Original Article
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Medical Journal of the Islamic Republic of Iran (MJIRI)

Med J Islam Repub Iran. 2022 (24 May);36.54. https://doi.org/10.47176/mjiri.36.54

Knowledge and Attitude of Infertile People toward Assisted Reproductive Techniques in Hamadan, Iran

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Received: 22 Oct 2021 Published: 24 May 2022

Abstract

Background: People's knowledge and attitude play a role in deciding whether or not to use assisted reproductive procedures (ART). There is no information about people's attitudes and awareness about ART in western Iran. Thus, this study was performed to determine the knowledge and attitude of infertile people toward ART.

Methods: This cross-sectional study was performed on 124 infertile participants who referred to the in vitro fertilization section of Fatemieh hospital, Hamadan, Iran. To measure the knowledge and attitude of the participants, 2 researcher-made questionnaires were used. Their validity and reliability were confirmed by content validity (eg, content validity index [CVI]; content validity ratio [CVR]) and the Cronbach alpha, respectively.

Results: The study involved 124 participants, more than half of whom were women (54.8%). The mean of the CVI and the CVR for the attitude questionnaire was 0.76 and 0.79, respectively, and for the knowledge, questionnaire was 0.72 and 0.71, respectively. The Cronbach alpha coefficient obtained for the attitude and knowledge questionnaires was 0.761 and 0.745, respectively. The mean (SD) of the attitude and knowledge of infertile people toward the use of ART was 15.33 ± 2.91 and 9.04 ± 2.92, respectively. The study reported that participants' age, inhabitation, and job status had a significant effect on their attitude score. Also, the study found that the knowledge score was inversely related to age. The knowledge in those who were unemployed and living in the rural and less than those employed and living in urban areas, respectively.

Conclusion: The 2 questionnaires designed in this study (knowledge and attitude) have the required validity and reliability. As a result, it appears that increasing people's knowledge and improving their attitude, particularly among the elderly, is necessary.

Keywords: Assisted Reproductive Techniques, Attitude, Knowledge, Infertility, Reproduction

Conflicts of Interest: *None declared*
Funding: *None*

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Cite this article as: Rabiei N, Bahreini F, Yavangi M, Artimani T, Mohammadpour N. Knowledge and Attitude of Infertile People toward Assisted Reproductive Techniques in Hamadan, Iran. *Med J Islam Repub Iran.* 2022 (24 May);36:54. https://doi.org/10.47176/mjiri.36.54

Introduction

Childbearing is the main human motivation and is also socially, religiously, historicall y, culturally, and economically important. However, some couples do not have this ability and are so-called infertile (1). The Infertility rate in the world and Iran is 10% and 13.2%, respectively; and it refers to the inability to conceive after 1 year of regular

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↑What is "already known" in this topic:
Low knowledge and negative attitudes may prevent the use of assisted reproductive techniques, and there is no complete tool to measure them. The lack of appropriate tools to measure the knowledge and the attitude of infertile people will lead to the failure to identify the factors associated with them.

→What this article adds:
In this study, 2 questionnaires were developed to measure the knowledge and the attitude of infertile people about assisted reproductive techniques, then psychometric questions were asked. This study proposed 2 valid and reliable questionnaires. Also, the knowledge and the attitude of infertile people in this study were moderate.

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[DOI: 10.47176/mjiri.36.54]

intercourse without the use of contraceptive methods (1-5). Infertility puts a lot of stress on people and affects their health due to factors such as despair, depression, guilt, low self-esteem, feelings of failure, and inability to follow the diagnosis and treatment (6-8). In many traditional cultures, infertile women are expected to consent to the remarriage of their husbands compared with fertile women (9).

In recent years, there have been significant breakthroughs in new assisted reproductive technologies. The first and most common method of assisted reproduction is in vitro fertilization (10). Other methods of assisted reproduction include intrauterine insemination of sperm and intracytoplasmic injection of sperm. The success of modern methods of assisted reproduction has led to a breakthrough in the field of infertility treatment. Infertile couples have gained more hope, enthusiasm, and knowledge about the success of assisted reproductive technologies over time (11-13). A fundamental change in the ability of couples in fertility has led to the survival of the generation and the strengthening of the family structure of infertile couples.

One of the main challenges in using assisted reproductive therapies is its cultural, religious, legal, and moral aspects in society. Some of these methods create a lot of sensitivity and the decision about it will be influenced by the perception, the attitude, and expectations of others and couples toward the use of these methods. Therefore, the lack of awareness, knowledge, and attitude leads to a slow progress (14-16). Given the importance of the attitude and the knowledge of infertile people about assisted reproductive techniques, the need for research in this area is clear. Examining the attitude and the knowledge of infertile people and related factors can provide a broad view of the challenges ahead and also provide solutions to address the barriers and strengthen the drivers. In addition, having sufficient knowledge about ART can change people's attitude and reduce psychological problems after fertility and childbearing. Adequate information and a positive attitude can also ensure the family's future as long as they are free of stress and psychological issues. Therefore, the present study was conducted to evaluate the knowledge and the attitude of infertile people about assisted reproductive techniques and to investigate some factors related to them in Hamadan, west of Iran.

Methods

Study Design: This cross-sectional study was performed on 124 infertile volunteers of the assisted reproduction method who referred to the in vitro fertilization unit of Fatemieh hospital, Hamadan, Iran. This study was approved by the Ethics Committee of Hamadan University of Medical Sciences in 2021 (IR.UMSHA.REC.1400.222). The participants agreed to participate in this study voluntarily through written informed consent. The inclusion criteria were defined infertility diagnosis and intention to receive ART. The questions were prepared according to the internet and the opinion of the expert panel. In the study, the demographic characteristics of participants included age, gender, education level, employment status, inhabitation status, and source of information. The researcher self-structure attitude and knowledge questionnaires consisted of 21 and 15 items, respectively. The items were assessed at 3 levels: correct answer = 1, wrong answer = 0, and I do not know = 0. The total score ranges of the Attitude and Knowledge Questionnaires were 0-21 and 0-15, respectively; we considered scores above average as a good score. The cutoff point for the attitude and knowledge questionaries were 10.5 and 7.5, respectively. The content validity of the questionnaires was determined by a 10-member panel that included gynecologists, midwives, and medical genetics, biostatistics, and epidemiology experts. The last edition of the knowledge and attitude questionnaires were reviewed by the expert panel.

Statistical Analysis: The attitude, knowledge, and age of participants were described as mean (SD), and frequency was used to describe qualitative characteristics using SPSS statistical software for Windows (IBM version 16). The content validity of the questionnaires was determined as the CVI and the CVR. The Cronbach alpha coefficient was used to determine the reliability of the attitude and knowledge questionnaires. A reliability value of ≥ 0.7 showed the reliability of the questionnaires. An independent t test was used to compare the mean between the 2 groups, while a multiple linear regression model was used to determine the correlation between demographic characteristics and dependent variables (attitude and knowledge). Also, $P < 0.05$ was considered statistically significant.

Results

A total of 124 people who applied for assisted reproductive technologies participated in this study. More than half of the infertile people in the study were women (54.8%). In this study, a quarter of applicants for assisted reproductive techniques were 40 years and older (25.0%). Most participants had an education level of less than a high school diploma, and half of them were unemployed (Table 1). The attitude of the participants, whose source of information was radio and television, was lower than other sources. However, this decrease was not statistically significant.

The mean of the CVI and the CVR for the Attitude Questionnaire was 0.76 and 0.79, respectively, and for the Knowledge Questionnaire was 0.72 and 0.71, respectively. The Cronbach alpha coefficient was used to determine the reliability of the questionnaires in a pilot study on 15 applicants of assisted reproductive techniques. This coefficient obtained for the attitude and knowledge questionnaires was 0.761 and 0.745, respectively. The mean (SD) of the attitude and knowledge of infertile people toward the use of ART was 15.33 ± 2.91 and 9.04 ± 2.92, respectively. In this study, 68% of people had a relatively good attitude toward assisted reproductive techniques (above the mean score range, ie, 7.5). Also, 52% of people were well aware of assisted reproductive techniques (above average scores range, ie, 10.5).

The results in Table 2 from the multiple regression model showed that among demographic variables, only participants' age ($P = 0.039$), inhabitation ($P = 0.025$), and job ($P = 0.046$) had a significant effect on the attitude

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Table 1. Demography Characteristics of Infertile People (n = 124)

Variables	n (%)	Attitude (Mean± SD)	Knowledge (Mean± SD)
Gender:			
Male	56 (45.2)	15.30±2.99	9.05±2.98
Female	68 (54.8)	15.35±2.86	9.04±2.88
Age (year):			
< 30	30 (24.2)	16.47±1.85	9.70±2.13
30-39	63 (50.8)	15.09±2.68	8.92±2.77
≥ 40	31 (25.0)	14.04±3.53	8.18±3.75
Inhabitation:			
Urban	95 (76.6)	15.66±2.85	9.65±2.81
Rural	29 (23.4)	13.24±2.89	7.07±2.36
Education:			
≤ Diploma	88 (71.0)	15.12±2.97	8.67±3.08
> Diploma	36 (29.0)	15.83±2.74	9.97±2.27
Job:			
Employed	63 (50.8)	15.62±2.87	9.14±2.91
Unemployed	61 (49.2)	14.03±2.94	8.95±2.95
Source of Information:			
Physician	66 (53.2)	15.77±2.58	9.48±2.76
Newspaper/ Magazine	5 (4.0)	15.40±2.50	9.00±0.76
TV & Radio	8 (6.5)	14.75±2.19	8.96±1.77
Friends/ Relatives	20 (16.1)	15.25±3.64	8.40±3.75
Internet/ Social medias	25 (20.2)	15.00±2.91	8.88±3.06

Table 2. Multiple Linear Regression Analysis Under the Backward Method to Determine the Relationship Between Independent Variables With the Attitude and the Knowledge of Infertile People

Dependent	Independent	Regression coefficients (SE)	Beta	P
Attitude	Age (year)	- 0.090 (0.043)	- 0.196	0.039
	Inhabitation (Urban=0, Rural=1)	- 1.354 (0.598)	- 0.198	0.025
	Job (Employed=0, Unemployed=1)	- 1.017 (0.544)	- 0.175	0.046
	Constant	21.659 (2.068)	-	<0.001
Knowledge	Age (year)	- 0.087 (0.044)	- 0.176	0.041
	Inhabitation (Urban =0, Rural=1)	- 2.584 (0.576)	- 0.375	<0.001
	Constant	12.2326 (0.751)	-	<0.001

score. The attitude score toward assisted reproductive technology was found to be inversely associated to age in this study. The results showed that the mean of attitude score about ART in participants living in rural areas was lower than those participants living in urban areas. In addition, the mean of attitude score in unemployed was lower than employed. The study showed that the knowledge score was inversely related to age; also, it was less among those unemployed participants who lived in rural areas compared with those employed participants who lived in urban areas, respectively (Table 2).

Discussion

The present study was conducted to assess the knowledge and the attitude of infertile people about assisted reproductive techniques for the first time in the west of Iran. According to the study, among the demographic variables, only age (P = 0.039), place of residence (P = 0.025), and job status (P = 0.046) were significantly related to the mean attitude of individuals, so that with an increase of 1 year in age, the mean score of people's attitudes toward ART decreased by 0.09. The results of Shakiba et al (17) study were consistent with those of our study, while in the study of Eladle et al (18) and Mohammad et al (19) there was no significant relationship between age and attitudes toward assisted reproductive techniques.

This study showed that the mean attitude score of people living in rural areas was 1.354 lower than that of those living in urban areas. In the studies of Shakiba et al (17), Eladle et al (18), Mohammad et al (19), and Jafari et al (20), there was no significant relationship between residence status and attitudes toward assisted reproductive techniques, which did not correspond to our results. The reason for the lack of relationship between residence status and attitudes in these studies may be because a significant part of the participants were living in urban areas.

The mean score of participants in this study who were not employed was 1.017 lower than those who were employed. In a study conducted by Sawjanya (21), there was a significant relationship between knowledge level and attitude and demographic variables, such as job status, while the relationship between job status and the mean score of attitudes of participants in the study of Mohammad et al (19) was not significant. In the studies of Afshani et al (14), Shakiba et al (17), and Fereydoni et al (22), as in the present study, the mean score of the attitude of men and women regarding assisted reproductive techniques was not significantly different. Being a mother has always been emphasized as the most important role of women in different societies, so women react more strongly to their infertility. In a study by Wright et al (23), no evidence was found for unusually high levels of marital or sexual distress at intake of ART between couples.

Men react to infertility differently than women and have a desire to learn more about assisted reproductive technol-

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[DOI: 10.47176/mjiri.36.54]

ogies, such as cultural thinking, inability to reproduce, and portraying infertility as a lack of masculinity in society. As a result, infertile people's acceptance of assisted reproductive techniques, as well as their desire to learn about them, could be one of the reasons why there is no difference in knowledge and views between men and women (24). The mean score of participants' knowledge was associated with age (P = 0.041) and location in the present study (P < 0.001).

Our results showed that in rural families, infertility is an important issue due to the extent of kinship ties and prejudices between ethnicities and cultural differences. However, the mean knowledge score of people living in rural areas (7.07 ± 2.36) compared with those living in cities (9.65 ± 2.81) was less. The results of a previous study (18) were consistent with those of the present study, and a significant relationship was reported between age and attitudes toward assisted reproductive techniques. In the study of Eladle et al (18), there was a statistically significant relationship between age and knowledge of assisted reproductive methods, while no statistically significant relationship was observed between knowledge and residence. In the study of Mohammad et al (19), there was no significant relationship between the mean score of knowledge of individuals in terms of age, place of residence, and employment status. Also, in the study of Dreamly and Jini (25), no significant relationship was observed between knowledge score and gender and age.

Limitation

There were several limitations in this study. First, in this study, we did not have access to the infertile population in Hamadan, that is, we did not have a list of infertile people. Therefore, it was very difficult to select infertile people at random. Thus, we inevitably recruited infertile volunteers to visit Fatemieh hospital, although the external validity of the study was slightly reduced. Second, because we didn't have access to the infertile population, the average attitude we found might be more positive than the attitude of the general population.

Conclusion

The validity and reliability of the 2 questionnaires produced in this study are adequate. Therefore, other researchers can use them to assess the knowledge and attitudes of infertile people who intend to receive one of the methods of assisted reproduction. In addition, the study showed that the knowledge and attitude of the people are influenced by age and socioeconomic factors, such as residence and employment status. As a result, there is a greater need for counseling in conjunction with infertility treatment to raise understanding and erase negative attitudes. It is also recommended that more attention be paid to the rural population and unemployed people.

Acknowledgment

The present study was approved by the Deputy of Research and Technology of Hamadan University of Medical Sciences, Hamadan, Iran (No. 140004083099).

Conflict of Interests

The authors declare that they have no competing interests.

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[DOI: 10.47176/mjiri.36.54]

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[DOI: 10.47176/mjiri.36.54]