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

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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
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
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 Afzalipoor
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:

\[ n = \frac{z^2 \times p \times (1-p)}{d^2} \]

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

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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 men 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. χ² 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 ± 7.90. The mean period of marriage was 6.54 ± 3.80 years. The mean years of infertility were 5.34 ± 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).

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.

**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    | 66        | 66.7    |
| province                  |           |         |
| 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    |
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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

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| Votive            | 34        | 33.3    |
| Hydrotherapy      | 3         | 2.9     |
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.

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