

## Complementary and Alternative Medicine Usage and Its Determinant Factors Among Infertile Men in Iran

Fatemeh Ghaedi Heidari; Ph.D.<sup>1</sup>, Mahlagha Dehghan; Ph.D.<sup>2</sup>, Sima Mokhtarabadi; M.Sc.<sup>3</sup>

<sup>1</sup> Nursing and Midwifery School, Isfahan University of Medical Sciences, Isfahan, Iran

<sup>2</sup> Nursing Research Center, Kerman University of Medical Sciences, Kerman, Iran

<sup>3</sup> Shafa Hospital, Kerman University of Medical Sciences, Kerman, Iran

Received March 2020; Revised and accepted September 2020

### Abstract

**Objective:** This study aimed to assess the use of some Complementary and Alternative Medicine (CAM) techniques in infertile men.

**Materials and methods:** This cross-sectional study was conducted on 102 infertile men referred to the only center of infertility in Kerman, Iran using convenience sampling. Data were collected using a two-part researcher-made questionnaire and analyzed using descriptive and analytical statistics (chi-square test and logistic regression) with SPSS 16.

**Results:** According to the present study, 72.5% of subjects used at least one of the CAM methods in the past year. Among them 28.4% of the subjects have used one CAM technique, 13.7% have used two techniques, 8.8% have used three techniques, 9.8% have used four techniques, and 11.8% have used more than four techniques since the last year. None of the socio-demographic characteristics had significant association with being the user of complementary and alternative medicines.

**Conclusion:** The results showed that almost three quarters of the infertile men used CAM indicating a high prevalence of CAM usage among them.

**Keywords:** Intra-Uterine Insemination; Infertility; Human Chorionic Gonadotropin; Injection Time

### Introduction

The World Health Organization (WHO) defines infertility as the inability of a couple to achieve a clinical pregnancy after 12 months or more of regular unprotected sexual intercourse (1, 2). The WHO has also introduced infertility as a worldwide reproductive health problem (3).

Infertility is a growing problem affecting about 15% of couples in childbearing age (4). According to the WHO, about 80 million people worldwide have infertility problems (5). An Iranian study shows that the prevalence of primary clinical infertility and the

secondary infertility is 20% and 4.9%, respectively (6). Therefore, 35% of the men (sperm disorders) and 50% of the women (ovarian disorders) are infertile and the remaining 15% are due to other causes (7).

Infertility and its socio-individual problems are one of the most important issues for couples because the cause of infertility is detectable in only 40% of the men and it is not pathologically detectable in 60% of the cases (8). In addition to the psychological consequences, the medical costs of the infertility, especially for advanced infertility treatments, and the more difficult treatment of infertile men than for women, put additional pressure on couples, especially in developing countries (9).

Assisted reproductive technologies (ARTs) such as in vitro fertilization (IVF) are the first line of

### Correspondence:

Sima Mokhtarabadi

Email: mokhtarabadisima88@gmail.com

treatment for many couples. However, they tend to be treated by natural treatments such as traditional ones (herbal medicines, wet cupping, homeopathy, acupuncture, and yoga) and are less likely to use invasive therapies (10). Studies show that ARTs are not always successful, so couples turn to treatments other than the standard ones (11 - 13). Complementary and alternative medicines (CAMs) are among these treatments. CAMs encompass a variety of medical practices, products, and systems that are not considered standard treatments. These treatments include diagnostic, therapeutic and preventive methods. It should be noted that complementary medicines are used alongside standard treatments (14).

Studies show that complementary and alternative medicines commonly used by infertile people include acupuncture (15-18), herbal medicines (19), yoga (20, 21), artificial sleep (22), homeopathy (23), physical therapy and meditation (24). Infertile men and women use different types and amounts of these treatments. Edrin et al. (2010) showed that 82% of Turkish infertile women used complementary medicines at least once, with prayer and herbal medicines accounting for the highest percentage (25). Smith et al. (2010) showed that only 3.3% of American infertile men used CAM, with acupuncture and massage therapy accounting for the highest percentage (24).

Farhud et al. (2010) and Zhou et al. (2007) have shown that herbal medicines are effective in the treatment of male infertility (26, 27). Bioos et al. (2015) showed that an herbal medicine in traditional Iranian medicine was effective in the treatment of idiopathic male infertility (28). De Souza et al. (2012) evaluated the effects of homeopathy on behavioral and clinical characteristics of sperm and showed that homeopathy could significantly improve sperm motility and fertility (23).

According to the review of literature, most studies on the use of complementary medicine among infertile men have addressed the effectiveness of these treatments and the use of specific types of complementary medicines in an interventional manner. Therefore, few studies have evaluated the conditions and factors affecting the frequent use of complementary methods, especially in Iranian infertile men. Thus, the current study aimed to determine the frequency of some complementary and traditional medicine techniques used by infertile men in Kerman, Iran.

## Materials and methods

**Study design and Setting:** This cross-sectional study was conducted in the IVF center of Afzalipour hospital which provides specialized and sub-specialized care to infertile clients in Kerman, the largest city in southeastern Iran with a population of more than 722,000.

**Sampling and Sample Size:** Convenience sampling was used to select the participants. The following formula was used to estimate the sample size:

$$n = (z^2 \times p(1-p)) / d^2$$

For the maximum sample size to be evaluated, the  $p(1-p)$  value was considered 0.5. The amount of  $d$  was 0.13p. Based on this formula, the estimated sample size was 102. In addition, considering the probability of dropouts, 10 extra participants were added.

**Instrument:** A three-part questionnaire was used: (a) a demographic data form (including age, sex, education, occupation, income, living place, history of other chronic diseases, marital status, infertility history, infertility etiology, infertility treatment, having child, satisfaction with marital relationship, spouse support, family support, and spouse's family support); (b) a researcher-made questionnaire for studying types and usage of some complementary and alternative medicine methods, and whether patients have consulted with their doctors to use CAM techniques or not (20, 21); and (c) a researcher-made questionnaire for studying satisfaction with using complementary and alternative medicines (20, 21). The second part of the questionnaire includes types of complementary medicines (medicinal plants, wet cupping [Hijamat], dry cupping, massage, hydrotherapy, leech therapy, praying, Votive [to make a vow to God to do a special task in case of a desire to be granted], acupressure, acupuncture, and homeopathy). The amount of usage was estimated by the number of times each technique was used by the patient in the past year. Besides, the level of satisfaction was measured by an 8-item scale: accessibility, harmlessness, ease of use, pain relief, no interference with daily activities, no concern about the interaction between CAM techniques and other standard medical methods, feeling well after using CAMs, and suggesting the methods to others. This scale was scored based on a 5-point Likert-type scale (4 = very satisfied, 3 = satisfied, 2 = dissatisfied, 1 = very dissatisfied, and 0 = no idea). Face and

content validity and internal consistency of this scale were confirmed in a previous study, and internal consistency of the satisfaction scale was 0.77 (20, 21).

**Data Collection and Analysis:** In the present study, the target population was all infertile mens referring to the IVF center in Kerman. The participants completed self-report questionnaires. The researcher would have completed the questionnaire in the case of an illiterate participant. Sampling was done from early April 2016 to late January 2017. Data were analyzed by SPSS 18. Descriptive statistic (frequency distribution tables, percentage, mean and standard deviation) was applied to describe the amount of usage and the satisfaction with CAMs.  $\chi^2$  and multivariate logistic regression tests were used to determine the correlation between socio-demographic characteristics and being user of CAMs. Significance level of the P-value was considered at 0.05.

**Ethical Consideration:** The Kerman University of Medical Sciences approved this project (ethics code: IR.KMU.REC.1394.612). Then, a permission was issued to the management of the IVF center. The researcher provided participants with some oral information including the goals and objectives of the study, the confidentiality and anonymity of the data, and their free withdrawal at any time. Then verbal consent was taken individually.

## Results

**Socio-demographic characteristics:** In total, 102 participants were assessed. The mean age of participants was  $34.09 \pm 7.90$ . The mean period of marriage was  $6.54 \pm 3.80$  years. The mean years of infertility were  $5.34 \pm 3.39$  years. 25.5% of the participants had academic education. 49% of them were self-employed. The salary of 71% of the participants was less than 1,000,000 tomans [about 300 US dollar] a month. Only 33.3% of them were living in Kerman city. 75.5% of the participants had no child and 55.9% were taking medications (Table 1).

**Complementary and Alternative Medicine Usage and Its Determinant Factors:** 72.5% [n = 74] of the participants used at least one of the CAM methods in the past year. Among those used the CAM techniques, 28.4% [n = 29] used only one technique, 13.7% [n = 14] used two techniques, 8.8% [n = 9] used three techniques, 9.8% [n = 10] used four techniques, and 11.8% [n = 12] used more than four techniques. Therefore, 20.6% [n = 21] of the participants used herbal medicine, 4.9% [n = 5] used wet cupping, 1% [n = 1] used massage, 38.2%

[n = 39] used prayer, 33.3% [n = 34] used votive, and 2.9% [n = 3] used hydrotherapy (Table 2).

**Table 1:** Description of the study samples (n=102)

Variable	Frequency	Percent
Age (year)		
≤ 25	4	3.9
26–30	31	30.4
31–35	34	33.3
36–40	22	21.6
> 40	11	10.6
Education		
Middle/high school	37	36.4
Diploma	39	38.2
Academic	26	25.4
Occupation		
Unemployed	4	4
Employed	45	44
Retired	3	3
Self-employed	50	49
Income (monthly)		
< 500,000 Toman	30	29.4
500,000–1,000,000 Toman	41	40.2
1,000,000–1,500,000 Toman	20	19.6
> 1,500,000 Toman	11	10.8
Living place		
Kerman city	34	33.3
Other cities of Kerman province	66	66.7
Marital history (year)		
≤ 5	51	50
6–10	30	29.4
> 10	21	20.6
Infertility history		
≤ 5	64	62.7
6–10	26	25.5
> 10	12	11.8
Infertility etiology		
Unknown	3	2.9
Man related	66	64.7
Woman related	30	29.5
Both man and woman	3	2.9
Infertility treatment		
No treatment	18	17.6
Just medication therapy	57	55.9
Other methods	27	26.5
Children		
Yes	25	24.5
No	77	75.5

Among those participants who used medicinal plants, dry cupping, massage, and hydrotherapy 4.9% (n=5), 97.1% (n=99), 0%, and 0% respectively consulted with their doctors about the use of complementary and alternative medicines.

The participants' satisfaction with using non-spiritual CAM was assessed. According to different aspects of satisfaction, 24.5% (n=25) of the participants were satisfied with continuous access to the procedure, 23.52% (n=24) were satisfied with

ease of use, 25.49% (n=26) were satisfied with safety of complementary and alternative medicines. Also, 25.49% (n=26) believed that CAM did not interfere with their daily activities, 23.52% (n=24) were satisfied with the impact of CAM on infertility, 23.52% (n=24) did not have any concerns about the interaction between CAM and other therapies, 22.54% (n=23) had good feelings after the use of CAM, and 23.52% (n=24) recommended CAM to others.

**Table 2:** Distribution of the various types of CAM used in by the study samples (n=102)

Type of CAM	Frequency	Percent
Herbal medicine	21	20.6
Wet cupping	5	4.9
Massage	1	1
Prayer	39	38.2
Votive	34	33.3
Hydrotherapy	3	2.9

According to  $\chi^2$ , none of the socio-demographic characteristics had significant association with being user of complementary and alternative medicines.

## Discussion

The current study showed that about three-quarters of infertile men used at least one type of complementary medicine in the past year. However, several studies have reported different rate of use of complementary medicine. Ghazeeri (2012) (29), Fata (2019) (30) and Bardaweel (2013) (31), and Smith (2010) (24) reported that 47.1%, 31%, 24.9% and 3.3% of the infertile males used complementary medicine, respectively. Since the results of the above studies are very different from that of the present study, it can be concluded that cultural, religious, differences as well as people's awareness of complementary medicine is not similar in different parts of the world.

The results of the current study showed no statistically significant difference between CAM users and non-users in demographic characteristics. However, Ghazeeri (2012) showed a significant correlation between duration of marriage, income, religion, education of infertile individuals and the rate of use of CAMs (29). The different results can be attributed to the sociocultural differences of different societies. 28.4% of the participants used only one CAM technique, 13.7% of them used two techniques, 8.8% used three techniques, 9.8% used four

techniques, and 11.8% used more than four techniques. Among the methods used in the present study, the highest percentages were related to prayer, Votive, herbal medicines, wet cupping, dry cupping, hydrotherapy, respectively, and the lowest percentage was related to massage therapy. However, one study showed the highest percentages of CAM usage in functional food (such as honey and nuts), prayer, vitamins and minerals, and herbal medicines (29). Prayer in studies done in Iran, Lebanon and Jordan (29- 32), acupuncture in the US (24, 33) and herbal medicines in Ireland (34) were mostly used by infertile individuals. Since, prayer was mostly used in countries with similar cultures and beliefs, it can therefore be argued that cultural and religious factors and prayer have drawn the infertile men to choose this CAM technique.

Almost a quarter of the participants in this study was satisfied with CAM techniques in various fields, with Ghazeeri's (2012) study providing more than 50% of satisfaction in various fields (29). Smith et al. (2010) showed 50% satisfaction with complementary medicine, with yoga and relaxation being the most prevalent (24). This clear difference can be attributed to individuals' awareness of the CAM techniques, the prevalence of some techniques in different societies and other socio-economic factors.

Since limited research has been done on infertile men in different societies around the world, it is very difficult to discuss about the results of the current study and studies in other societies with different beliefs and cultures. Researchers in different communities should focus on these people more to identify the problems, limitations and educational needs of this group more precisely and to provide a fundamental planning for their future.

The present study has some limitations. Since, the accuracy of the information depends on the individual's memory and his/her accurate reporting, the results of the study might be biased by the recall. Study data were collected from an Iranian city that may not be representative of other cities and provinces. Therefore, generalization of the results of this study to different geographical locations and demographic characteristics should be done with caution. Since, individuals' knowledge of the different methods of complementary medicine in this study was not measured before sampling; people in different parts of the world may have different knowledge of the CAM techniques.

## Conclusion

The results showed that the majority of infertile men used the CAM techniques indicating a high prevalence of the CAM among Iranian infertile men. Therefore, health care providers should consider the CAM techniques to treat male infertility. They also should plan to reinforce the proper use of the CAM and reduce the barriers to make complementary medicine more applicable to male infertility treatment. Although men rarely use some CAM techniques, the important point in this study is that demographic characteristics are not relevant to the use or non-use of the complementary medicine. Therefore, everybody especially infertile men should raise their awareness of the CAM techniques.

## Conflict of Interests

Authors have no conflict of interests.

## Acknowledgments

Special thanks to all participants who took part in this study. The authors appreciate the personnel at the IVF center for data collection. The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

**Funding:** The authors received no financial support for the research, authorship, and/or publication of this article.

## References

- Gana K, Jakubowska S. Relationship between infertility-related stress and emotional distress and marital satisfaction. *J Health Psychol* 2016; 21: 1043-54.
- Lobo RA, Gershenson DM, Lentz GM, Valea FA. *Comprehensive Gynecology E-Book*. Elsevier Health Sciences; 7 Th Edition 2016.
- Datta J, Palmer MJ, Tanton C, Gibson L J, Jones KG, Macdowall W, et al. Prevalence of infertility and help seeking among 15 000 women and men. *Hum Reprod* 2016; 31: 2108-18.
- Agharezaee N, Hashemi M, Shahani M, Gilany K. Male Infertility, Precision Medicine and Systems Proteomics. *J Reprod Infertil* 2018; 19: 185-192.
- Tournaye HJ, Cohlen BJ. Management of male-factor infertility. *Best Pract Res Clin Obstet Gynaecol* 2012; 26: 769-75.
- Akhondi MM, Ranjbar F, Shirzad M, Ardakani ZB, Kamali K, Mohammad K. Practical difficulties in estimating the prevalence of primary infertility in Iran. *Int J Fertil Steril* 2019; 13: 113-7.
- O'Flynn O'Brien KL, Varghese AC, Agarwal A. The genetic causes of male factor infertility: a review. *Fertil Steril* 2010; 93: 1-12.
- Bhasin S, De Kretser DM, Baker HW. Clinical review 64: Pathophysiology and natural history of male infertility. *J Clin Endocrinol Metab* 1994; 79: 1525-9.
- Bayasgalan G, Naranbat D, Radnaabazar J, Lhagvasuren T, Rowe PJ. Male infertility: risk factors in Mongolian men. *Asian J Androl* 2004; 6: 305-11.
- Hollywood L. What factors influence the use of Complementary Alternative Medical (CAM) treatment options for infertility in women? [D.N.Sc.]. Ann Arbor: Columbia University; 2009.
- Ghazeeri GS, Awwad JT, Alameddine M, Younes ZMH, Naja F. Prevalence and determinants of complementary and alternative medicine use among infertile patients in Lebanon: a cross sectional study. *BMC Complement Altern Med* 2012; 12: 129.
- Read SC, Carrier ME, Whitley R, Gold I, Tulandi T, Zerkowitz P. Complementary and alternative medicine use in infertility: cultural and religious influences in a multicultural Canadian setting. *J Altern Complement Med* 2014; 20: 686-92.
- Hwang JH, Kim YY, Im HB, Han D. Complementary and alternative medicine use among infertile women attending infertility specialty clinics in South Korea: does perceived severity matter? *BMC Complement Altern Med* 2019; 19: 301.
- Erku DA. Complementary and Alternative Medicine Use and Its Association with Quality of Life among Cancer Patients Receiving Chemotherapy in Ethiopia: A Cross-Sectional Study. *Evid Based Complement Alternat Med* 2016; 2016: 2809875.
- El-Toukhy T, Sunkara SK, Khairy M, Dyer R, Khalaf Y, Coomarasamy A. A systematic review and meta-analysis of acupuncture in in vitro fertilisation. *BJOG* 2008; 115: 1203-13.
- Manheimer E, van der Windt D, Cheng K, Stafford K, Liu J, Tierney J, et al. The effects of acupuncture on rates of clinical pregnancy among women undergoing in vitro fertilization: a systematic review and meta-analysis. *Hum Reprod Update* 2013; 19: 696-713.
- Xie ZY, Peng ZH, Yao B, Chen L, Mu YY, Chen J, et al. The effects of acupuncture on pregnancy outcomes of in vitro fertilization: a systematic review and meta-analysis. *BMC Complement Altern Med* 2019; 19: 131.
- Gu YE, Zhang X, Zhang Q, Dai MC, Wu Y, Zhou Y, et al. The effects of acupuncture on pregnancy outcomes of in vitro fertilization with embryo transfer: an interdisciplinary systematic review. *J Gynecol Obstet Hum Reprod* 2019; 48: 677-84.

19. Kaadaaga HF, Ajeani J, Ononge S, Alele PE, Nakasujja N, Manabe YC, et al. Prevalence and factors associated with use of herbal medicine among women attending an infertility clinic in Uganda. *BMC Complement Altern Med* 2014; 14:27.
20. Oron G, Allnutt E, Lackman T, Sokal-Arnon T, Holzer H, Takefman J. A prospective study using Hatha Yoga for stress reduction among women waiting for IVF treatment. *Reprod Biomed Online* 2015; 30: 542-8.
21. Valoriani V, Lotti F, Vanni C, Noci MC, Fontanarosa N, Ferrari G, et al. Hatha-yoga as a psychological adjuvant for women undergoing IVF: a pilot study. *Eur J Obstet Gynecol Reprod Biol* 2014; 176: 158-62.
22. Catoire P, Delaunay L, Dannappel T, Baracchini D, Marcadet-Fredet S, Moreau O, et al. Hypnosis versus diazepam for embryo transfer: a randomized controlled study. *Am J Clin Hypn* 2013; 55: 378-86.
23. de Souza MFA, Costa-e-Silva EV, Macedo GG, Soares BD, Zúccari CESN. The effect of individualized homeopathic treatment on the semen quality of bulls with reproductive disorders: a case series. *Homeopathy* 2012; 101: 243-5.
24. Smith JF, Eisenberg ML, Millstein SG, Nachtigall RD, Shindel AW, Wing H, et al. The use of complementary and alternative fertility treatment in couples seeking fertility care: data from a prospective cohort in the United States. *Fertil Steril* 2010; 93: 2169-74.
25. Edirne T, Arica SG, Gucuk S, Yildizhan R, Kulusari A, Adali E, et al. Use of complementary and alternative medicines by a sample of Turkish women for infertility enhancement: a descriptive study. *BMC Complementary and Alternative Medicine* 2010; 10: 11.
26. Farhud DD, Yeganeh MZ, Yeganeh MZ. Nutrigenomics and nutrigenetics. *Iran J Public Health* 2010; 39: 1-14.
27. Zhou X, Liu F, Zhai S. Effect of L-carnitine and/or L-acetyl-carnitine in nutrition treatment for male infertility: a systematic review. *Asia Pac J Clin Nutr* 2007; 16: 383-90.
28. Bioos S, Nazem E, Keshavarz M, Siahpoosh MB, Sohrabvand F, Sohanaki H, et al. A traditional Iranian medicine (Majoon-e Loboob) for idiopathic male infertility: a case series. *Traditional and Integrative Medicine* 2015; 1: 47-51.
29. Ghazeeri GS, Awwad JT, Alameddine M, Younes ZMH, Naja F. Prevalence and determinants of complementary and alternative medicine use among infertile patients in Lebanon: a cross sectional study. *BMC Complement Altern Med* 2012; 12: 129.
30. Fata S, Tokat MA, Bagardi N, Yilmaz B. The traditional practices used by couples with fertility problems, affecting factors, expected benefits, and learning paths: The Turkey Sample. *Niger J Clin Pract* 2019; 22: 806-11.
31. Bardaweel SK, Shehadeh M, Suaifan GA RY, Kilani MVZ. Complementary and alternative medicine utilization by a sample of infertile couples in Jordan for infertility treatment: clinics-based survey. *BMC Complement Altern Med* 2013; 13: 35.
32. Dehghan M, Mokhtarabadi S, Heidari FG. Complementary and alternative medicine usage and its determinant factors among Iranian infertile couples. *J Complement Integr Med* 2018; 15.
33. Weiss DA, Harris CR, Smith JF. The use of complementary and alternative fertility treatments. *Curr Opin Obstet Gynecol* 2011; 23: 195-9.
34. Frawley J, Adams J, Sibbritt D, Steel A, Broom A, Gallois C. Prevalence and determinants of complementary and alternative medicine use during pregnancy: results from a nationally representative sample of Australian pregnant women. *Aust N Z J Obstet Gynaecol* 2013; 53: 347-52.

**Citation:** Ghaedi Heidari F, Dehghan M, Mokhtarabadi S. **Complementary and Alternative Medicine Usage and Its Determinant Factors Among Infertile Men in Iran.** *J Fam Reprod Health* 2020; 14(3): 180-5.