

Are urologists underrepresented on fertility clinic websites? A web-based analysis

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Abstract

Introduction: Infertile couples frequently utilize the Internet to find various reproductive clinics and research their alternatives. Patients are increasingly using self-referral because of online information on health-care providers. The objective is to compare the image of infertility specialists to other team members on the websites of reproductive clinics.

Methods: Information was gathered during November and December 2022 from two publicly accessible online registries which include the Human Fertilization and Embryology Authority located in the United Kingdom and the Society for Assisted Reproductive Technology located in the United States. We looked over every website that was accessible, paying close attention to how each team member was portrayed online.

Results: We examined a total of 447 clinic websites. Only 8% of the profiles of male infertility doctors were included. Contrarily, most websites (96%), which specialize in reproductive endocrinology and infertility, feature the profiles of female infertility experts. Male infertility professionals also had significantly lower representation than other clinic employees, such as nurses (55.7%, $P < 0.0001$), directors of embryology laboratories (46.5%, $P < 0.0001$), office personnel (39.6%, $P < 0.0001$), and embryology specialists (29.7%, $P < 0.0001$).

Conclusion: Although male factor infertility explains the existence of over half of all cases of infertility, urologists who specialize in male infertility are glaringly understated on websites for fertility clinics. By improving this issue, fertility clinics can draw in more patients by making all members of the care team more visible.

Keywords: Male fertility specialist, under-representation, web-based survey

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INTRODUCTION

Infertility is a worldwide concern, with approximately 186 million people globally struggling to conceive, and in almost half of those cases, the male partner is the cause.^[1] Male infertility has grown to be a significant public health

difficulty. As per the 2017 Global Burden of Disease Study, which examined the health of more than 195 nations, male infertility increased at a rate of 0.291% annually between 1990 and 2017.^[2] Up to 15% of couples worldwide will experience fertility problems and most will seek help to

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be able to conceive.^[3] As per the data collected from 1990 to 2021, the 2022 global infertility prevalence estimations by the World Health Organization indicate that infertility affects almost one in six persons worldwide; the lifetime prevalence of infertility is projected to be 17.5%, and the historical prevalence of infertility is evaluated at 12.6%.^[4] Infertility is still a continuing reproductive issue with numerous demographic descriptions, according to recent global demographic studies.^[1]

The explosion of information available on the Internet invariably means that most infertile couples will resort to the Internet to pursue diverse fertility clinics and investigate their fertility selections. This may be necessary as access to male infertility care may be compromised due to limited public and provider awareness associated with gender, societal norms, relatively low education level and scientific biases, preset expectations, and conflicts of interest.^[5] Furthermore, online information and reviews about health-care providers have made self-referral widespread among couples. Given that male and female factors in infertility are roughly equally prevalent, both partners must have access to this reliable Internet information.

Since the advent of Assisted Reproductive Techniques (ARTs), and more importantly *in vitro* fertilization (IVF), there has been a tendency to neglect the male partner, based on the premise that it is only that single sperm that is needed to fertilize the egg. Consequently, many couples are still referred to IVF without the male partner going through a thorough urological evaluation. The introduction of ARTs in the 1980s made it possible for millions of infertile couples worldwide to become pregnant. The introduction of intracytoplasmic sperm injection (ICSI) modernized the managing of infertility in the 1990s because it was previously believed that a spermatozoon and an egg were sufficient to start a pregnancy.^[6] Although the remarkable international expansion of ART facilities over the past period, ART is still not widely available in several parts of the world, mainly in sub-Saharan Africa, where IVF clinics are yet inconsistent in many countries (2005–2015).^[1] In a recent survey by Olisa *et al.*, only 2 participants from 112 female fertility specialists said that urology specialists are typically the ones who see male patients.^[7] Furthermore, men with deficient sperm parameters are frequently persuaded to move forward with IVF without a proper evaluation or an attempt to identify any unrecognized medical issues.^[8] Over the past 10 years, there has been considerable growth in the quantity of IVF clinics, which has resulted in a major increase in the number of ART cycles operated globally. The construction of IVF clinics in numerous nations over the

new millennium—a process that the International Federation of Fertility Societies has tracked and documented—has led to the globalization of ART.^[1]

There are numerous pitfalls to following that path, including missing potentially severe or critical circumstances which may be correlated to infertility in men. In a study by Honig *et al.*^[9] who examined 1236 men reporting to an infertility evaluation, 13 men (1.1%), were found to have a serious underlying pathology, including brain tumors and testicular tumors. None of the patients seen had a preceding diagnosis of any life-threatening disease. In a similar study by Kolettis and Sabanegh 33 out of 536 men (6%) assessed for infertility were found to have a serious underlying pathology, with 82% of them found to have a genetic problem, and the remaining diagnosed with other serious diseases including testis cancer and prostate cancer.^[10]

Furthermore, the absence of a urological evaluation may also entail missing the opportunity to recognize and positively treat potentially changeable grounds of infertility, which may in turn offer the opportunity of a more cost-effective form of ART being utilized. Particularly in cases of male factor infertility because of azoospermia, it is also the urologists' role to perform the appropriate sperm retrieval procurement procedures to enable IVF. As such, providing both partners with the necessary information and assistance is ultimately the safest way to helping couples conceive a healthy baby.

The purpose of this study was to evaluate the visibility of male infertility experts (urologists) and other team members participating in the care of infertile couples on the websites of fertility clinics.

METHODS

Expedited approval for this study was acquired from the Institutional Review Board at Sidra Medicine in Doha, Qatar. We used the following registries including the Society for Assisted Reproductive Technology in the United States (US) and the Human Fertilization and Embryology Authority (HFEA) in the United Kingdom (UK). These registries were accessed between November and December 2022. We scrutinized all obtainable websites, targeting the online representations of the dissimilar team members, such as the reproductive endocrinology and infertility (REI) specialists, nurses, embryologists, embryology laboratory directors, and administrative clinic staff. Data were recorded on an Excel sheet that was stored on a password protected and secure computer.

RESULTS

A total of 447 clinic websites were examined. Only 8% of those websites had urologists' (a specialist in male infertility) profiles. Conversely, most websites (96%) featured the profiles of female infertility doctors. In addition, male infertility specialists were drastically underrepresented in comparison to other clinic employees, such as nurses (55.7%), embryology laboratory directors (46.5%), administrative staff (39.6%), and embryologists (29.7%), all at $P < 0.0001$.

Of the 36 clinics, 13 were in the UK, with the remaining 23 located in the US. A total of 55 male fertility specialists were profiled, with one clinic website containing the profiles of 5 male fertility specialists. In most of those clinics, (97%), the name and profile of the male fertility specialist were also accompanied by a short biography and a headshot. Furthermore, 100% of the male fertility specialists profiled were found to be fellowship-trained in their specialty. Interestingly, out of the 55 physicians that were profiled, (91%) were male physicians, and the remaining (9%) were female physicians.

DISCUSSION

In this study, we reviewed 447 ART clinic websites, looking specifically at the online representation of urologists, and found that urologists were grossly underrepresented on fertility clinic websites, with only 36 websites, or just 8%, containing the online profile of the treating urologist specialized in male infertility and male reproductive medicine.

Other studies investigating the online representation of urologists and the presence of onsite urologists at various fertility clinics also found that there was a low number of clinics where urologists were given appropriate representation and exposure. In a current study by Nassiri *et al.* looking at the presence of an onsite urologist at private practice American fertility clinics, none of the 203 clinics contacted by phone had an onsite urologist. In addition, in only 11.8% of the clinics surveyed, a urologist "partnered" with the clinic mainly to perform sperm retrieval procedures. Interestingly, they also found that in 9.4% of clinics, the gynecologists specialized in REI performed sperm retrieval procedures themselves.^[11]

In another study by Das De *et al.* examining online access to male factor infertility care, most online outcomes recognized physicians in the field of obstetrics and gynecology (54.7%), with a significant number of those

websites lacking evidence on male infertility treatment, and not even offering these treatments. The authors emphasized the importance of access to more robust online representation of urologists specialized in male infertility to optimize the care of the infertile couple.^[12]

Shabto *et al.* analyzed the online approach to male infertility care in the US by reviewing the Centers for Disease Control and Prevention Fertility Clinic Success Rates Reports from 2015 to 2018. Despite the fact that most clinics (77%) debated the assessment of male infertility, only 11% of clinics had an onsite urologist out of a total of 480 clinics.^[13] These findings were also corroborated by Hsiao *et al.* looked at ART center websites in Taiwan. Although most of the websites reviewed were found to have information available about male infertility, these websites did not remark on any urologist referral nor the various treatments available for men with infertility.^[14]

Realizing that male factor infertility is an illness, and that treatment is a medical necessity rather than a lifestyle choice is the main barrier to lifting restrictions on access to care for this condition. Numerous variables, including epidemiological, geographical, financial, socioeconomic, knowledge, and government and health policy barriers, restrict admission to care for male infertility.^[5] The assessment of infertile male patients utilizing fundamental medical tools (such as a thorough history taking and clinical examination), which has the possibility to uncover curable or remediable disorders, and should be a top priority for instruction and development of reproductive medicine.^[7]

For couples dealing with infertility, a significant hurdle is the absence of coverage by health insurance for diagnosing and treating infertility. Insurance coverage for male infertility treatment is uncommon,^[15] and may lead to problems with access to care. For instance, an analysis of the regional allocation of male infertility urologists in the US revealed significant disparities, with the Midwest and Northwest regions in particular suffering from a lack of access to these specialists.^[11] Interestingly, both academically affiliated and community-related infertility clinics are not well-versed about the status of a male factor examination and hence raising awareness and education is essential to narrow the knowledge gaps, highlighting the urgent attention required in this domain.^[11] This can be supported by promotion attempts by professional corporations like the American Society of Andrology, the Society for the Study of Male Reproduction, and the Society for Male Reproduction and Urology.^[5] The fundamental approach that will enable the study of male infertility to transcend its boundaries and achieve future objectives is a multidisciplinary

approach including both doctors and researchers in basic, translational, and clinical research.^[6]

The important question is whether it is still possible to reverse the trend of rising infertility, particularly in economically developed industrial nations, and whether diminishing the negative effects of the atmosphere on reproductive capability would be adequate to ensure the survival of humans. This rationalizes the importance of carrying out increasing amounts of study into the reasons for male infertility.^[6]

Furthermore, the introduction of artificial intelligence (AI) has introduced many developments in the medical field and has been advocated since 1997 for use in reproductive medicine.^[16] AI through the use of machine learning-based systems has had a substantial effect on ART discoveries and research over the last few years. AI may assist with or even completely automate ART procedures including collecting oocytes, assessing gamete quality, selecting sperm for ICSI, supporting protocols for controlled ovarian hyperstimulation, donor matching, or picking and ranking embryos needed for transfer and cryopreservation. Moreover, the use of predictive preservation in ART devices and the automatic extraction and analysis of major operation markers to conduct nonstop quality control may assist enhance and standardize clinical operations.^[6,16] Computer science, clinical, and biological expertise are all necessary for the profitable application of AI in the field of IVF. That implies a collaboration between computer scientists and reproductive biologists at the collegiate or organizational level.^[16]

This study also showed that the number of female urologists who specialized in male infertility compared to male urologists was very low. One reason may be that some subspecialties such as andrology have conventionally been viewed as more widespread among male practitioners.^[17] Nettey *et al.* analyzed surgeon and practice attributes of 9140 urologists requesting certification or recertification from 2004 to 2015 and showed that only 815 (8.9%) were women. This represents a crucial opportunity to increase the invasion of women into urology residency training programs as an initial agent for reducing the gender gap among urologists.^[17]

CONCLUSION

Although almost half of all cases of infertility are caused by male-specific considerations, urologists who specialize in male infertility are significantly understated on fertility clinic websites. By improving this online representation,

fertility clinics can draw in more patients by making all members of the care team more visible. The urologists' role in addressing male infertility as a global health issue is a crucial component of increasing our understanding and knowledge of this disease. It is our role as physicians and urologists to attempt to decrease the stigmas linked to male infertility that may result from cultural and perhaps religious beliefs. Work is needed to comprehend and acknowledge the crucial role urologists play in treating male infertility by increasing awareness with thorough and accurate information and also with the use of AI.

Ethical approval

Expedited approval for this study was obtained from the Institutional Review Board at Sidra Medicine in Doha, Qatar.

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Conflicts of interest

There are no conflicts of interest.

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