



EFFORTS TO INCREASE UNDERSTANDING OF COVID-19 SCREENING IN ASSISTED REPRODUCTIVE TECHNOLOGY SERVICES

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ABSTRACT

Background: The assisted reproductive technology (ART) program for examining infertile couples requires face-to-face with a doctor. This face-to-face examination for the ART program has a risk for the transmission of COVID-19 to all medical personnel and infertile couples who want to undergo the ART program. This study aims to understand pre- and post-test education about COVID-19 screening on ART services.

Methods: A total of 50 infertile couples in the ART program are given education online. The use of online methods using the Zoom application due to the COVID-19 pandemic. Evaluation of the level of understanding using pre and post-test providing education. Data analysis was carried out using the SPSS 23 application.

Results: Analysis of the level of understanding of pre-test and post-test education using the Wilcoxon test. Pre-test results were 69.90 ± 12.05 , post-test 73.00 ± 10.83 with significance values $p < 0.001$. Chi-Square test analysis results obtained $p < 0.001$ and OR = 15.68.

Conclusion: There was a significant increase in understanding of COVID-19 screening in the post-test education ART service via the Zoom application compared to pre-test education.

Keywords: *Assisted Reproductive Technology, Infertile Couples, COVID-19 Screening*

INTRODUCTION

Covid-19 cases in Indonesia were first discovered on March 2, 2020. Efforts to prevent the spread of infection are aimed at (1) slowing down, delaying, or stopping transmission, (2) providing optimal health services, and (3) minimizing the impact of the COVID-19 pandemic on various sectors¹. Early detection of COVID-19 is an essential step in preventing and controlling the spread of the virus. One effective method of detecting COVID-19 early is screening and isolating patients, an activity known as triage. Screening can be done in high-risk areas and all healthcare centers². Many studies state that the diagnostic test for COVID-19 is only an adjuvant carried out at the screening stage. Still, some guidelines mention that the screening process must be carried out with the diagnostic test. Based on the European Society of Human Reproduction and Embryology (ESHRE) recommendations, the COVID-19 diagnosis test only occurs when the patient's screening results experience symptoms or are at risk³. The guidelines also mention that typical symptoms do not have to be fever (more than 37.8°C) or persistent cough. Still, symptoms such as swallowing pain, anosmia, sore throat, runny nose, malaise, and a history of fever can be considered non-specific symptoms of COVID-19.

Successfully handling COVID-19 depends on perceptions and changes in individual behavior to apply the 3 M's, namely faith, safety, and immunity⁴. Changes strongly influence controlling and preventing COVID-19 in people's behavior in the face of the pandemic. Participants' readiness to implement COVID-19 prevention in 680 participants showed that patients carried out preventive behaviors well, 675 participants (99.3%) were aware of the dangers of COVID-19, and 598 participants (88%) had sufficient knowledge about COVID-19. Six hundred

thirty-eight participants (93.8%) followed the government's recommendations to fight COVID-19. A total of 365 participants (53.7%) always followed the development of COVID-19 several times a day, as many as 661 (97.2%) washed their hands regularly, and 649 (95.4%) practiced social distancing independently. This shows that public awareness of COVID-19 prevention and behavior change is significantly related to the level of general knowledge⁵. In infertility patients, the independent screening process is challenging to do. This is because it increases the burden of psychological disorders of infertility therapy during the COVID-19 pandemic. Infertility patients aged 20–45 years who were delayed in management due to COVID-19 experienced psychological diseases in the form of depressive symptoms in as much as 52% of respondents, resulting in a decrease in quality of life. Some patients feel pessimistic and seek social support to forget about the problem of infertility. Social support can help couples feel more helped and not alone⁶.

Globally, challenges regarding the availability, access, and quality of interventions to address infertility issues persist. The diagnosis and treatment of infertility are often not prioritized in reproductive health policies and are seldom included in public health financing schemes. Other factors hindering the effective management of infertility include the lack of trained healthcare professionals, inadequate infrastructure, and high costs of medications. Although Assisted Reproductive Technology (ART) has been available for over three decades and has contributed to the birth of more than 5 million children, this technology is often unavailable or inaccessible, particularly in low and middle-income countries. To address inequities in access to fertility care, governmental policies play a crucial role.

Recognizing infertility as a preventable health issue is a significant step, which necessitates focusing on prevention over expensive and less accessible treatment. Interventions such as fertility awareness education, promotion of healthy lifestyles, and preventative actions for issues such as sexually transmitted infections, complications of unsafe abortions, postpartum sepsis, and abdominal/pelvic surgery, as well as environmental pollution issues related to infertility, can be potential solutions^{7,8}. Anxiety in infertility couples is higher in women and at the age of over 35 years. A decrease in ovarian reserve, failure of previous ART, and a high duration of infertility were significantly associated with increased anxiety levels. Women who think the possibility of being unable to conceive is more critical than being infected with COVID-19 have a higher level of anxiety than women who think otherwise⁹.

The lack of information about the management of infertility during the COVID-19 pandemic has led to a mistaken understanding of patients. Some infertility service centers have delayed control due to the absence of clear regulations regarding screening standards for infertile patients. Since it is considered not an emergency disease, the patient only performs treatment with telemedicine¹⁰. However, some health services have developed a simple screening process for patients who will continue therapy with strict procedures before the procedure. This regulation difference causes infertility patients not to do self-screening properly¹¹. This study aims to understand pre- and post-test education about COVID-19 screening on ART services.

METHOD

This study is conducted on 50 infertile patients who will undergo the ART program at Sekar Fertility Clinic of Dr. Moewardi General Hospital, including husband and wife couples, but not all of them can attend with their partners. This research was conducted by providing

education on the understanding of COVID-19 screening through the Zoom application in several ways, including holding webinars discussing the knowledge of COVID-19 screening and the webinar explaining methods that can be done to conduct screening, such as laboratory tests, rapid tests, and health surveys. In addition, it also explains the benefits of COVID-19 screening and ways that can be done to prevent the spread of the COVID-19 virus. Furthermore, a question and answer session was held about understanding COVID-19 screening through the comment column. Finally, the understanding level of this education was evaluated using pre-test and post-test of online education using a questionnaire via Google Forms shared online. This study was conducted from March to October 2021, and data analysis was carried out using the SPSS 23 application.

RESULT

1. Characteristics of the study

Table 1 presents the characteristics of the research subjects, which consist of 50 individuals. The information in this table can be used to describe the properties of the subjects under investigation, such as age, gender, duration of infertility, and occupation.

Table 1. Subject Characteristics

Variable	N	%
Age (year)		
>35	9	18
≤35	41	82
Gender		
Male	20	40
Female	30	60
Infertile duration (year)		
≥3	28	56
<3	22	44
Work		
Public worker	30	60
Merchant	10	20
Civil servants	10	20

Based on Table 1, it is seen that as many as 82% of the research subjects are aged 35 or less. 60% of the research subjects are female, while the remaining 40% are male. 56% of the research subjects have experienced infertility duration of three years or more, whereas the remaining 44% have experienced infertility duration of fewer than three years. 60% of the research subjects work in the private sector, 20% as merchants, and 20% as civil servants.

2. Wilcoxon Test Analysis

Table 2. Results of the pre-test and post-test comprehension analysis

Variable	N	Mean	SD	p
Pretest	50	69.90	12.05	<0.001
Posttest	50	73.00	10.83	

Wilcoxon's test analysis lays out the level of understanding between the pre-test and post-test. The Wilcoxon test analysis presented in this research report indicates a significant improvement in patient understanding before and after receiving online education. The mean ± SD value mentioned in the research report reflects the average patient understanding score before and after online education. A significance value of $p < 0.001$ indicates that the difference between the pre-test and post-test understanding levels is statistically significant. Pre-test results with mean ± SD (69.90 ± 12.05), and post-test with mean ± SD (73.00 ± 10.83) with signification value $p < 0.001$. That is, there is a significant improvement in the level of understanding of the pre-test compared to the post-test.

3. Chi-square test analysis

Table 3. The results of the study of the level of knowledge of pre-test and post-test education

Variable	Understand	Not Understand	OR
Pretest	35 (70%)	15 (30%)	15.68
Posttest	39 (78%)	11 (22%)	

A Chi-square test analysis was performed to determine the odds ratio (OR). Table 3 shows the significant value of $p < 0.001$ ($p < 0.05$), which means that online education about COVID-19 screening can improve subject understanding 15.68 times better when compared to before education.

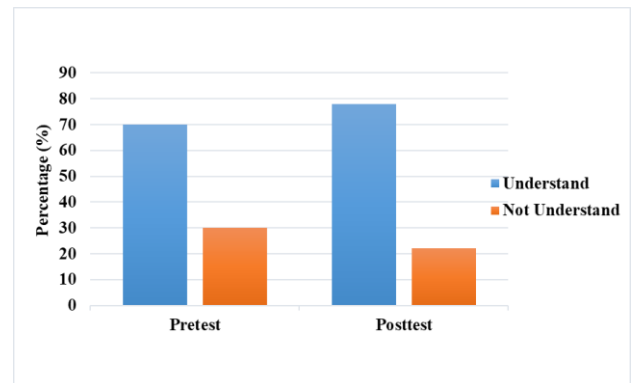


Figure 1. Percentage of pre-test and post-test comprehension levels

DISCUSSION

Disease screening is essential in preventive treatment against emerging diseases, but screening teams need protection from contracting¹². Therefore, standard operating procedures (SOPs) include masks, patient screening, travel history, fever history, seating arrangements in the waiting room, and appointment reminders¹³. In addition, screening for signs and symptoms of infection is carried out before allowing the patient to undergo an ART program¹⁴.

Assisted reproductive technology programs are envisaged to be a critical solution for couples struggling with infertility, facilitating their chances of conception. The birth rate has seen a considerable upswing since the first successful birth through the ART program in 1978. However, these programs often come with challenges, primarily the high cost of ART treatment, which encompasses all intervention costs before pregnancy, including stimulation, retrieval, embryology, embryo transfer, and cryopreservation¹⁵⁻¹⁷. Unfortunately, some health insurance programs overlook

infertility treatments in their financing components, though specifically related diagnoses might be covered¹⁸.

Assisted reproductive technology, offering services such as intrauterine insemination (IUI) and in vitro fertilization (IVF) / intracytoplasmic sperm injection (ICSI), extends beyond medical interventions. It includes comprehensive management of fertility issues incorporating fertility counseling, lifestyle modification, and medical/surgical treatment for the underlying condition. Thus, ART is more than a mere technological aid; it is a comprehensive approach to resolving reproductive challenges¹⁹. However, the COVID-19 pandemic introduced new barriers to the smooth operation of ART programs. Travel and physical contact restrictions, put in place to curtail the virus's spread, potentially impede ART processes. Additionally, some clinics may have opted to delay or limit procedures as a precautionary measure against the risk of COVID-19 infection. In light of these complexities, it is imperative for couples undergoing an ART program to maintain open communication with their healthcare provider to explore the available options and adapt to the evolving situation.

Some findings suggest that healthcare facilities are adopting telemedicine for patient communication (counseling, webinars, and seminars) to minimize contact and the potential spread of the virus¹³. In addition, they provide online education in infertility knowledge and COVID-19 screening to couples who want to undergo the ART program to be able and ready to undergo COVID-19 testing, services, and screening. This awareness arises because online education explains why infertility should be screened to prevent spouses and medical personnel who run. It will be safe if pregnant after the ART program.

The ART program poses an ethical dilemma because not everyone has equal access to treatment. However, the COVID-

19 pandemic's impact led to the restructuring of health services, canceling all ART interventions and fertility treatments, except for maintaining fertility in patients exposed to chemotherapy^{20,21}.

The questions in the comments section showed that the fear of undergoing the program if they had to be screened, was an obstacle for them to experience the ART program. However, psychological distress and anxiety can be overcome by providing psychosocial education and training from reproductive healthcare professionals²². The psychological distress and anxiety experienced by couples experiencing reproductive problems can be a heavy burden. Psychosocial education and training reproductive health care professionals provide can help couples cope with psychological distress and anxiety. By providing psychosocial education and training, reproductive healthcare professionals can help couples experiencing reproductive problems overcome psychological distress and anxiety experienced so that they can undergo the treatment process more calmly and purposefully.

The research results related to online education on COVID-19 screening showed an increase in subject understanding, as much as 15.68 times better than before receiving education. These results confirm the importance of education and appropriate information in improving subject understanding.

Evidence from previous research supports these results, showing increased knowledge after subjects were counseled using PowerPoint media compared to before counseling²³. This method proves that combining the correct information and effective delivery methods can increase knowledge and better understanding.

In line with this, a study by Amalia et al. also produced similar findings. His research showed an increase in post-test assessment results was 15.6%²⁴.

Ultimately, this study strengthens the argument that competent health

workers are crucial in providing health education. They have the knowledge and skills to convey information effectively and better understand important health issues, such as COVID-19 screening. This shows that investments in education and training of health workers can yield good results in increasing public understanding and awareness.

CONCLUSION

There was a significant increase in understanding of COVID-19 screening in the post-test education ART service via the Zoom application compared to pre-test education. Therefore, conducting education about understanding COVID-19 screening through the Zoom application can help the community understand the importance of undergoing COVID-19 screening and following the preventive measures recommended by the authorities.

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