

Comparison of a Web-Based Teaching Tool and Traditional Didactic Learning for In Vitro Fertilization Patients: A Preliminary Randomized Controlled Trial

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Abstract

Objective: The objective of this prospective RCT was to compare the efficacy of a web-based teaching tool to traditional didactic teaching in IVF patients.

Methods: Forty women undergoing their first IVF cycle were randomly allocated to an interactive web-based teaching session or a nurse-led didactic teaching session. The primary outcome measure was participant knowledge regarding the IVF process, risks, and logistics assessed before and after the respective teaching session. Secondary outcomes included patient stress, assessed before and after the respective teaching session, and patient satisfaction, assessed following the respective teaching session and on the day of embryo transfer (following implementation of the teaching protocol).

Results: Both groups demonstrated similar and significant improvements in knowledge and stress after exposure to their respective teaching sessions. The web-based group was significantly more satisfied than the didactic teaching group. Web-based teaching was also shown to be equally effective for participants of high versus low income and education status for knowledge, stress, and satisfaction.

Conclusion: This study provides preliminary support for the use of web-based teaching as an equally effective tool for increasing knowledge and reducing stress compared to traditional didactic teaching in IVF patients, with the added benefit of increased patient satisfaction.

Key Words: In vitro fertilization, web-based teaching, patient knowledge, patient stress, patient satisfaction

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Résumé

Objectif : L'objectif de cet ECR prospectif était de comparer l'efficacité d'un outil de formation en ligne et d'une méthode d'enseignement didactique traditionnelle destinés aux patientes en fécondation in vitro (FIV).

Méthodologie : Quarante femmes qui entamaient leur premier cycle de FIV, réparties aléatoirement en deux groupes d'apprentissage, ont reçu soit une séance de formation interactive en ligne, soit une séance d'enseignement didactique donnée par une infirmière. Le critère d'évaluation principal était le niveau de connaissances des participantes au sujet du processus de FIV, des risques associés et de la logistique, évalué avant et après la séance de formation. Les critères secondaires étaient le stress ressenti par les patientes, évalué avant et après la séance de formation, ainsi que le degré de satisfaction des patientes, évalué après la séance de formation et le jour du transfert d'embryon (après la mise en place du protocole de formation).

Résultats : Les patientes assignées aux deux groupes ont connu une amélioration comparable et significative de leur niveau de connaissances et du stress ressenti après leur séance de formation respective. Le groupe ayant reçu la formation en ligne avait un degré de satisfaction significativement plus élevé que le groupe d'enseignement didactique. De plus, la formation en ligne s'est montrée également efficace peu importe le revenu et la scolarité des patientes, et ce, pour les trois critères (connaissances, stress et satisfaction).

Conclusion : Cette étude constitue un appui préliminaire au recours à la formation en ligne : elle démontre que cette méthode est aussi efficace que l'enseignement didactique pour l'acquisition de connaissances et la réduction du stress chez les patientes en FIV, et qu'elle est associée à un degré de satisfaction plus élevé.

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INTRODUCTION

Fertility knowledge related to the reproductive lifespan, infertility risk factors, and assisted reproduction has been shown to be low in individuals of reproductive age.¹⁻⁵ Further, women who are infertile have been shown to have greater levels of anxiety, tension, guilty feelings,^{6,7} depressive symptoms,^{6,8} anger, and frustration.⁹ The suggestion that heightened levels of stress and anxiety may negatively influence the outcome of IVF treatments¹⁰ emphasizes the importance of accurate and accessible information. The ability to control one's access to information may heighten feelings of autonomy and increase knowledge and understanding, thereby helping to reduce the stress and anxiety associated with IVF treatments. Currently, many clinics disseminate information related to infertility and infertility treatment through traditional didactic classroom-based teaching sessions. Although such modalities are highly valuable, they face many barriers which may limit inclusivity and efficacy.

Physical barriers associated with traditional classroom-based teaching sessions such as geographic, time, or transportation constraints, as well as classroom size restrictions may limit participation.¹¹ Further, as traditional IVF teaching sessions are typically performed with multiple patients, it does not allow for anonymity and may make it difficult to accommodate the specific needs of various individuals. An inability to accommodate various learning styles, languages, or tailor lessons to specific IVF protocols may negatively influence the efficacy of such protocols.

Web-based teaching tools, however, have the advantage of avoiding many of these constraints and have been shown to be an effective means of improving participant knowledge in various populations.¹¹⁻¹³ Importantly, it has also been shown in a study examining the learning preferences of patients undergoing IVF that 89% used the Internet in general, while 44.5% used it specifically for obtaining information related to fertility.¹⁴ This demonstrates an interest and willingness to use web-based information from a large subset of IVF patients.¹⁵

Despite evidence related to the efficacy of web-based teaching tools in various populations, there is a scarcity of controlled trials pertaining to IVF. The purpose of the present study was therefore to assess the efficacy of a web-based teaching tool in comparison to a traditional didactic classroom-based teaching session on participant knowledge regarding the IVF process, risk and logistics, perceived stress, and satisfaction in patients undergoing IVF treatment. It was hypothesized that given the many advantages of a web-based teaching tool, participants would experi-

ence equal or greater improvement in each of the outcome variables of interest.

METHODS

Study Design and Participants

This study was a prospective randomized controlled clinical trial (clinicaltrials.gov identifier: NCT01046188). Participant recruitment occurred over a five-month period. The study intervention consisted of either a web-based IVF teaching session or a traditional nurse-led didactic teaching session (Table 1). Participants of both groups completed questionnaires related to knowledge and stress prior to and following participation in their respective IVF teaching sessions. A questionnaire pertaining to participant satisfaction was completed following the IVF teaching session as well as on the day of their embryo transfer. Participants included 40 women undergoing their first cycle of IVF at the Ottawa Fertility Centre in Ottawa, ON, Canada. Additional inclusion criteria included (1) age over 18 years, (2) ability to provide informed consent, (3) ability to speak and read English, and (4) access to the Internet at home or work. Exclusion criteria included (1) failure to complete a baseline knowledge questionnaire or stress scale prior to the intervention, (2) previous participation in any form of IVF teaching session, (3) previous IVF treatment, and (4) undergoing a natural IVF cycle. Participant characteristics are shown in Table 2. In general, all IVF patients are required to meet with their physician for an IVF consent-signing visit prior to enrolling in their first IVF cycle and education session. The patients that were eligible for this study were notified by the principal investigator (TDRV) or physician's medical office assistant when the IVF consent-signing appointment was made. Interested patients were referred to the Ottawa Fertility Centre website for more information or offered further information by mail or verbally either over the phone or during their consent visit. Reasons for not being interested in participation included preference for face-to-face meetings with a nurse and no interest in research participation.

The study received ethical approval from the Institutional Review Board Services and was in accordance with The Code of Ethics of the World Medical Association (Declaration of Helsinki). All participants provided informed consent for participation in the study prior to inclusion. All data were collected on site at the Ottawa Fertility Centre.

Randomization

Computer-generated block randomization was used to allocate participants to their respective group. Sealed opaque numbered envelopes that contained the randomization order

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