



EDUCATION ON ASSISTED REPRODUCTIVE TECHNOLOGY PROGRAM WITH LOW COST

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ABSTRACT

Background: Assisted reproductive technology (ART) programs have proven to be a solution to help infertility couples to conceive. However, most couples face a financial crisis related to the relatively expensive cost of ART treatment. This service aims to educate about ART's meaning, direction, and procedures. Thus, couples want children to be able to understand the ART program at an affordable cost (low-cost) and undergo the ART program without any concerns about costs.

Method: Seminar participants be given socialization in person and online through zoom software by the service provider. It is in two stages, in-person and online, so participants who cannot attend in person can follow this service program. In addition, participants are given pre-test and post-test questions to assess their understanding of the ART program at an affordable cost.

Result: The pre-test and post-test results were analyzed using Wilcoxon, which showed that after providing education about the ART program, the post-test results were significantly better than the pre-test results. Down value: 5.5%, fixed value: 15.2%, value rise: 79.3% with significance $p < 0.001$.

Conclusion: There are significant differences in the pre-test and post-test scores, which means that the participants understood the explanation the servicer gave.

Keywords: *Assisted Reproductive Technology, Education, Low Cost*

INTRODUCTION

According to the world health organization (WHO), at least 48 million couples are experiencing infertility worldwide¹. Infertility is characterized by the inability of the couple to conceive after 12 months of regular sexual intercourse 3-4 times a week without contraceptives^[2,3]. The causes of infertility are very diverse, so the handling of infertility cases must be adjusted to the reason. The difficulty of handling infertility increases when married couples come in elderly. Infertility can cause significant psychological and emotional distress effects. Assisted reproductive technology (ART) programs have proven to be a solution to help infertility couples to conceive. Since 1978, the birth rate of children through ART has increased sharply. However, couples doing the ART program tend to have difficulties related to the considerable cost of ART treatment^[1,4,5]. Assisted reproductive technologies to include all infertility treatments to achieve pregnancy, including artificial insemination, induction of ovulation, in vitro fertilization (IVF) dan embryo transfer (ET), intracytoplasmic sperm injection (ICSI), biopsy embryo, preimplantation genetic testing (PGT), assisted hatching, gamete intrafallopian transfer (GIFT), zygote intrafallopian transfer, gamete dan embryo cryopreservation, semen, oocyte dan embryo donation, dan gestational carrier cycles^{6,7}. The World Health Organization (WHO) estimates that one in six couples experiences pregnancy delays and requires ART treatment^{8,9}. The cost of ART varies widely. In some countries, it offers complete health compensation coverage, while others do not provide the same compensation⁵. Many couples reported facing a financial crisis, so the main difficulty encountered was related to the cost of ART treatment¹. The cost of ART treatment covers all intervention costs before reaching pregnancy, including stimulation, retrieval, embryology,

embryo transfer, and cryopreservation. Assumptions for 2012 ART costs in America averaged \$15,715 (Rp 147,202,405.00) per new cycle and \$3,812 (Rp 35,707,004.00) per frozen cycle^{10,11}. Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) originated in Wuhan, China, and spread worldwide. January 12, 2022, SARS-Cov-2 caused around 4.26 million confirmed Coronavirus Disease 2019 (COVID-19) cases and 144,144 deaths in Indonesia^{12,13}.

The impact of COVID-19, including the delay in the ART program to reduce the spread of COVID-19, is increasingly widespread. However, for some patients, this indefinite delay in ART impacts the deterioration of the irreparable reproductive prognosis¹⁴. An online survey of 1,210 respondents in China showed that the moderate or severe psychological impact of COVID-19 was 53.8%, and 28.8% experienced moderate to severe anxiety symptoms^{14,15}. This study is needed to determine the level of understanding of pre-test and post-test educational participants as a means of counseling from gynecological obstetrics specialists to seminar participants about the ART program at a low cost by providing knowledge of the procedures of the ART program. The purpose of education on ART programs at low cost can provide education about the meaning, direction, and procedures of ART. This study hopes that participants can understand ART programs with low costs and undergo ART programs without any concerns about costs and reduce the number of infertile couples who are late in getting treatment according to the condition of each married couple.

METHODS

This activity is carried out directly at the Barokah Utama Klaten clinic and online through the zoom application so that this educational program can be

attended by participants who cannot attend in person.

This research examines the education of ART programs at a low cost. This theme was taken because the knowledge of the ART program among the community is still very lacking, and also because the number of infertility in Indonesia is increasing, so with this education, it is hoped that the public and infertility patients understand and do not worry about doing the ART program. The target activities of posyandu cadres, health workers, and the general public, including infertility patients.

Before the educational activity began, participants were given a pre-test questionnaire to assess participants understanding. Educational programs provide material on the ART program's knowledge, direction, procedures, and low cost. Furthermore, participants were given post-test questions to assess their understanding of the ART program at a low cost.

RESULT

1. Characteristics of Respondents

The seminar participants who were respondents to this study consisted of 92 participants. Based on the research data obtained, 5 participants were gynecological obstetricians (5.5%), posyandu cadres of 10 participants (10.9%), and 77 participants (83.6%) were health workers (nurses, midwives, and infertility couples). Some of these participants experienced changes in grades before and after the delivery of the material, where 73 participants experienced an improvement in value (79.3%), 14 participants experienced the same value (15.2%), and 5 participants experienced a decrease in value (5.5%). The complete characteristics of the respondents are presented in Table 1.

Table 1. Characteristics of Respondents

Variable	n	%
Work		
Medical personnel	5	5.5
Posyandu Cadres	10	10.9
Ordinary people	77	83.6
Value Changes		
Value Rise	73	79.3
Fixed Value	14	15.2
Down Value	5	5.5

2. Pre-test and post-test results regarding the ART Program and the Infertility Case Tiered Referral System

The results of the analysis of research data regarding differences in public knowledge of counseling provided by obstetrics and gynecology specialists regarding assisted reproductive technology with low cost can be seen in figure 1. General knowledge is assessed from the difference in pre-test values before the delivery of material and post-test after the delivery of material considered using questionnaires with a categorical measurement scale in the form of rising, fixed, and down values.

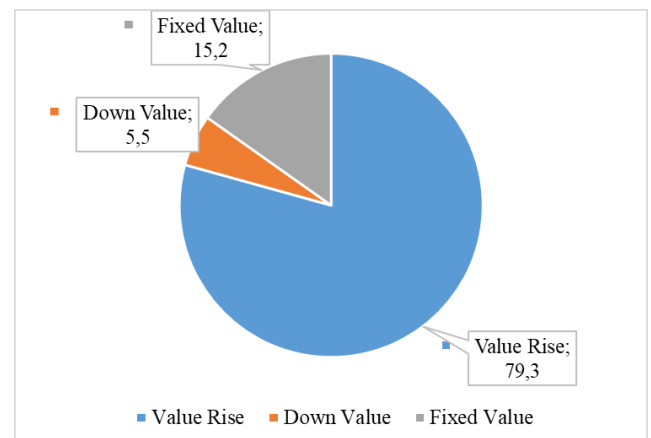


Figure 1. Percentage of pre-test and post-test values

From the data above, it was found that out of a total of 92 participants, 73 participants experienced an improvement in scores that showed an increase in science, 14 participants did not experience changes in grades, and 5 participants

experienced a decrease in rates. We use the results of the pre-test and post-test results to determine the difference in seminar participants' knowledge levels regarding the affordable ART program and the infertility case referral system. Statistical analysis results with the Kolmogorov-Smirnov normality test and the Wilcoxon signed-rank test were used to determine the knowledge level difference. The results showed a difference between the pre-test and post-test scores, where the average post-test score of the seminar participants was better than the pre-test value ($p < 0.05$). The normality test results are listed in table 2, and statistical results with Wilcoxon signed rank test in table 3.

Table 2. Normality Test

	Kolmogorov-Smirnov		
	Statistics	df	Sig.
Pre-test	0.166	92	<0.001
Post-Test	0.291	92	<0.001

Table 3. Wilcoxon Signed Rank Test

	Post-test – Pretest
Z	-7.402 ^b
Asymp. Sig (2-tailed)	<0.001

Pre-test and post-test results were analyzed using Wilcoxon, which showed that after providing education about the ART program, the post-test results were significantly better than the pre-test results.

DISCUSSION

This study examines the pre-test and post-test education of the low-cost ART program, with the results of significantly the educational post-test results are better than the pre-test results. This is in line with previous research by Szalma et al. that the results of the assessment of knowledge about general fertility are higher than knowledge of ART. This suggests that ART is not part of general knowledge⁵.

The increase in knowledge was also found in previous studies, which stated that there was more knowledge after being given counseling with PowerPoint media than before being given counseling¹⁶. Research by Amalia et al. also showed that the results of the post-test assessment increased by 15.6%. This indicates that the role of competent health workers is needed in providing education¹⁷.

In addition, knowledge of the cost of ART is essential because the cost affects the use of ART and the number of embryos transferred¹⁸. Furthermore, the ART program has significant indirect costs due to the increased risk of maternal and infant morbidity associated with the high incidence of multiple births. Multiple births' costs include long-term medical, educational, and social costs¹⁰.

Treatment for infertile couples begins with counseling, supporting natural conception, treating all the causes of treatable infertility, and planning an appropriate ART program¹⁹.

CONCLUSION

There are significant differences in the pre-test and post-test scores, meaning that the participants understood the explanation the servicer gave.

ACKNOWLEDGMENTS

The author expresses his gratitude to the Rector, Chairman of the Institute for Research and Community Service, Dean of the Faculty of Medicine, Sebelas Maret University, Surakarta, and Director of the Barokah Utama Clinic for facilitating the implementation of this service.

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