



Call for Change in Women's Attitudes at Beni-Suef University Toward Postponing Pregnancy and Oocyte Cryopreservation



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Abstract

Background: Fertility nurses assist infertile couples through cryopreservation, enabling healthy behavior changes and informed decisions. They educate women on oocyte cryopreservation, procedures, and medications, and emphasize the age-fertility relationship, integrating them into evidence-based medicine and technologies.

Aim: The current study was conducted to evaluate the effect of an educational program on females' attitudes toward postponed pregnancy and oocyte cryopreservation at Beni-Suef University.

Subjects and Methods:

Design: A quasi-experimental design was used.

Sample and Settings: A study from Beni-Suef University on a purposive sample consisted of 334 working females at Beni-Suef University.

Tools: (I): An Arabic-structured interview questionnaire sheet, **Tool (II):** Females' attitudes regarding oocyte cryopreservation.

Results: It presents that 72.8% reported that they delayed marriage to complete their studies, 62.9% had no background on oocyte cryopreservation. There is a statistically significant relation between studied females attitude level and delayed marriage pre & post-program (P-Value= 0.013, 0.019), respectively. 1.5% of studied females who delayed pregnancy had positive attitude level pre-program which improved to 32.9% post-program and 1.8% of studied females who delayed pregnancy had positive attitude level pre-program which improved to 24.6% post-program.

Conclusion: Based on the findings of the present study, it can be concluded women's attitudes at Beni-Suef University toward postponing pregnancy and oocyte cryopreservation positively changed after program implementation.

Recommendations: Cooperation between the Ministry of Health and Egyptian Dar Al-Ifa to raise public attitudes about the use of modern technology in oocyte cryopreservation and the use of all health institutions for implementing the health education sessions.

Keywords: Women's Attitudes; Beni-Suef University; Oocyte Cryopreservation

Introduction

Infertility affects 8% to 12% of partners who are of reproductive age worldwide. However, certain locations have substantially higher infertility rates, which can exceed 30%. The expected rate of infertility among married couples in Egypt is 10.4% [1-5].

Also, the fertility nurse plays a vital role in helping infertile couples undergoing ART in making healthy behavior changes through upgrading their knowledge and modifying attitudes toward the cryopreservation process. Good counseling helps couples cope and decide better. Decisions about what choices to make become clearer and are based on sufficient knowledge [6-10].

In 1999, there was reported the first live birth of a healthy baby girl delivered by a 47-year-old

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recipient for using a new cryopreservation method called verification based on frozen oocytes [11]. While, in 2004, there are also ethical concerns and legislative restrictions regarding embryo storage in certain countries such as Italy fuelled further research into the technology and advancements in the cryopreservation process [12].

Oocyte cryopreservation is a new fertility preservation strategy for women, allowing them to delay motherhood and prolong fertility [13-16]. It helps women cope with reproductive aging, cancer treatment, and focuses on their goals without biological pressure [17-20]. This technique empowers women to have children when they want, allowing them to feel financially and psychologically prepared for motherhood [21-24].

One of the most important points is that the nurse must talk about it in her role, supporting and serving as the primary point of contact for women navigating the complexities of fertility preservation technologies [25-27]. They provide comprehensive education regarding oocyte cryopreservation, procedures, and medications, ensuring that women understand each step of their journey [28].

Moreover, Nurse plays an important role in educating females about the relationship between age and fertility [29-31]. They are also in a position to discuss the implications of OC, such as costs, risks, and the approximate number of eggs required to offer females a reasonable chance of getting to be pregnant as a result of OC. Currently, nurses should be integrated into new evidence-based medicine and technologies [32].

Aim of the Study

The current study was conducted to evaluate the effect of an educational program on females' attitudes toward postponed pregnancy and oocyte cryopreservation at Beni-Suef University.

Subject and Method

Research design

Quasi-experimental research design (pre/post-test) was utilized to achieve the aim of the current study.

Subjects and Settings

A study from Beni-Suef University on a purposive sample consisted of 334 working females at Beni-Suef University.

Tools of data collection

Tool I: An Arabic-structured interview questionnaire sheet:

This part was concerned with females' background on oocyte cryopreservation (OC) and causes for postpone marriage, pregnancy, and childbearing.

Tool (II): Females' attitudes regarding oocyte cryopreservation [33-35].

The study evaluates females' attitudes towards egg freezing, revealing 21 negative and 13 positive items. Concerns include missed use, poor storage, long storage periods, accessibility, affordability, emotional burden, and religious prohibition. The study suggests encouraging OC, including it in premarital counseling, and allowing freedom in maternity time. The scoring system uses a three-point Likert scale, dividing attitude scores into positive, neutral, and negative categories, indicating that OC is socially acceptable but not applicable in society.

Tools Reliability

The study tool's reliability was assessed using Cronbach's Alpha test, revealing a reliability coefficient of 0.794 for total attitudes.

Fieldwork

The study developed an educational program on oocyte cryopreservation, assessing its reliability using the Cronbach's Alpha test. The program included an Arabic handbook and brochure, and a pilot study was conducted at Beni-Suef University faculties. A post-test evaluated the program's effect on female attitudes one month after intervention. The study ensured anonymity and confidentiality for female participants.

Results

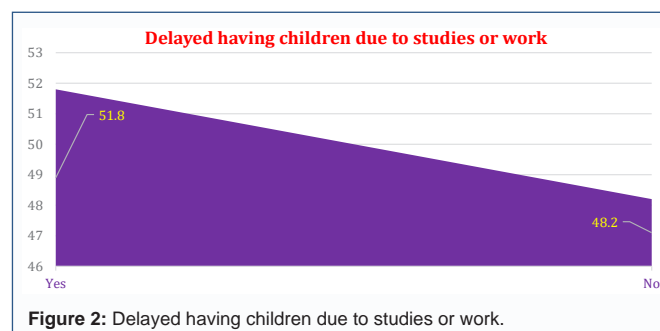
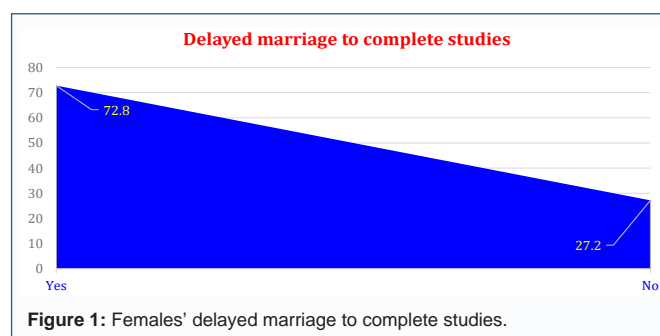
Figure (1) summarizes the distribution of studied working females' postponement of marriage. It presents that 72.8% reported that they delayed marriage to complete their studies.

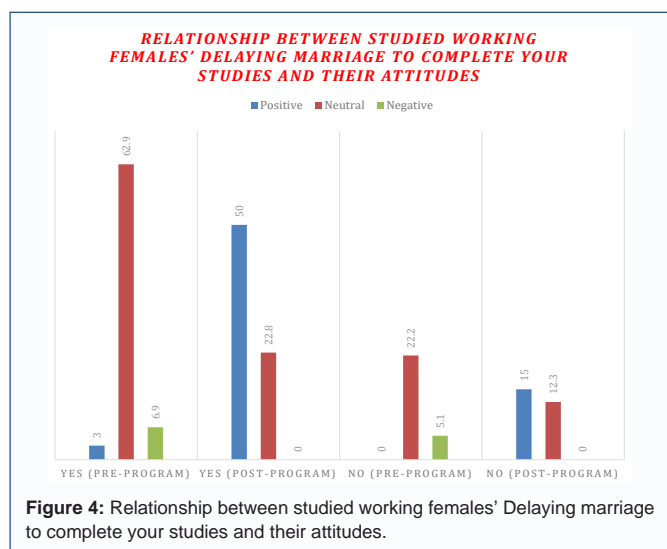
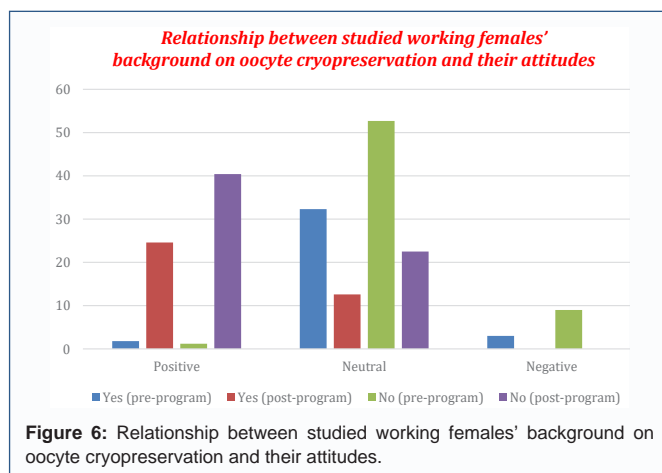
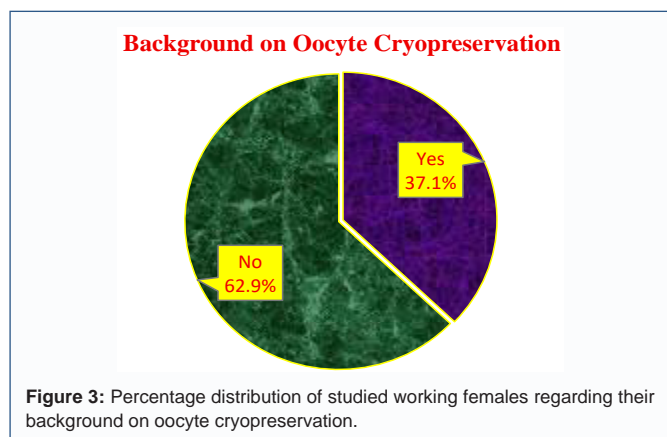
Figure (2) summarizes the distribution of studied working females' postponement of pregnancy, and childbearing. It presents that 51.8% of them reported that they delayed having children due to studies or work.

Figure (3) displays the distribution of studied working females regarding their background on oocyte cryopreservation. It reveals that nearly two-thirds of them (62.9%) had no background on oocyte cryopreservation.

Figure (4) shows the relation between studied working females' marriage delaying and their attitude levels through program phases. There is a statistically significant relation between studied females attitude level and delayed marriage pre & post-program (P-Value= 0.013, 0.019), respectively. 3% of studied females who delayed marriage had positive attitude level pre-program which improved to 76% post-program.

Figure (5) presents the relation between studied working females' and their attitude levels through program phases. It reveals that 1.5% of studied females who delayed pregnancy had positive attitude level





pre-program which improved to 32.9% post-program.

Figure (6) portrays the relation between studied working females' background about OC and their attitude levels through program phases. There is 1.8% of studied females who delayed pregnancy had positive attitude level pre-program which improved to 24.6% post-program.

Discussion

Cryopreservation of oocytes has been labelled as a 'revolution for women's release and reproductive autonomy.' Motherhood might be postponed for a variety of reasons, including a desire to concentrate on their work, the waiting for a suitable partner, or the feeling that they are not 'ready.' It has the potential to provide women greater reproductive options, including the ability to decide when and with whom they wish to have children [36].

Maternity nurses are crucial in shaping women's attitudes towards infertility by providing education, counseling, care coordination, support, advocacy, and engaging in research. They must remain informed about fertility and preservation issues while recognizing that barriers to reproductive decisions extend beyond financial aspects, encompassing medical, ethical, and cultural factors [37-49].

Related to concerns about misuse, bad storage, and long storage periods of OC, the current study demonstrated that most of the studied working females agreed with concerns about misuse, bad storage, and long storage periods of OC pre-program, which decreased to less than one-fifth of them after program implementation. This finding was agreed with Mahesan et al. (2019), who evaluated "Knowledge and attitude regarding elective oocyte cryopreservation in undergraduate and medical students" and reported that less than half of the study's subjects disagreed with or were worried about missed use, bad storage, and long storage periods of OC [37]. From the researcher's perspective, this agreement between the current study and the above-mentioned studies may be due to most of the study females changing their attitudes toward OC after the educational program because they improved their knowledge about the importance of OC in their future reproductive life.

Concerning the storage process follow-up and the accreditation & standards of oocyte banks, the study found that most females support infection control measures during oocyte bank follow-up and accreditation & standards, compared to one-third who agreed on pre-program implementation. These findings are supported by Tozzo (2021), who conducted a study entitled "Oocyte bio-banks: old assumptions and new challenges" and revealed that oocyte bio-banks guarantee the best preservation of their structural components, a high level of safety, and protection of the rights & privacy of the parties [38]. This agreement between the current study and previous studies may be related to ensuring the safety and ethical practice of

the procedure, maintaining medico-legal aspects, and ensuring a proper labelling system to prevent the mixing of gametes.

Related to the application of OC in Egypt, the finding of the current study suggested that more than half of the studied females disagreed with the application of egg-freezing technology in Egypt pre-program, which decreased to less than one-tenth of them post-program implementation. This finding is supported by Eltelt (2021), who evaluated the effect of an educational program on female students' attitudes toward egg freezing [39]. The study revealed that three-fifths of the studied females agreed that egg freezing didn't apply in Egypt before the program, which decreased to less than one-fifth of them after program implementation. This agreement between the current study and the above-mentioned studies is linked to the recent increase in infertility rate and average marriage age in Egypt.

Regarding religions' opinion about OC, the study's finding revealed that about three-quarters of the studied females disagreed that OC is forbidden by religion post-program as compared to one-quarter of them disagreeing that OC is religiously forbidden before program implementation. They agreed with those studies conducted in Egypt by Araby et al. (2025) and Eltelt (2021); they mentioned that the majority of the studied females disagreed that OC is religiously forbidden after program implementation [39-40]. This agreement may be due to the fact that, from the religious perspective, it is shown that preservation of reproductive function was mostly accepted except for oocyte donation.

In addition, the study's findings reported a minority of females' delayed marriage and childbearing had a positive attitude pre-program, which improved to three-quarters, and more than three-fifths of females delayed marriage and childbearing and had a positive attitude post-program implementation. This finding was in agreement with those studies conducted by Alzharni et al. (2025) and Sayegh et al. (2023); they revealed that there was a statistical association between females' attitude and delayed marriage for work commitment and professional opportunities [41-42]. In the researcher's perspective, this may be due to the majority of females aiming to balance career advancements and reproductive health before starting a family.

Finally, the study results declare that, as a result of positive reinforcement and successful teaching techniques, working women's attitudes regarding oocyte cryopreservation improved following program sessions [43-56]. Dale's Pyramid of Learning, which emphasizes the influence of conversations and audiovisual techniques on retention rates, was supported by the use of straightforward Arabic booklets, which improved knowledge retention [57-70].

Conclusion

Based on the findings of the present study, it can be concluded women's attitudes at Beni-Suef University toward postponing pregnancy and oocyte cryopreservation positively changed after program implementation

Recommendation

Ø Cooperation between the Ministry of Health and Egyptian Dar Al-Iftha to raise public attitudes about the use of modern technology in oocyte cryopreservation and the use of all health institutions for implementing the health education sessions.

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