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Research Article

Knowledge of Infertile Couples about Assisted Reproductive Technology in Iran

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Abstract

Background: Infertility is a problem that has affected many people in different communities. Awareness of this problem and relevant issues and the treatment protocols may influence the effectiveness of these methods.

Objective: Due to the importance of the awareness of patients referring to infertility centers about different reproductive methods, this descriptive cross-sectional study was designed in the Yazd Infertility Center about Assisted Reproductive Technology (ART).

Materials and Methods: Among the patients who referred to Yazd Infertility Research Center from March to September 2012, 463 persons filled the questionnaire. The questionnaire included two parts: 1) demographic information such as age, gender, education, occupation, duration of infertility, and 2) 21 questions about the awareness of ART, which consisted of three parts of general knowledge, understanding related to men and women. Awareness of patients was analyzed based on their educational level, gender, duration of infertility and occupation.

Results: About 60% of patients knew approximately half of the information about reproductive methods. There was a significant correlation between educational levels and the average knowledge about reproductive methods ($P<0.05$). Also, a significant difference between the average knowledge score of reproductive methods was observed with men-related knowledge, age and gender ($P<0.05$). There was no significant relation between duration of infertility and the knowledge of reproductive methods.

Conclusion: More than half of the patients were aware of 50% of the information about reproductive methods. More educated people had more knowledge. It is proposed that in addition to the booklets/ brochures, other methods should be performed to increase patients' knowledge about ART.

Keywords: Assisted reproductive techniques, Knowledge

Introduction

The clinical definition of infertility, according to the World Health Organization (WHO), is the inability to conceive after one year of natural, unprotected sexual intercourses [1-3]. Although, the birth of the first child could be an accident that poses crisis [3], but infertility is considered one of the critical issues in infertile couples live [4]. About 60 to 168 million people in the world will experience some forms of infertility during their reproductive period [5]. Infertility is a medical problem that affected nearly one out of every six couples [6]. Although, many people are faced with this dilemma of cultural, social and health, but in many cases, the public awareness is limited even in developed countries. For instance, investigations in the United States revealed that 15% of infertilities resulted from sexually transmitted infections, but only 50% of the affected women were aware of this problem [7].

The available data shows that 10 to 15 percent of couples have infertility problems and more than 90% of infertility cases could be treated [8]. Knowledge about reproductive health could decrease infertility diseases. Concerning infertility, awareness about sexual problems may decrease diseases and reduce infertility, especially in developing countries where infections are the main cause of infertility. Reproductive problems may affect the reproductive process [9]. Unfortunately, people do not know about infertility. In an international study among 17,500 individuals from ten countries in Europe, Middle-East, and South Africa, it was found that most of the people had little knowledge about fertility and reproductive process [5].

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Infertility treatment has psychological, social, and emotional issues which influence attitudes. Therefore, it may limit the success of assisted reproductive methods [10,11]. Infertility risk factors are such as: smoking, alcohol abuse, mother's age, and infections which awareness about them may help to decrease infertility by avoiding these risk factors [5]. Different techniques of Assisted Reproductive Technology (ARTs) play important roles in infertility treatment [12]. One of the most common ARTs is In Vitro Fertilization (IVF) [1,9,13]. Besides, there are other methods such as Intra Cytoplasmic Sperm Injection (ICSI), Gamete Intra fallopian Transfer (GIFT), Zygote Intra Fallopian Transfer (ZIFT), and Tubal Embryo Transfer (TET). Providing information about treatments and related tests clarifies the chance of failure or success, so patients accept treatments realistically with better readiness and without improper expectations. The more they know about treatments and their process, the self-consciousness and mental relaxation of patients will be better. By the way, a few studies were done to show the effect of general training on knowledge and attitude change of individuals [13]. The present study concerning the importance of people's awareness on the effectiveness of ARTs attempted to clarify the level of awareness and knowledge of infertile couples about ARTs.

Methodology

This study was a descriptive cross-sectional research. The sample population included all the patients referred to the Yazd Infertility Research Center within six months from March to September 2012. Among them, 463 patients agreed to complete the questionnaires. This study was conducted after obtaining ethical clearance from The Ethics Committee of Research and Clinical Center for Infertility, Shahid Sadoughi University of Medical Sciences, Yazd, Iran. Data was collected using a two-part questionnaire. The first part dealt with demographic characteristics such as age, gender, education, occupation, residency, duration of infertility and how they know about the Center. The next part consisted of 26 questions; the first 9 about general information of assisted reproductive treatments, and the next 6 items dealt with knowledge of ARTs on women. The last 6 items dealt with the knowledge of ARTs on men. Questions were scored by a 2-level classification (know or do not know).

Participants were assured about the privacy of research and their right of remaining anonymous. The items were designed by the experts and scholars of the Yazd Infertility Research Center, and its validity was confirmed by 3 members of the experts and research council of the center. The reliability of the questionnaire was estimated using a test-retest method on 30 patients and was confirmed with the alpha of 0.81. The patients' knowledge consisted of their background knowledge and the given booklets on infertility, its causes, and ART, such as ICSI, GIFT, ZIFT, and TET.

Statistical analysis

The collected data was analyzed by SPSS Software for Windows, performing Chi-Square, T-test, ANOVA, and Pearson Correlation.

Results

Data revealed that among 463 cases, 228 (49.24%) were women, and 288 (82%) cases were not native. Also, 212 (46%) had attended the Center previously and 217 (47%) got familiar with the Center via advertisements and mass media, while 140 (30%) knew about it differently. Concerning the reasons of infertility, 128 (28%) participants said that women are the cause of infertility, and 60 (13%) said both of them were responsible. Also, 147 (31%) of the cases believed that the reason was unknown and 359 (83%) participants were satisfied about the information the booklets gave them (Table 1). The average age of women and men were 23.84 ± 12.32 and 27.46 ± 25.08, respectively.

The participants knew more general information, compared to men-related and women-related knowledge. The respondents knew more about testicular sperm extraction and epididymal sperm extraction methods. They had less knowledge about the reason of hepatitis and AIDS tests and general information about assisted reproductive training and the best way of collecting and keeping drugs (Table 2). The results showed that 62% of the participants knew about 50% of the items. The item of "Do you know IVF method?" received more positive answers; while, the item of "Do you know the reason of hepatitis and AIDS Tests?" received less positive answers, compare to other items (Tables 3-5).

Discussion

The study showed that more than half of the participants answered half of the items correctly. This level of knowledge was not proper, compare to other studies. The low level of general knowledge has been shown in other researches [1,9,11]. But, in some other studies the general knowledge of infertility was higher. However, people under investigation had less knowledge of preventing infertility [13]. In this study, the differences between mean scores of men-related knowledge of different genders were significant, in accordance with another research. The data revealed that everyone knows more about one's gender. However, concerning general knowledge of ART, there was no difference between two genders and both males and females had general knowledge of it. But, this result was not seen in another similar knowledge [11]. Awareness about infertility causes, participants,

Demographic Characteristics	Number	Percentage
Gender		
Female	228	**49.24**
Male	219	**47.31**
Not identified	16	**3.45**
Education		
Illiterate	73	**16.4**
Middle school	69	**15.5**
Diploma	172	**38.6**
Academic degrees	130	**29.1**
Residency		
Native	62	**17.6**
Nonnative	288	**81.8**
Occupation		
Staff	80	**22.7**
Worker	15	**4.2**
Self-employed	258	**73.1**
duration of infertility		
Less than 5 years	239	**54.7**
Between 5 to 10 years	130	**29.7**
Between 10 to 15 years	47	**10.8**
Between 15 to 20 years	21	**4.8**

Table 1: Descriptive statistics based on demographic characteristics.

	Items	Yes	No
		N %	N %
1	Do you know anything about reproductive methods?	255(55.2)	**207(44.8)**
2	Do you know IVF method?	295(63.9)	**167(36.1)**
3	Do You know ICSI method?	432(93.5)	**30(6.5)**
4	Do you know ZIFT method?	441(95.2)	**21(4.5)**
5	Do you know about before pregnancy tests?	293(63.3)	**169(36.5)**
6	Do you study the booklets of ART?	344(74.3)	**106(23.5)**
7	Were the booklets useful?	359(82.7)	**74(17.1)**
8	Do you know the reason of phlebotomy?	268(59.2)	**185(40.8)**
9	Do you know the reason of Hepatitis and Aids tests?	184(40.4)	**269(59.0)**
10	Do you know about Hormones mechanism?	391(85.4)	**67(14.6)**
11	Do you know the reason of hormonal tests?	366(80.3)	**90(19.7)**
12	Do you know why hormonal tests are necessary?	347(75.4)	**113(24.4)**
13	Do you know about Ovarian stimulation to collect eggs?	353(76.2)	**106(23.1)**
14	Do you know how to keep the given drugs?	282(61.8)	**174(38.2)**
15	Do you know how to inject your drugs correctly?	281(62.3)	**170(37.7)**
16	Do you know how to collect sperms correctly?	281(61.4)	**177(38.2)**
17	Do you know the appropriate time period you should give sperms to the laboratory?	221(48.3)	**237(51.7)**
18	Do you know the appropriate temperature to keep sperms?	353(77.6)	**101(22.2)**
19	Do you know how many days after the last sexual intercourse you should collect sperms?	232(50.7)	**225(49.1)**
20	Do you know about testicular sperm extraction?	417(91.0)	**41(9.0)**
21	Do you know anything about reproductive methods?	417(90.1)	**22(4.8)**

Table 2: The frequency and percentage of answers to questions based on the knowledge of the items.

gender Knowledge	Male			Female			T	P
	M	SD	N	M	SD	N		
General knowledge	13.77	4.40	204	14.41	3.50	212	1.632	**.10**
Women-related knowledge	12.67	5.22	213	13.50	4.53	208	1.770	**.07**
Men-related knowledge	8.70	2.91	215	9.66	2.43	224	3.761	**.000**

Table 3: Mean and standard deviation of participants' knowledge based on gender

knowledge Occupation	general		Women-related		Men-related		F	P
	M	SD	M	SD	M	SD		
Official	12.17	4.53	11.28	5.49	12.17	4.53	17.458	**.000**
Worker	16.6	3.71	15.13	2.69	16.6	3.71	11.050	**.000**
Self-employed	14.85	3.43	14.00	4.56	14.85	3.43	13.380	**.000**

There were significant differences between participants' knowledge of different categories_ general, men-related, and women-related and their occupations (p<.001).

Table 4: The mean and standard deviation of participants' knowledge based on their occupations

	Variables	1	2	3	4	5	6
1	**Duration of infertility**	1					
2	**Educational level**	r =-.205**	1				
3	**Gender**	r= .142*	r = -.133*	1			
4	**Men-related knowledge**	r=.090*	r=-.386**	r=.035	1		
5	**women-related knowledge**	r=-.640*	r=-.403*	r=-.083	r=.695	1	
6	**General knowledge**	r=-.035*	r=-.452	R=.061	r=.767	r=680	**1**

There were significant correlations between general knowledge and education, age, women-related knowledge, and men-related knowledge (P<.000). The Linear Regression test revealed that educational level is the main predictor of knowledge level.

Table 5: Correlation matrix between knowledge level and demographic characteristics of respondents

believed in approximately equal roles of males and females, however most of them said the reason was unknown. It seems that people's knowledge is increased since, typically infertility was related to women and it led to negative social and personal consequences for them [10,14-16].

Similar to other studies, the importance of educational background in identifying the knowledge level was clear in a way that the more the educational level, the more the knowledge [15,13,11]. About 70% of participants had high school diploma or academic degrees. The direct correlation of education and knowledge is a point which can be used for training people and increasing knowledge differently. The data similar to another study, showed a significant difference between mean score of knowledge and the occupations of participants [11]. It is noticeable that staffs had less knowledge compare to workers and self-employees. Probably, since staffs were sure about their knowledge, spent less time to study the booklet therefore they

had less knowledge of the items. The individual's occupation is one of the items of identifying social status whose relationship with knowledge level was confirmed by Quanch [13].

There was a direct significant relationship between the general knowledge and age. Probably, as another study showed, the older the people are, the more is their general knowledge [9]. Although, 80% of participants said that information in the booklets were enough, only 63% of them answered the items correctly. Maybe the lack of attention in filling the questionnaire or the positive attitude about their knowledge made such a difference. Most of the participants knew about the center via mass media and advertisements. Accordingly, it can be proposed that media and advertisements should be used to increase people's awareness of infertility issues [1]. To increase the participants' knowledge of infertility issues and Assisted Reproductive Technology, different training methods, workshops, and training videos can be used besides the booklets and brochures. Considering the fact that most of the patients were non-native, being in the city is an opportunity for training and increasing awareness. Since the infertility period of most of the participants was 10 years, increasing their awareness leads to use treatments at early years and lessen the chance of failure due to delaying treatments [17].

Giving birth to a baby is very important for people, since comparing the options of divorce, remarriage, and child adoption they preferred ART [5,18]. Concerning the fact that more than half of the patients had used Assisted Reproductive Technology previously and the positive attitudes of infertile couples and doctors towards these methods [14], probably increasing awareness leads to more successes of these methods. Regarding the fact that increasing knowledge, not only among infertile couple, but also in the whole society is necessary, some studies particularly in the middle east introduced it and proposed that we can use religion, culture and even officials in these areas to improve awareness about infertility and its treatments [5,1,19].

Conclusion

The level of awareness about ART among infertile couples, in spite of the history of ART, is not sufficient. It seems that concerning the characteristics of patients including their education and residency, different training methods and mass media could be used to improve their knowledge.

Conflict of interest

There is no conflict of interest in this article.

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