International challenges in patient-centred care in fertility clinics offering assisted reproductive technology: providers' gaps and attitudes towards addressing the patients' psychological needs

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Abstract

Introduction. Psychosocial care provided to patients undergoing fertility treatment has focused on a small proportion of patients with major psychosocial problems, leaving the remaining patients impacted by psychosocial stressors without follow-up. Factors that could influence the ability or willingness of physicians treating infertility to assess and address patients’ psychosocial needs have not been investigated. This study aimed to identify the practice gaps and educational needs of physicians treating and managing patients with infertility, with the aim of informing future educational interventions. Methods. A cross-sectional, exploratory, mixed-methods study incorporating semi-structured qualitative telephone interviews and a quantitative online survey was designed and deployed to actively practising physicians treating infertile couples from 15 countries across the Americas, Europe, Asia, and the Middle East Region. Triangulation of qualitative and quantitative data was used to increase trustworthiness of findings. Results. Forty-five participants completed a qualitative interview and 271 participants completed the quantitative online survey (response rates were 4 and 9%, respectively). A majority (74%) of respondents reported needing improvement in their psychological assessment skill, which was considered essential to the provision of optimal care by less than half (41%) of respondents. A need for improvement in their skill to assess patients’ parenting skills was reported in 72% of respondents, and this skill was considered as essential by 32% of participants. Similarly, 72% reported needing improvement in their ability to identify the needs of patients for psychological and emotional support, and this ability was considered essential by 45%. Statistical differences were observed between countries (p<0.05). Conclusion. Addressing the gaps highlighted in this study, through educational or performance improvement activities, could optimise the clinical performance of physicians treating infertility and, thus, increase patient satisfaction and outcomes.

Keywords: assisted reproductive technology, psychosocial care, infertility, patient-centricity, needs assessment, continuing medical education, mixed-methods

Introduction

Patient-centred care is defined as care that is respectful of and responsive to individual patient preferences, needs, and values.¹ In reproductive medicine, positive experience of patient-centric care has been associated with greater patient...
well-being and overall satisfaction with treatment, as well as greater compliance to treatment. Conversely, lack of patient-centric care, including lack of empathy of the healthcare staff, poor listening skills, insufficient time for patient questions, and poor management of patients’ psychological needs have been reported as reasons for discontinuing assisted reproductive technology (ART) treatments. Treatment discontinuation by patients has a direct impact on a clinic’s pregnancy success rate. Indeed, patients consciously select clinics based on factors such as the clinic’s pregnancy success rates and the healthcare providers’ attitudes towards patients.

Despite this evidence, health care providers tend to underestimate the importance of patient-centredness in fertility care, and psychosocial care has not been part of the regular care provided by most fertility clinics. Psychosocial care is offered to patients with major psychosocial problems, representing approximately 20% of all patients. The remaining patients nevertheless experience psychosocial stressors across the continuum of care, and there is a need for ongoing psychosocial care with all patients at diagnosis, during, and after treatment.

Few studies have looked specifically at the factors that could influence the ability or willingness of physicians treating infertility to ensure an adequate assessment of their patients’ psychosocial needs and to address those needs. To obtain an international perspective in this rapidly evolving field, this exploratory study included countries from North America (Canada, United States, Mexico), South America (Brazil), Eastern Europe (Russia, Turkey), Southern Europe (France, Italy), South East Asia (India, South Korea, Japan, China), and the Middle East Region (Saudi Arabia, Iran, United Arab Emirates). It aims to identify the self-reported practice gaps and educational needs of physicians treating and managing patients with infertility with the use of ART. Its purpose is to inform clinical and educational stakeholders who develop continuing education curricula and deploy educational initiatives for actively practising reproductive physicians.

Methods

An exploratory, mixed-methods study design combining semi-structured qualitative interviews and a quantitative online survey was used.

Recruitment and inclusion criteria

For logistical reasons, the study was deployed in two phases. The first phase was conducted between March 2013 and May 2013 in seven countries/regions: China, India, Japan, Russia, Turkey, the United States, and the Middle East Region (which included the United Arab Emirates, Saudi Arabia, and Iran). The second phase conducted between January 2014 and April 2014 included six additional countries (Brazil, Canada, France, Italy, Mexico, and South Korea). Targeted countries were selected to include a mix of higher and lower income countries, with publicly funded health systems, and systems where fertility treatment costs are paid by the patient or his/her private insurance plan.

Participants were recruited using international online panels complying with the International Chamber of Commerce/European Society for Opinion and Marketing Research (ICC/ESOMAR) code of conduct and ethical standards for market and social research. Each potential participant was sent an invitation e-mail containing a link to a secure website, where they were provided with additional information about the study. Interested participants were then asked to complete an online consent form and respond to screening questions to determine their eligibility. For the qualitative phase, eligible and consenting participants were then asked to provide availabilities for a telephone interview, while in the quantitative phase, participants were immediately directed to the survey. To be included in the study, participants had to be practising actively in human reproduction and treating infertility using ART, have a practice located in one of the targeted countries, have more than 5 years of clinical practice experience, and treat more than five patients with ART per month.

Data collection

A review of the literature was conducted to identify practice gaps and clinical challenges reported across the continuum of fertility care to develop a list of areas of investigation. This list was validated by a clinical expert (co-author KAA) and informed the development of the qualitative and quantitative research tools by educational experts (including co-authors SP and SM).

A semi-structured interview guide was designed to collect qualitative data on issues faced by practising reproductive physicians, from differential diagnosis to treatment selection and initiation, and management of patients, including communication of risks, different pregnancy outcomes, and management of expectations (Table 1). It was developed in English, tested with a few participants, and further refined to ensure all topics were adequately covered and understood by respondents. It was then translated into Italian, Japanese, Korean, Mandarin, Portuguese, Russian, Spanish, and Turkish. The 45-minute interviews were conducted via telephone by trained qualitative research interviewers (in English in the Middle East Region, the United States, India, and Canada, and in the official language for the other countries). With the informed consent of participants, interviews were audio-recorded, transcribed, translated, and analysed.

The online survey consisted of a series of questions with multiple nominal choices and Likert-type response formats. Participants had to self-report: (1) their level of skill (needs significant improvement, needs minor improvement, optimal), (2) their confidence in applying skills (1 – low confidence, 5 – optimal confidence); and (3) the perceived relevance of these skills to provide optimal care (not relevant, somewhat relevant, essential). The questionnaire included a total of 108 different items with specific questions covering diagnosis, treatment, and management of patients with infertility issues and communication.
of sensitive topics, including 12 items specific to the provision of psychosocial care (Table 2).

The questionnaire was translated from English into the different languages using the method described above. Adaptation of questions was required as certain questions were not culturally or legally relevant (for example, questions on surrogacy or cryopreservation) in some countries. In the Middle East Region, the survey was conducted using a paper-based version for a sample of participants who did not have access to the online survey.

Ethical considerations
The study was ethically approved by an international independent review board (IRB Services, Boca Raton, FL) to ensure respect for each country’s national research guidelines and policies. All participants gave their informed consent. Research honoraria offered to participants were adjusted based on country/region of clinical practice, to be fair, non-coercive, or unduly incentive.

Analysis plan
N-Vivo 7.0 software (QSR International, Cambridge, MA) was used for the coding of interview transcripts, using an analysis approach derived from thematic analysis16 and directed content analysis.17 This approach involved the following steps: (1) identification of a coding logic with predetermined codes, based on the study’s areas of investigation; (2) coding of data using coding logic; (3) analysis of data that could not be coded using the coding tree and addition of new codes if needed; and (4) identification of emerging specific themes from the codes with substantial data.

From this analysis, clinical gaps, areas of improvement and potential causalities for the gaps were identified.

IBM SPSS 22.0 software (IBM Corporation, Armonk, NY) was used to analyse the quantitative data. Socio-demographic data were analysed using frequencies, cross-tabulations, and means. Dichotomous variables were derived from multiple choice answers: for knowledge and skills, “Needs improvement” or not; for confidence, “lower confidence” (3 or below) or “higher confidence” (4 and 5). Pearson Chi-square and Fisher Exact tests were used to determine the effect of socio-demographic variables on the sets of items investigated in relation to psychosocial care (tests for sub-group differences by participants’ gender, by years of practice, by practice setting, and by funding models (public or private coverage). To detect between country differences, analysis of variance (ANOVA) with Tahmane’s T2 post-hoc tests at a significance level of 0.05 was performed.

Triangulation of research methodologies and data was used to identify and analyse knowledge, skill, attitudinal, or contextual gaps that were reported in the qualitative and quantitative components of this study.16,19 Multi-disciplinary interpretation sessions among the co-authors allowed for categorisation of the reported gaps impacting optimal treatment and management of patients with fertility issues.

Results
Sample size and demographics
A total of 45 interviews and 271 online surveys were completed (Table 3). Participants were primarily reproductive

| Table 1. Examples of open-ended questions from the semi-structured qualitative interviews |
|-----------------|----------------------------------------------------------------------------------|
| Specific questions | Additional probing questions |
| Can you describe your experience in diagnosing patients with infertility? | What goes well? Why? |
| Can you describe your experience in the treatment of patients with infertility? | Do you experience any challenges? |
| Can you describe your experience in discussing treatment options with your patients with infertility? | Which ones? |
| Can you describe your experience in prescribing and monitoring medication for patients with infertility? | |

| Table 2. Examples of question items from the quantitative online survey |
|------------------------|------------------------------------------------------------------|
| Question and multiple choice answer formulation | |
| For each of the abilities/skills listed below, please select: | |
| 1. How relevant is this ability/skill for you in providing optimal care to patients with infertility | |
| (Not relevant/somewhat relevant/essential) | |
| 2. Your current level of ability/skill (Needs significant improvement/needs minor improvement/optimal) | |
| 3. Your current level of confidence in performing this ability/skill (1 = Low and 5 = optimal) | |
| List of abilities/skills | |
| Doing an assessment of the patient’s medical reproductive and familial history | |
| Doing an initial examination, including referrals for all proper diagnostic tests and evaluations | |
| Identifying patients with infertility who are the best candidates for a specific ART | |
| Doing a psychological assessment of the patient | |
| Applying testing procedures to detect genetic abnormalities | |
| Determining which fertility drugs to use with each patient | |
| Applying the methods for ovulation stimulation | |
| Applying the methods for egg retrieval | |
| Selecting the proper sperms and eggs to increase likelihood of fertilisation | |
| Selecting the proper embryos for transfer | |
| Managing patients medications side effects | |
| Assessing patient/couple parenting skills | |
| Identifying the needs of patients for psychological and emotional support | |

*Indicate items related to psychosocial care in italics.
endocrinologists (56%) and obstetricians/gynaecologists (31%). Response rates (% of physicians invited who followed the link to the screener) averaged 9% (4–26%) in the quantitative survey and 4% (overall response rate only) in the qualitative interviews. Among the participants who responded to the online survey, a total of 265 participants completed the questions on psychosocial care. Detailed socio-demographic data are shown in Table 4. The majority of participants were male (72%). Participants’ work settings were divided differently in the various countries or regions, with Mexico, Brazil, and India presenting the highest proportion of participants practising in private settings (71, 70 and 68%, respectively), compared to China, where most participants practised in academic settings (85%). Most participants (72%) reported practising in a system where fertility treatments and services are entirely covered or mostly covered by the patient or his/her insurance plan. However, important variations in funding of fertility services were reported by country. For example, a majority of participants from France (82%) reported the treatments and services they offered were mostly or fully covered by public funds, while 95% of Mexican and Brazilian participants reported their services being principally paid by the patient or his/her insurance plan.

**Conducting psychological assessment and providing psychosocial care before initiating treatment**

In the survey, skills related to psychosocial care aspects were among those reported with the highest need for improvement (on average 73%). In comparison with skills related to diagnosis and treatment, need for improvement was reported on average by 52 and 53%, respectively.

Conducting a psychological assessment of the patient was considered essential for the provision of optimal care by 41% of participants. The majority (74%) of participants reported needing either minor improvement (55%) or major improvement (19%) in their skill to perform a psychological assessment of their patients (Table 5).

Participants reported being knowledgeable of the large emotional and psychological components associated with infertility and undergoing ART treatment. Lack of skills and time were mentioned as reasons for providers’ low involvement in psychosocial care aspects. Nevertheless, some participants acknowledged that providing psychosocial care is a team effort and that they receive support from nurses and other staff to provide this type of care to patients (see Table 6 for quotes from qualitative interviews).

**Assessing readiness for parenthood or parenting skills**

Participants reported discomfort in the assessment of parenting abilities or readiness for parenthood (see Table 6 for quotes). Seventy-two per cent of participants reported a need for improvement in their skill to assess patients’ parenting skills (minor improvement: 42%; major improvement: 30%), and this skill was reported as essential to the provision of optimal care by 32% of participants (Table 5).

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**Table 3. Sample distribution per study component**

| Specialty (self-identified) | Qualitative interviews (n=45) | Quantitative surveys (n=271) | Total (n=316) |
|---------------------------|-----------------------------|-----------------------------|---------------|
| Reproductive endocrinologists | n                           | n                           | n             |
| Obstetricians/gynaecologists | 20                          | 158                         | 178 (56)      |
| IVF physicians/fertility specialists | 8                           | 12                          | 20 (6)        |
| Othersa                        | 9                           | 10                          | 19 (6)        |

| Country                      | Gender                      | Years of practice          | Practice setting     |
|-----------------------------|-----------------------------|----------------------------|----------------------|
| Brazil                      | Male                        | 5–10 years                 | Private              |
| Canada                      | Female                      | 11–20 years                | Community-based      |
| China                       | Male                        | More than 20 years         | Fertility centre     |
| China                       | Female                      |                              | Academic             |
| France                      | Male                        |                              | Othersa              |
| India                       | Female                      |                              |                      |
| Italy                       | Male                        |                              |                      |
| Japan                       | Female                      |                              |                      |
| Mexico                      | Male                        |                              |                      |
| Middle East Region          | Female                      |                              |                      |
| Russia                      | Male                        |                              |                      |
| South Korea                 | Female                      |                              |                      |
| United States               | Male                        |                              |                      |
| United States               | Female                      |                              |                      |
| Othersa                     |                             |                              |                      |

aOthers included mainly embryologists and biologists.

bParticipants were not obligated to answer all socio-demographic questions.

cIn the Middle East Region, question about years of practice were only compiled for participants who completed the online survey (n=9) due to a human error in entering data.
Identify need for (and provide patients with) resources for psychological and emotional support

Seventy-two per cent of participants reported needing minor (45%) or major improvement (27%) in their ability to identify the needs of patients for psychological and emotional support. Being able to identify the needs of patients for psychological and emotional support was considered an essential skill by 45% of participants (Table 5). Sixty-four per cent of participants reported lower confidence in their ability to refer to external resources that could offer support, although discussing other resources was considered important by 63% of survey participants (data not shown). Statistical differences were observed between countries for each of the items (Table 5). There

| Findings                                                                 | Illustrative quotes                                                                                                                                                                                                 |
|--------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Providing psychosocial care is a team effort supported by specialists,   | We don't provide the official counselling service in this clinic, but our nurses play a role of counsellors. Since I have no time to talk to patients about their readiness to be parents during the outpatient hours, the nurses try to communicate with patients and find out their readiness. |
| physicians, nurses, and other staff in the clinic                        | - Obstetrician/Gynaecologist, Japan                                                                                                                                                                                  |
| Clinicians may be unprepared or feel uncomfortable assessing readiness   | Well, I certainly cannot devote 100% of my time to the assessment. Well, when I see them I touch upon these issues. And I understand myself whether she is ready to become a mother or not. I carefully ask her and see what she says and how she behaves. But I don't want her to understand that I'm testing her because her attitude may change and our interaction will not go the way it should. There will be no trust between us. |
| for parenthood or parenting skills                                       | - Reproductive Endocrinologist, Russia                                                                                                                                                                               |
| Assessing patient expectations, psychosocial resources, and emotional   | Some patients think “it's none of the physician's business.” I can be supportive regarding psychological problems or anxiety to some degree, but I don't think I should get involved in parenting skills. My stance is to be objective and keep some distance from patients. |
| support is challenging                                                   | - Obstetrician/Gynaecologist, Japan                                                                                                                                                                                  |
|                                                                           | That is lacking (…) There is a psychologist that is available to receive couples, but does not see everyone. We propose an assessment for some couples we feel are fragile, or a little socially disadvantaged. But there is nothing systematic. (…) It's very subjective. |
|                                                                           | - Reproductive Endocrinologist, France                                                                                                                                                                               |
|                                                                           | We are also trying to see what their expectations are in terms of raising a child. If they are prepared to bring this child into the world and if they have the economical means, actually, to do it. We're also exploring what kind of family and/or friend support they have in place, because obviously this is major, major challenge. |
|                                                                           | - Reproductive Endocrinologist, USA                                                                                                                                                                                  |
|                                                                           | It's necessary to try to test them, to understand a little bit what they have in mind, and where they are, to see if they are ready, and how far they are ready to go (…). People with whom we are a little pushing, sometimes we do not see them again for a year. We need to know exactly where they are when they come see us. |
|                                                                           | - Reproductive Endocrinologist, Italy                                                                                                                                                                                 |
were no significant differences by either gender, years of practice, practice setting, or funding models.

In interviews, participants reported assessing patient resources for psychological and emotional support as challenging (Table 6).

**Discussion**

The findings of this study indicate that, globally practising physicians treating infertile couples acknowledge gaps in their ability to conduct an optimal assessment of the patient from a psychological and psychosocial standpoint. They are challenged in their ability to identify the needs of patients for social or emotional support, and in effectively discussing external support options with patients.

In general, participants reported needing improvement in these skills in much higher proportions than for other skills related to the medical act of diagnosing and treating infertility. This has been seen in other therapeutic areas, such as oncology and endocrinology, for which medical training worldwide remains predominantly focused on the acquisition of medical expertise over other competencies such as interpersonal and communication skills. These latter competencies, however, are gaining increasing attention with the development of new competency-based education models in medicine.

Findings from this study suggest the responsibility for psychosocial assessment and management does not lie solely on the shoulders of the physician in many cases, but rather on other professionals (such as nurses, social workers, or psychologists). However, as leaders of a team of fertility healthcare professionals, physicians should be confident enough in their ability to determine when and how an assessment and follow-up should be performed by their teams. A psychologist or psychiatrist could provide support for more complex cases, but access to these specialists varies across countries and settings.

New European guidelines recommend that the provision of psychosocial care be ensured by all medical staff (physicians, nurses, support staff) to all patients, at all stages of the continuum of care. However, the lack of skills reported in this study, and the lack of awareness of the relevance of these particular skills in meeting patients’ expectations and contributing to improved patient outcomes could hinder uptake of the guidelines. Indeed, evidence from other therapeutic areas has shown that guideline implementation by healthcare providers can be compromised by providers’ lack of awareness and unfavourable attitude. If physicians treating infertile couples are not highly convinced of the importance of psychosocial care in routine fertility care, it is unlikely that they will put forth strategies to provide it to all their patients.

**Limitations**

Although they share similar professional titles, participants recruited across countries vary in their role descriptions and responsibilities, which makes comparison and generalisation difficult. However, this applied research study aimed at investigating clinical challenges faced by healthcare providers in their respective clinical context, and the goal was not to aim for a homogeneous sample. Furthermore, there is the possibility of recruitment and reporting bias because the data were obtained from self-reported assessment of voluntary participants. The tendency to self-report one’s lack of knowledge or skills has also been associated with self-confidence, which is in turn influenced by cultural factors. Although the questions were designed by educational experts to limit the influence of cultural norms, translation of the terms in each language and the cultural context in which the terms are used may have led to a different interpretation of the question in each country. The use of a mixed-methods design and triangulation allowed co-authors to interpret findings in light of the different roles and responsibilities, cultures, and health systems across multiple countries. To further validate the findings from this study, it would be important to include other members of the healthcare teams, who could play an important role in the psychosocial care components of treating and managing infertility, and could provide great insight on the sharing of roles and responsibilities around those components of care.

Despite some large variations between countries, only a few statistical differences were observed. This could be explained by the low sample size which limited the statistical power to detect group differences. Considering the exploratory and educational objective of this study, and the proportion of participants who reported a need for improvement in a given country (seldom below 50%), the results nevertheless indicate important educational needs to be addressed. Our findings could be validated at country level, with a larger sample size.

**Conclusion**

This study highlights that practising physicians treating patients with infertility report gaps in a common set of skills which are important to the provision of patient-centric psychosocial care. It provides evidence of lack of awareness worldwide regarding the relevance of providing psychosocial care to all patients undergoing fertility treatments. Physicians treating infertile couples and other stakeholders in fertility care should reflect on the current status of psychosocial care provided in their own clinical setting. There is a great opportunity to raise awareness by sharing the available evidence supporting the association between management of patient psychological needs and improved treatment outcomes and patient satisfaction, through the development and deployment of educational or performance improvement activities.

The upcoming guidelines on psychosocial care in infertility and medically assisted reproduction will offer guidance on how to provide routine psychosocial care and tools to facilitate the assessment of the patient psychosocial status. Hopefully, this will contribute to bridging the skill and confidence gaps reported by healthcare providers in this study. Clinical and educational stakeholders should
specifically address the gaps reported in this study when developing and deploying relevant, evidence-based education initiatives aimed to optimise the clinical performance of physicians treating infertility.

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Authors’ contributions

SM, the principal investigator, was involved in the study design and development of the research tools, contributed to the analysis plan, and the interpretation of the findings. She took part in critical discussions around the manuscript content and reviewed the final manuscript. KAA provided clinical expertise to help determine area of focus and develop research tools. He participated in the analysis and interpretation of the data, as well as Allan Jones (Medical Education Planning and Development Manager, Merck KGaA, Darmstadt, Germany), Veronique Moy (Director of External Affairs, Merck KGaA, Darmstadt, Germany), and Diego Ezcurra (Global Head of Fertility, External Scientific Affairs, EMD Serono, Boston, USA) who provided contextualisation of findings in the current educational environment. This study was financially supported with educational research funds from Merck KGaA, Darmstadt, Germany. Finally, the authors thank all physicians who took part in this study as participants, across the 15 countries.

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