the east, 27.3%-61.5% in the Central Anatolia and 51.0%-65.0% in the west (Dehghan, Mokhtarabadi and Heidari, 2018; Engin and Pasinlioğlu, 2002; Ghazeeri, Awwad, Alameddine, Younes and Naja 2012; James, Taidy-Leigh, Bah, Kanu, Kangbai and Sevalie, 2018; Özkan, Karaca and Sarak, 2018; Porat-Katz, Eldar-Geva, Kahane, Laufer, Younis, Radin and Paltiel, 2015; Smith, et al., 2010). The TCT use prevalence was higher in our study than reported in the literature. We attribute these differences to the differences in the characteristics of the participants as well as the period of time, locations and cultures that the studies included.

We found that the main source of information about TCT was family or friends. Other studies carried out in Turkey also show that the main source of this information was families, friends, and neighbors followed by mass media (Bardaweel, Shehadeh, Suaifan and Kilani, 2013; Ghazeeri et al., 2012; James et al., 2018; Özkan et al., 2018). Traditional information transfer is more common than a consultation with a health professional in Turkey. So, family, social environment, and mass media are the main sources of information. The results of this study support this phenomenon.

There are numerous TCT used by infertile women for conception. These therapies include the use of healing ailments and supplements; changes in sexual activity and dietary habits; and certain religious rituals. The present study reveals that the most common traditional methods used by infertile women are elevating the hip and legs after sexual intercourse; not having a viral cold, not lifting heavy and not beating carpet; and consuming herbs/herbal products.

We found that evidence based TCT such as yoga, meditation, hypnosis, reflexology, and acupuncture was known but used less than other methods. This finding could be related to the sources of the information which is not health professionals and not reliable. Evidence-based TCT, on the other hand, has recently become popular in the country. Types of TCT used by infertile women are different in Turkey from other parts of the world. TCT used by infertile women in other countries include herbal therapies (Ayaz and Yaman Efe, 2008), saying prayers (Boivin and Schmidt, 2009; Edirne et al., 2010), spiritual healing (Şimşek 2013), religious practices (Smith et al., 2010), sitting over steam, direct application of mixtures into vagina (Ghazeeri et al., 2012), using herbal mixtures and having a midwife pull the waist of the woman, consuming herbs/herbal mixtures (James et al., 2018; Şimşek, 2013), making a vow (James et al., 2018), onion and fig cures (Özkan et al., 2018). Based on these findings, it can be seen that there is no universal standard for infertile women in terms of TCT.

We found that infertile women who were using TCT rarely experienced side effects and the most common side effects were pain and infection. Ayaz and Efe (2010) reported that 15.2% of the women using TCT experienced side effects and the rates of women who experienced side effects were 15.0% and 4.2% by Şimşek (2013) and Özkan et al. (2018), respectively. Engin and Pasinlioğlu (2002) found vaginal discharge and bleeding were reported side effects. Boivin et al. (2009) reported that the rates of pregnancy and live birth were 30% lower among women who received infertility treatment and used TCT combined. Although the rate of experiencing side effects of TCT is low, such therapies/interventions have the potential to affect the treatment process negatively. To protect infertile women from these potential negative effects of TCT and orient these women to reliable source of information, women's disclosure is essential. For this disclosure, health professionals' attitudes toward TCT should not be negative.

In this study, 82.3% of the women do not disclose their TCT use to health professionals. Rayner, McLachlan, Forster and Cramer (2009) reported that most of the infertile women do not disclose their complementary and alternative medicine use to health professionals due to various reasons. Edirne et al. (2010) reported that 80.5% of infertile women do not disclose their complementary and alternative medicine use to their physician. Our results reflect the literature in this subject.

In the current study we found that there were statistically significant differences between treatment duration and TCT use. In the literature, it was reported that educational level, economic level, and duration of marriage are affecting the TCT use. It was also reported in the literature that the unsuccessful results from medical treatment and the increase in the side effects of medical treatment increase the TCT use (Ayaz and Yaman Efe, 2008; Günay et al., 2005). We thought that the different results in the literature are due to different sociodemographic profile of the participants.

There were some limitations in this study such as: the study was conducted in only one center and data were based on self-reported answers. The generalizability of the study is limited to the society that study conducted in because, the findings were including traditional practices and they were affected by culture.

CONCLUSIONS

TCT use among infertile women was found at high levels. The main source of the information was the family and friends. Most of the methods used by women have not been investigated. Most patients do not disclose their TCT use to health professionals. We recommend future research on the effectiveness of the above methods. Health professionals should ask couples seeking infertility treatment about their usage of TCTs and provide scientific support without bias. To provide disclosure of TCT, we also recommend future research to close the gap between health professionals and patients' attitudes toward TCT.

Author Contributions

Concept and design: A.T., S.E.G. Data collection: A.T. Data analysis and interpretation: A.T., S.E.G. Writing manuscript: A.T., S.E.G. Critical review: S.E.G.

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REFERENCES

- Ayaz, S., Yaman Efe, S. (2008). Potentially harmful traditional practices during pregnancy and postpartum. *The European Journal of Contraception & Reproductive Health Care*, 13(3), 282-288. Doi: 10.1080/13625180802049427.
- Bardaweel, S. K., Shehadeh, M., Suaifan, G. A., Kilani, M. V. Z. (2013). Complementary and alternative medicine utilization by a sample of infertile couples in Jordan for infertility treatment: clinics-based survey. *BMC Complementary and Alternative Medicine*, 13(1), 1-7. Doi: 10.1186/1472-6882-13-35.
- Boivin, J., Schmidt, L. (2009). Use of complementary and alternative medicines associated with a 30% lower ongoing pregnancy/live birth rate during 12 months of fertility treatment. *Human Reproduction*, 24(7), 1626-1631. Doi: 10.1093/humrep/dep077.
- Çakı, B., Sohbet, R. (2021). The examination of reproductive information and stress levels of fertile and infertile women. *Journal of Health Sciences of Adiyaman University*, 7(1), 103-112. Doi: 10.30569.adiyamansaglik.830193.
- Dehghan, M., Mokhtarabadi, S., Heidari, F. G. (2018). Complementary and alternative medicine usage and its determinant factors among Iranian infertile couples. *Journal of Complementary and Integrative Medicine*, 15(2). Doi: 10.1515/jcim-2017-0138.
- Duman, N. B., Koçak, D. Y. (2016). İnfertilitenin cinsel sağlığa etkileri ve profesyonel hemşirelik yaklaşımları. *Türkiye Klinikleri Obstetric-Women's Health and Diseases Nursing - Special Topics*, 2(1), 51-8.
- Edirne, T., Arica, S. G., Gucuk, S., Yildizhan, R., Kulusari, A., Adali, E., Can, M. (2010). Use of complementary and alternative medicines by a sample of Turkish women for infertility enhancement: a descriptive study. *BMC Complementary and Alternative Medicine*, 10(1), 1-7. Doi: 10.1186/1472-6882-10-11.
- Engin, R., Pasinlioglu, T. (2002). The traditional beliefs and applications of infertile women regarding infertility in and around Erzurum. *Journal of Atatürk University School of Nursing*, 5(1), 1-10.
- Ghazeeri, G. S., Awwad, J. T., Alameddine, M., Younes, Z. M., Naja, F. (2012). Prevalence and determinants of complementary and alternative medicine use among infertile patients in Lebanon: a cross sectional study. *BMC Complementary and Alternative Medicine*, 12(1), 1-9. Doi: 10.1186/1472-6882-12-129
- Günay, O., Cetinkaya, F., Nacar, M., Aydin, T. (2005). Modern and traditional practices of Turkish infertile couples. *The European Journal of Contraception & Reproductive Health Care*, 10(2), 105-110. Doi: 10.1080/13625180500034911.
- Gurunath, S., Pandian, Z., Anderson, R. A., Bhattacharya, S. (2011). Defining infertility - a systematic review of prevalence studies. *Human Reproduction Update*, 17(5), 575-588. Doi: 10.1093/humupd/dmr015.
- Hacettepe University Institute of Population Studies. (2019). *2018 Turkey demographic and health survey*. Hacettepe University Institute of Population Studies, T.R. Presidency of Turkey Directorate of Strategy and Budget and TÜBİTAK, Ankara, Turkey.
- James, P. B., Taidey-Leigh, L., Bah, A. J., Kanu, J. S., Kangbai, J. B., Sevalie, S. (2018). Prevalence and Correlates of Herbal Medicine Use among Women Seeking Care for Infertility in Freetown, Sierra Leone. *Evidence-Based Complementary and Alternative Medicine*, eCAM, 2018, 9493807. Doi: 10.1155/2018/9493807.
- Kırca, N., Sis Çelik, A. (2016, November). *Complementary and supportive care practices used by infertile women*. 1st International and 3rd National Congress on Complementary Therapies and Supportive Care Practices Congress Book, Antalya.
- Özkan, F. S., Karaca, A., Sarak, K. (2018). Complementary and alternative medicine used by infertile women in Turkey. *African Journal of Reproductive Health*, 22(2), 40-48. Doi: 10.29063/ajrh2018/v22i2.4
- Porat-Katz, A., Eldar-Geva, T., Kahane, A., Laufer, N., Younis, J. S., Radin, O., Paltiel, O. (2015). Use of complementary medical therapies by Israeli patients undergoing in vitro fertilization. *International Journal of Gynecology & Obstetrics*, 129(2), 133-137. Doi: 10.1016/j.ijgo.2014.11.021.
- Pozza, A., Dettore, D., Coccia, M. E. (2019). Depression and anxiety in pathways of medically assisted reproduction: The role of infertility stress dimensions. *Clinical Practice and Epidemiology In Mental Health*, 15, 101. Doi: 10.2174/1745017901915010101
- Rayner, J. A., McLachlan, H. L., Forster, D. A., Cramer, R. (2009). Australian women's use of complementary and alternative medicines to enhance fertility: Exploring the experiences of women and practitioners. *BMC Complementary and Alternative Medicine*, 9(52), 1-10. Doi: 10.1186/1472-6882-9-52
- Şen, E., Bulut, S., Şirin, A. (2014). To examine of dyadic adjustment on primary infertile women. *Florence Nightingale Journal of Nursing*, 22(1), 17-24.
- Sevindik, F., Açıık, Y., Gülbayrak, C., Akgün, D. (2007). Traditional methods which are known and applied in order to achieve voluntary abortion by married women living in Elazığ, *TAF Preventive Medicine Bulletin*, 6(5), 321-324.
- Şimşek, Ş. (2013). *Traditional methods known to conceive by women living in Melekli Town of Iğdır*. (Master Thesis). Hacettepe University Institute of Health Sciences, Ankara.

- Smith, J. F., Eisenberg, M. L., Millstein, S. G., Nachtigall, R. D., Shindel, A. W., Wing, H., ... Infertility Outcomes Program Project Group. (2010). The use of complementary and alternative fertility treatment in couples seeking fertility care: data from a prospective cohort in the United States. *Fertility and Sterility*, 93(7), 2169-2174. Doi: 10.1016/j.fertnstert.2010.02.054.
- Teskereci, G. (2010). *The effect of the lifestyle on life quality of couples receiving infertility treatment*. (Master Thesis). Akdeniz University Institute of Health Sciences, Antalya.
- Timur Taşhan, S., Aksoy Derya, Y. (2013). Traditional practices used by the infertile women to become pregnant and their effects on the quality of life. *International Journal of Nursing Practice*, 19(5), 516-522. Doi: 10.1111/ijn.12094.
- Topdemir Koçyiğit, O. (2012). Infertility and its sociocultural impact. *Journal of Human Science*, 1(1), 27-37.
- Vander Borgh, M., Wyns, C. (2018). Fertility and infertility: Definition and epidemiology. *Clinical Biochemistry*, 62, 2-10. Doi: 10.1016/j.clinbiochem.2018.03.012.
- World Health Organization [WHO] (2010). Mother or nothing: the agony of infertility. *Bulletin of the World Health Organization*, 88 (12), 881 - 882. World Health Organization. Doi: 10.2471/BLT.10.011210.
- Yilmaz, T., Yazici, S., Benli, T. (2020). Factors associated with infertility distress of infertile women: a cross-sectional study. *Journal of Psychosomatic Obstetrics & Gynecology*, 41(4), 275-281. Doi: 10.1080/0167482X.2019.1708318.