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## Evaluation of Essential Care Skills for Nurses Working at the Selected Infertility Clinics in Tehran, Iran, within 2016-2017: Nurses' Perspectives

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### Abstract

Advancements in assisted reproductive technology (ART) has increased the nurses' contribution to the provision of ART services. The present descriptive cross-sectional study aimed to determine essential care skills for nurses working at the selected infertility clinics in Tehran, Iran, based on their perspectives within 2016-2017. A total of 59 nurses were selected via a convenience sampling method and the data were collected using a researcher-made questionnaire. Data analysis was performed using SPSS software (version 21). Furthermore, the results of the Spearman's rank correlation coefficient highlighted items associated with three domains of knowledge, attitudes, and practices required for nurses from their perspectives (94.9%). Given that nurses have constant contact with clients in infertility clinics and considering the lack of studies on essential care skills for nurses working at such centers, the results of this study would help to define job descriptions and determine the necessary care skills for the nurses.

**Keywords:** Nurse, Assisted Reproductive Technology, Skill, Care

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## Introduction

The prevalence rate of primary infertility has been reported as 20.2% in Iran, which is higher than the global average (1). As with breakthroughs in new medical technologies, humans have been endowed with better services, such as assisted reproductive technology (ART) which provides the likelihood of conception in infertile couples. The utilization of these procedures is similarly increasing worldwide (2) and nurses at the beginning of the 1970s, especially with the establishment of the first infertility clinics, have been involved in ART and have acquired further new clinical specialties (3, 4). Since the introduction of ART, nurses played an important role in interventions for infertility, as well as care for patients and women undergoing treatments for this condition (5, 6). Following rapid advances in such technologies, it is noteworthy that nurses need to become acquainted with the latest technologies to provide patient education (5).

These nurses are directly and indirectly engaged in providing infertile couples with ART service, care, support, companionship, and awareness to prepare clients and clinical settings for diagnosis and treatment at all stages. Therefore, they should understand the difficulties that clients undergoing treatments for infertility are confronting, provide high-quality care, and update their information about the nursing profession (4, 5, 7). In addition, positive outcomes of ART demand the development of care skills and the expansion of responsibilities assumed by nurses (1). Infertility nurses are in contact with patients and clients in the course of therapy from primary care services to advanced invasive techniques, including in vitro fertilization and physical and mental health supports (8). Moreover, female clients feel more comfortable with such nurses than other members of the treatment teams, which can be to some extent related to their gender (9).

It should be noted that infertility nursing is different from the conventional type. Reviews of experiences by infertility nurses had shed light on four roles of support, information delivery, interpretation, and defensive performance (5). In studies conducted internationally, various aspects of responsibilities assumed by nurses working in infertility clinics, such as patient attendance, provision of medical assistance to physicians, as well as independent roles (e.g., planning, evaluation, nursing audit, embryo transfer, and nursing care) have been pointed out (10). The foundation of nursing care behaviors is knowledge, attitudes, and practices, as well as an assessment of their quality that can be fulfilled through measuring such behaviors (11).

With the progressive use of ART, preparation, planning, and setting a future vision for nurses can be regarded as a big step towards improving the health status of families as the basic social institutions in society (12). Given the importance of the infertility nurses' roles, numerous studies have been carried out on job descriptions, patient support, collaboration with physicians (5, 10), and nursing care behaviors (11). Based on the results of the review of the related literature, no study has been conducted on care skills essential for nurses working in infertility clinics at national or international levels. With respect to the position of nurses in these centers, as an opportunity to promote roles, profession, and more importantly family health status, the present study was conducted to evaluate essential care skills for nurses working at infertility clinics based on their perspectives.

## Methods

The present descriptive cross-sectional study aimed to determine essential care skills for nurses working at infertility clinics based on their perspectives within 5 months from January to May 2017. The statistical population consisted of all nurses working at the selected infertility clinics in Tehran, Iran. Accordingly, the participants were 59 nurses who were selected through the convenience sampling method. They worked at the fields of infertility and ART in infertility centers affiliated to Mirza Kuchak Khan (Yas Infertility Clinic), Arash, Mahdieh, Taleghani, Laleh, Aban, Dey, Bahman hospitals, as well as Sara, Dabir Ashrafi, and Omid infertility clinics, as private centers in Tehran, Iran. The inclusion criteria entailed: 1) at least six months of work experience in infertility clinics, 2) at least a Bachelor's degree. The exclusion criteria included nurses who refused to complete the questionnaires.

To calculate the number of the participants, the sample size was determined at 51.6 (52) individuals obtained based on the results of the pilot study on 30 nurses with the 95% confidence interval and the accuracy of 1.5, as well as the students mean scores in the domain of knowledge via the following formula:

Thereafter, 60 participants were selected based on a 15% sample loss. Finally, 59 questionnaires were

filled out and returned.

To collect data, two questionnaires were used, namely the demographic data sheet and researcher-made questionnaire. The demographic data sheet for nurses contained items on age, gender, work experience at healthcare centers and infertility clinics, level of education, workplace, and clinic ward. Moreover, a 37-item researcher-made questionnaire on infertility nurses' perspectives regarding essential care skills for nurses was used. It consisted of three domains of knowledge and information delivery (15 items), practices (physical and supportive performances: 8 and 6 items, respectively), and attitudes (8 items). A five-point Likert scale (absolutely essential=5 to absolutely non-essential=1) was also utilized for item responses. The min and max scores of the questionnaires were 37 and 185, respectively. To decide on the essential care skills for nurses based on their perspectives, the mean score of each item was calculated and then the items were rated (scores 4.4-5=1, scores 3.7-4.3=2, and scores 3-3.6=3).

Furthermore, to determine the validity of the questionnaire, the content validity method was employed and the research instrument was submitted to ten professors. Content validity ratio and index were used for validation purposes which were equal to 0.79 and 0.95, respectively. In addition, the reliability of the questionnaire on 30 nurses was measured at 0.85 using internal consistency and Cronbach's alpha coefficient.

Upon approving the current research proposal at the School of Nursing and Midwifery affiliated to Shahid Beheshti University of Medical Sciences, Tehran, Iran, the researcher entered into the study setting to introduce oneself, to explain research objectives, and make necessary arrangements with authorities in infertility clinics. To collect the data, the researcher also attended all clinic wards, explained research objectives to all nurses, and then distributed the questionnaires among nurses working at the selected centers. Moreover, the researcher was available while the nurses were completing the questionnaires.

The code of ethics (IR.SBMU.PHNM.1395.390) was obtained from the Biomedical Research Ethics Committee at the School of Nursing and Midwifery affiliated to Shahid Beheshti University of Medical Sciences.

Acquiring informed consent from the participants, explaining research objectives, ensuring the confidentiality of the data, and giving rights to the nurses to take part in the study or to withdraw at any stage were among considerations that were met.

To analyze the data, they were imported into the SPSS software (version 21) using Spearman's rank correlation coefficient to evaluate correlations in line with research objectives. A p-value of less than 0.05 was considered to be statistically significant.

Limitations of the current study were, including participants' mental state while completion of the questionnaires which was likely to affect their responses and non-cooperation of some infertility clinics due to their specific policies resulting in failure to conduct sampling by complete enumeration.

## Results

According to the results of the present study, all the participants were female with a mean age of  $35.8 \pm 7.4$  years. In terms of education, most of the nurses ( $n=54$ , 91.5%) had a Bachelor's degree and the mean duration of work experience in the infertility clinics was  $5.0 \pm 3.0$  years. Moreover, 44 (74.6%) nurses were working at private infertility clinics and 36 (61%) individuals were engaged in operating rooms.

The mean score of knowledge required for nurses working at the infertility clinics was obtained at  $65.4 \pm 5.5$ . According to the nurses' perspectives, the most important items that were ranked the first in the domain of knowledge and information delivery were "Training on preparations and self-care before and after diagnostic-therapeutic procedures", "Training on how to take and keep prescribed oral and injectable medicines and their possible side effects", "Description of diagnostic-therapeutic procedures, care services, and complications in a simple and comprehensive language", "Knowledge of anatomy and physiology of the reproductive system, infertility causes, diagnostic-therapeutic procedures, care services, complications arising from treatments, and patient education needs", "Training about adjustable risk factors affecting outcomes of ART", and "Knowledge of sexual health, sexual health promotion strategies, and nurses role in sexual health promotion". Other items in the domain of knowledge and information delivery based on their ratings are presented in Table 1.

**Table 1. Mean scores of items associated with knowledge for nurses working at the selected infertility clinics in Tehran based on their perspectives within 2016-2017 in terms of priority**

Item no.	Knowledge and information delivery	Mean±standard deviation	*Rating
15	I need to train clients about the required preparations before performing diagnostic-therapeutic procedures (e.g., fasting, sexual activities) and how to take care of themselves after such procedures (e.g., physical activity, diet, and sexual activity).	4.9±0.2	
13	I need to train clients on how to take and keep prescribed oral and injectable medicines and their possible side effects.	4.9±0.2	
9	I need to describe diagnostic-therapeutic procedures, care services, and complications using a simple and comprehensive language.	4.8±0.3	
1	I need to know about anatomy and physiology of the reproductive systems, infertility causes, diagnostic-therapeutic procedures, nursing care services, complications arising from treatments, and patient education needs.	4.7±0.6	1
5	I need to know about clients' education needs and effective strategies to address them.	4.5±0.5	
14	I need to train clients about adjustable risk factors affecting ART outcomes (e.g., smoking and overweight).	4.6±0.7	
2	I need to understand sexual health, sexual health promotion strategies, and nurses' role in sexual health promotion.	4.5±0.8	
6	I need to have sufficient knowledge about fertility and ART research.	4.3±0.7	
12	I need to provide correct information to couples on legal and religious issues of using third-party ART, including surrogacy, egg, embryo, and sperm donations.	4.2±1	
11	I need to inform clients about appropriate and available information resources on ART (e.g., books, pamphlets, and websites) along with available support services (groups).	4.1±0.9	2
7	I need to know about the legal status of my country and the legal issues of ART.	4.1±0.8	
10	I need to inform clients of diagnostic, medical, and insurance costs.	4.1±1.1	
4	I need to learn about new technologies for storing oocytes, embryos, sperms, and how their information is recorded.	4.0±0.8	
8	I need to know about religious authorities' opinions on ART utilization.	3.6±1.1	3
3	I need to know about techniques available for genetic screening and the use of genetic tests.	3.1±1.0	

Using Spearman's rank correlation coefficient, a significantly moderate correlation was observed between knowledge essential for nurses and age ( $P=0.05$ ), work experience in healthcare centers ( $P=0.02$ ), work experience in infertility clinics ( $P=0.03$ ), and level of education ( $P=0.03$ ). In addition, there was a significant and moderate correlation between knowledge required for nurses working at infertility clinics based on their perspectives and physical and supportive performances, and attitudes ( $P<0.001$ ,  $P=0.001$ , and  $P=0.001$ , respectively).

The mean score of infertility nurses' practices was measured at  $59.5\pm 5.8$ . Such practices consisted of physical and supportive performances whose mean scores were calculated at  $33.4\pm 3.9$  and  $26.1\pm 3.1$ ; respectively. The most important items related to physical performance were "Preparing clients and clinical settings for diagnostic-therapeutic procedures", "Accompanying and providing care for clients at diagnosis, treatment, and emergency situations", "Registering documents before and after diagnostic-therapeutic procedures", and "Making arrangements and fulfilling follow-up evaluations required after the diagnostic-therapeutic procedures". Other items associated with physical and

**Table 2. Mean scores of items associated with practices (physical and supportive performance) for nurses working at the selected fertility clinics in Tehran based on nurses' perspectives within 2016-2017 in terms of priority**

Practices			
Item no.	Physical performance	Mean±standard deviation	*Rating
17	I need to prepare clients and clinical settings appropriately for diagnostic-therapeutic procedures.	4.7±0.5	1
16	I need to accompany and provide care for clients at diagnosis, treatment, and emergency situations.	4.7±0.5	
20	I need to register documents appropriately before and after diagnostic-therapeutic procedures.	4.6±0.5	
21	I need to make arrangements and fulfill follow-up evaluations required after diagnostic-therapeutic procedures.	4.5±0.7	2
18	I need to work with medical ultrasound devices and their equipment.	3.9±1.2	
19	I need to help physicians to transfer the embryo to the uterus.	3.7±1.4	3
22	I need to review the long-term effects of infertility on clients and refer them to mental health counselors if needed.	3.6±1.0	
23	I need to refer clients to appropriate legal and religious counselors if needed.	3.5±1.1	
	Supportive performance	Mean±standard deviation	*Rating
27	I need to protect clients' privacy, especially during sensitive moments (e.g., sperm sampling) and diagnostic-clinical examinations.	4.7±0.5	1
24	I need to mitigate anxiety in clients regarding diagnostic-therapeutic procedures with proper education and counseling.	4.4±0.7	
25	I need to support clients emotionally throughout diagnostic-therapeutic stages, especially during the waiting period for the treatment outcomes.	4.4±0.6	
26	I need to support clients emotionally throughout diagnostic-therapeutic stages, especially during the failure phase of the treatments.	4.4±0.6	2
28	I need to ensure that client rights and needs are met by the treatment team.	4.1±0.8	
29	I need to remind client rights to the treatment team members.	3.9±0.8	

supportive performances according to their ratings are depicted in Table 2.

Based on the Spearman's rank correlation coefficient, there was a significant moderate correlation between practices of nurses working at infertility clinics from their perspectives and attitudes ( $r=0.46$ ,  $P<0.001$ ). The correlation between physical performance and nurses' attitudes ( $P=0.001$ ) and that between supportive performance and nurses' attitudes in such centers ( $P<0.001$ ) from their perspectives were moderate and significant.

The mean score of attitudes among infertility nurses was estimated at  $36.3\pm 3.4$ . According to the results and based on the nurses' perspectives, the most important items included "Managing client data confidentiality", "Understanding emotional reactions and non-verbal responses by clients", "Having a sense of responsibility towards clients", "Dealing with all questions raised by clients open-heartedly", "Showing kindness and empathy to clients", and "Giving clients a chance to speak and listen to their talks" as shown in Table 3.

### Implications for Practice

In the present study, essential care skills for nurses working at the infertility clinics were evaluated in three domains of knowledge and information delivery, attitudes, and practices based on the nurses' perspectives.

Skills needed for nurses based on their perspectives in the domain of knowledge and information delivery included the following factors: knowledge of anatomy and physiology of the reproductive system, infertility causes, diagnostic-therapeutic procedures, training on preparations and self-care before and after the diagnostic-therapeutic procedures, and training on how to take and keep medicine.

Furthermore, preparing clients and clinical settings for diagnostic-therapeutic procedures, accompanying and caring for clients, and providing emotional support for clients at all stages were present in the domain of practices. In the end, the confidentiality of data, understanding clients' emotional reactions, and having a sense of responsibility towards clients constituted the domain of attitudes.

From the nurses' perspectives, consideration of all these domains was of utmost importance. In view of the position of nurses in infertility clinics and their constant contact with clients from the early stages of infertility interventions and given the lack of studies on essential care skills for infertility nurses based on their perspectives, the results of the present study could help to define and determine the infertility nursing skills. The findings of the current study could be a prerequisite for defining nurses' job descriptions in infertility clinics. In addition, the findings could have implications for education, nursing management, clinical practices, and research. Since nurses in Iran received no specialized training in ART and there are no regular training programs in this field, it is obvious that taking specialized measures will ensure the reception of basic training and achievement of higher-level skills that are not available at the moment in the clinical settings. Consequently, authorities should plan to enhance nurses' skills. In addition, it is recommended to conduct further studies on the provision of periodic training for nurses working at infertility clinics, to evaluate care quality before and after education, to reflect on patients' satisfaction with the provided services, and to design standard tools to evaluate infertility nurses' performance.

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### Conflicts of Interest

The authors declare that there are no conflicts of interest regarding the publication of the present research.

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