

# Consumption of folk medicine in men-seeking treatment for infertility

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## Abstract

**Background:** Male infertility is a major health problem that can have a tremendous negative impact on the affected individuals and couples. The use of folk medicine is common practice in the Middle Eastern region, especially before seeking conventional medical treatment. Unfortunately, some of these remedies might be potentially harmful. This study aims to assess the use of folk medicine before formal medical evaluation by a male infertility specialist among men in couples with subfertility in Saudi Arabia.

**Materials and Methods:** A retrospective study of prospectively documented data was conducted among male patients who presented for evaluation of their infertility at one center in Jeddah, Saudi Arabia, from May 1, 2020, to April 30, 2021, to assess the prevalence of the use of traditional medicine among these patients.

**Results:** The total number of patients who visited the center for infertility assessment during the specified period was of 427. Most patients had primary infertility (64.4%). Table 1 summarizes the demographic data of the patient population. About 55.3% of the patients were 40 years old or less. Patients who consumed some form of alternative medicine are 38.9%. A clinical varicocele was detected in 57.8% of these men. Patients who use alternative medicine had significantly lower semen concentration and estradiol levels ( $P = 0.02$  similarly).

**Conclusion:** About 38.9% of patients who attended our clinic were using some alternative medicine. Furthermore, patients who use alternative medicine had significantly less sperm motility and progressive motility.

**Keywords:** Folk medicine, infertility, urology

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**Received:** 07.05.2024, **Accepted:** 06.10.2024, **Published:** 18.01.2025.

## INTRODUCTION

Infertility is a major health problem that can have a tremendous impact on the social, psychological, and economic status of the affected individuals and couples.<sup>[1]</sup> The 12-month overall median prevalence rate of infertility

is estimated at 9%.<sup>[2]</sup> The male factor is reported as being a contributor in about half of these cases.<sup>[3,4]</sup> The use of alternative medicine is common practice in some regions, especially before seeking conventional medical treatment. As an example, according to one retrospective study,

Access this article online	
Quick Response Code:	Website: www.urologyannals.com
	DOI: 10.4103/ua.ua_34_24

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**How to cite this article:** Baazeem A, Alqurashi TM, Alharbi YH, Aldahas RA, Fatani MH. Consumption of folk medicine in men-seeking treatment for infertility. *Urol Ann* 2025;17:48-51.

all men utilized a form of traditional medicine before undergoing penile prosthesis insertion.<sup>[5]</sup> Unfortunately, the efficacy of these remedies has not been proven. Indeed, some might even be potentially harmful. One study found that more than 30% of collected samples had potentially harmful content (e.g., bacteria, heavy metals, and toxic organic substances).<sup>[6]</sup>

This study aims to assess the use of traditional and herbal medicine before formal medical evaluation by a male infertility specialist among men in couples with subfertility.

## MATERIALS AND METHODS

A retrospective study of prospectively collected data was conducted involving male patients who presented for evaluation of their infertility at one center in Jeddah, Saudi Arabia, from May 1, 2020, to April 30, 2021, to assess the prevalence of the use of traditional medicine among these patients. All subjects were male patients above 18 years of age, who had a history of infertility. The data collected included the patient's age, type of infertility (primary or secondary), nationality, number of wives, medical and surgical history, past use of contraception, the presence of other factors that might negatively impact spermatogenesis (e.g., varicocele or gonadotoxin exposure), use of folk medicine/herbal remedies, serum hormonal levels (including total testosterone, follicle-stimulating hormone, luteinizing hormone, estradiol, and prolactin), and semen analysis results. The semen analysis parameters of each patient were performed according to the 5<sup>th</sup> edition of the World Health Organization manual for the examination and processing of human semen.<sup>[6]</sup> The SPSS (Statistical Software Package for the Social Sciences for Windows, Version 25.0, Armonk, NY, USA: IBM Corp.) was used for data entry and analysis. The statistical analysis involved the use of the Chi-square test for nominal variables and the independent sample *t*-test for the continuous variables. *P* < 0.05 was set to indicate statistical significance. Informed consent was obtained from all patients, and the study was approved by the Institutional Review Board of Umm Al-Qura University's Faculty of Medicine.

## RESULTS

A total of 427 patients visited the center for infertility assessment during the specified period. One hundred and twenty-five of them had azoospermia. Most patients (64.4%) had primary infertility. Tables 1 and 2 summarizes the demographic data and Semen parameters of these patients. About 55.3% of the patients were 40 years old or less. Men who were single, divorced, or

widowers constituted 1.9% of these patients. About 5.9% of the patients had more than one wife.

One hundred and sixty-six (38.9%) patients consumed some form of herbal remedy at some point. Furthermore, a large number (63.3%) of these patients had exposure to inhaled substances which might negatively affect sperm quality, such as cigarettes, pot, and hookah pipes. A clinical varicocele was detected in 57.8% of these men. Table 3 summarizes the rest of the factors which can negatively impact semen quality which were identified in the patient population.

There were significant differences among men who had a history of using herbal remedies and those who did not in terms of baseline semen parameters. Sperm motility and progressive motility levels were significantly higher in patients who used herbal remedies than those who did not (sperm motility 33.72%, 31% [ $\pm 21.62$ ] vs. 41.82%,

**Table 1: Demographic data of men who presented for infertility evaluation**

Parameter	Mean, median ( $\pm$ SD)	Range/percentage
Age (years)	35.84, 34 ( $\pm 8.07$ )	20–83
Saudi	384	89.9
Non-Saudi	41	9.6
Primary infertility	275	64.4
Secondary infertility	152	35.6
Testosterone (nmol/L)	16.07, 14.21 ( $\pm 8.22$ )	0.2–71.93
FSH (mIU/mL)	10.89, 5.95 ( $\pm 11.89$ )	0.3–83.19
LH (mIU/mL)	8.33, 6.68 ( $\pm 5.93$ )	0.10–49.23
E2 (pg/mL)	28.34, 25.00 ( $\pm 17.15$ )	0–143.5
Prolactin (ng/mL)	15.03, 12.3 ( $\pm 11.81$ )	0.23–129.2

FSH: Follicle-stimulating hormone, LH: Luteinizing hormone, SD: Standard deviation

**Table 2: Semen parameters of men who presented for infertility evaluation, after excluding azoospermia**

Parameter	Mean, median ( $\pm$ SD)	Range/percentage
Semen volume (mL)	3.1, 3 ( $\pm 1.79$ )	0.3–15
Sperm concentration (million/mL)	30.01, 9.82 ( $\pm 46.96$ )	0.000001–225 $\times 10^6$
Sperm normal morphology (%)	6.09, 2 ( $\pm 12.13$ )	0–75
Sperm motility (%)	38.95, 40 ( $\pm 21.13$ )	0–95
Sperm progressive motility (%)	22.81, 20 (19.32)	0–90

SD: Standard deviation

**Table 3: Prevalence of factors which can negatively impact semen quality in the patient population**

Parameter	n (%)
Using alternative medicine	166 (38.9)
Smoking cigarettes and/or others	270 (63.3)
Heat exposure	88 (20.6)
History of anabolic steroid use	11 (2.6)
Chemotherapy use	4 (0.9)
Radiation exposure	2 (0.5)
Hard recreational drugs (e.g., amphetamines and cocaine)	2 (0.5)
Clinical varicocele	247 (57.8)

**Table 4: Differences between men who had a history of exposure to folk medicine and those who did not**

Parameter	Use of alternative medicine		Significance
	Yes	No	
Primary infertility (%)	43.6	56.4	0.007
Secondary infertility (%)	30.3	69.7	0.007
Infertility duration (months)	67.27 ( $\pm 61.10$ )	63.04 ( $\pm 70.51$ )	NS
Azospemic patient (%)	44.4	55.6	NS
Semen volume (mL)	3.04, 3 ( $\pm 1.57$ )	3.14, 3 ( $\pm 1.92$ )	NS
Sperm concentration (million/mL)	24.66, 10 ( $\pm 41.61$ )	33.27, 16.75 ( $\pm 49.77$ )	NS
Sperm morphology (%)	4.97, 1 ( $\pm 9.16$ )	6.7, 2 ( $\pm 13.47$ )	NS
Sperm motility (%)	33.72, 31 ( $\pm 21.62$ )	41.82, 42.5 ( $\pm 20.36$ )	0.05
Sperm progressive motility (%)	18.7, 10 ( $\pm 20.11$ )	25.19, 22.5 ( $\pm 18.51$ )	0.02
Testosterone (nmol/L)	15.88 ( $\pm 8.81$ )	16.20 ( $\pm 7.84$ )	NS
FSH (mIU/mL)	11.54 ( $\pm 12.98$ )	10.46 ( $\pm 11.13$ )	NS
LH (mIU/mL)	8.27 ( $\pm 6.21$ )	8.38 ( $\pm 5.73$ )	NS
E2 (pg/mL)	26.03 ( $\pm 12.98$ )	30.12 ( $\pm 19.63$ )	NS
Prolactin (ng/mL)	15.98 ( $\pm 11.70$ )	14.41 ( $\pm 11.88$ )	NS

Data presented as mean, median and ( $\pm$ SD), or percentage (where applicable). NS: Not statistically significant ( $P \geq 0.05$ ), SD: Standard deviation, FSH: Follicle-stimulating hormone, LH: Luteinizing hormone, E2: Estradiol (E2)

42.5% [ $\pm 20.36\%$ ],  $P < 0.05$ ; sperm progressive motility 18.7%, 10% [ $\pm 20.11\%$ ] vs. 25.19%, 22.5% [ $\pm 18.51\%$ ],  $P < 0.02$ ). Significantly more patients with primary infertility used herbal remedies. Table 4 summarizes the differences between men who had a history of exposure to herbal remedies and those who did not.

## DISCUSSION

Infertility can pose a heavy emotional, financial, and social burden on couples.<sup>[7]</sup> Male factor infertility can be associated with several potentially serious or even life-threatening medical conditions.<sup>[8]</sup> Although there is no consensus, at least some studies suggest that abnormal semen analysis might even be associated with an increase in mortality.<sup>[9]</sup> Unfortunately, in many subfertile couples, the male partner is not assessed at the time of initial presentation.<sup>[10]</sup>

This study has several limitations. Among them is that the laboratory tests were done in multiple centers, which might potentially cause some variability in the results. It did not include the level of education and area of residence (urban vs. rural) of the participants. The presence of these data may give us a better understanding of the effect of these two parameters on the use of alternative medicine and can help detect the most affected groups.

Nearly, 40% of the patients in this study were used some form of folk medicine. Additional studies are required to confirm the effect of alternative medicine on semen parameters and hormonal profile. All patients in this study were instructed to stop all forms of folk medicine at least a month before their baseline testing. The reason for the higher motility among users of folk medicine in our study's population remains unclear. There is some evidence to

suggest that at least some of these substances might have a deleterious effect on semen quality.<sup>[11]</sup> The tainting of herbal substances has also been described, with medications being the most common adulterant.<sup>[12]</sup> It might be possible that this is an explanation for the abovementioned higher baseline sperm motility. Alternatively, another possibility is that there might be indeed a positive effect for some of these substances on sperm quality.

These results might not be extrapolated to all regions of the world, as the practice of using herbal remedies varies in prevalence among the different regions of the world. However, it behooves physicians to inquire about this practice, especially in patients from members of communities that are known to consume such substances for healing purposes.

## CONCLUSION

The use of folk medicine among men with male factor infertility might be relatively high. Further studies are required to determine the extent of this practice in different regions of the world and the breadth of its effect on the results of men's laboratory results and fertility in general.

## Financial support and sponsorship

Nil.

## Conflicts of interest

There are no conflicts of interest.

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