



- Family Caregiver Support Program to Increase Quality Care Among the Geriatric Population
- Nurse Staffing Factors, Fatigue, and Work-related Stress among Emergency Department Nurses During COVID-19 Pandemic
- Relationship between Fine Motor Skill and the Use of Gadget in Pre-school Age Children
- Nursing Students' Caring Behavior Towards Clinical Learning Readiness
- Identification of Risk Factor of Adolescent Sexual Behavior in Purwokerto: Pilot Study
- The Effect of Giving Cucumber (*Cucumis sativus*) Juice on Blood Pressure in Stage 1 Hypertension Patients in Cimahi Public Health Center
- The Relationship Between Mother's Support to the Development Level of Preschool-Age Children
- Knowledge-related Human Papillomavirus Vaccination: A Study of Indonesian Women
- The Effectiveness of Online Education Study Live Method on Reducing Hesitancy of the COVID-19 Vaccine
- The Relationship of Spirituality with Coping Mechanism in Patients with Type 2 Diabetes Mellitus in Sukabumi Regency, Indonesia
- Knowledge and Attitude of Mothers Regarding Early Childhood Health Protocol Implementation During the Covid-19 Pandemic
- Factors Affecting Sleep Quality of Treated Patients In the *Intensive Cardiac Care Unit* Room
- Literature Review: Description of the Psychological Impact of Social Support on Gynecological Cancer Patients
- Implementation of Assertive Training to Increase the Ability of Anger Expression in Violent Behavior Patients at RSMM Bogor
- Use of Mobile Health on Adherence among HIV Positives Person: A Literature Review
- Honey for The Treatment of Diabetic Foot: A Literature Review

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Research Article

The Effectiveness of Online Education Study Live Method on Reducing Hesitancy of the COVID-19 Vaccine

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Abstract

Aim: The global vaccine refusal movement continues to exist. Indonesia has implemented a vaccination program to combat the COVID-19 pandemic in order to minimize transmission rates, fatality rates, break the chain, and acquire herd immunity. The Study Live Method is a hybrid method of offline merging as if online, when live zooming by employing additional Open Broadcaster software (OBS) to create running text. The purpose of the study was to evaluate the efficacy of online teaching via the Study Live Method in reducing COVID-19 vaccine hesitancy.

Methods: The research method is a quasi-experimental design with a pre- and post-testing strategy and a control design. The population of Bekasi Municipality is 48 individuals. The sample approach utilized a method of purposive sampling and analysis was used an independent t test.

Result: the average age of respondents in the intervention group is 41.71 with the youngest respondent age 18 years and the oldest 71 years old, while in the control group, the youngest respondent age 21 years old and the oldest 60 years old. The results demonstrated that in the intervention was significantly effective in reducing COVID-19 vaccine hesitancy group (p value 0.05).

Conclusion: It is advised that the general population get digital health education in the context of introducing renewable technology and continuously integrated and integrated implementation in order to lessen the reluctance of the COVID-19 vaccination to boost herd immunity.

Keywords:

Online Education, Hesitancy, Herd Immunity, covid 19

INTRODUCTION

The prolonged COVID-19 pandemic has had a significant impact on the health sector and the world economy. Protection efforts around the world during the COVID-19 pandemic have provided a COVID-19 vaccine. The movement to reject vaccines still occurs globally because they think vaccines are ineffective. (1) Indonesia has

made maximum efforts to overcome problems in tackling the COVID-19 outbreak, through vaccination programs to reduce transmission rates, mortality rates, break the chain and achieve herd immunity. Herd immunity can be achieved if vaccination coverage is 67%-80%. As of February 15, 2022, 88,590,685 Indonesians have received dose 1 of Corona vaccine, and 136,647,928 Indonesians have received

Corona vaccine dose 2, from the vaccination target of 208,265,720 (2).

Some people still have doubts about the efficacy of vaccines. Many factors affect hesitancy, this is due to misinformation received by the public regarding the safety, effectiveness of vaccines, post-immunization follow-up events (AEFI), the rise of hoax news on social media, to conspiracy theories that are currently circulating. The Bekasi municipality's COVID-19 vaccine target has only reached 67% of the target in 2021, 70% of the 2,015.00 vaccination target (3). The vaccination target for the elderly in the Bekasi municipality in 2021 has only reached around 88,000 of the vaccine target for the elderly 156,000, or about 56.41% of the 60% target (Bekasikota Health Office, 2022). The results of a preliminary study at the Jatisampurna Health Center Bekasi Municipality, the COVID-19 vaccine in the age category above 60 years, who have received COVID-19 first dosage vaccine is around 40%, so there are still 60% who have not received first dosage vaccine (4).

Low knowledge, very low information obtained are the biggest causes of hesitancy, news disinformation about COVID-19. Therefore, there is a great need for containers and facilities to provide in-depth information about the Covid-19 vaccine, one of which is digital literacy. (5) Digital education can increase public confidence in vaccination. The method of delivering information is provided in various ways, one of the effective methods during the pandemic where the condition of the COVID-19 outbreak worsens to prevent the potential for the third wave of the Omicron pandemic, requiring the government to still stipulate the Enforcement of Community Activity Restrictions (PPKM), and implement the 5 M protocol: wearing masks, maintaining distance, limiting mobility and avoiding crowds) so that people's activities are limited, then a careful educational solution is provided with an online audio-visual

method (6). The purpose of this study was to obtain the results of reducing the hesitancy of the COVID-19 vaccine as an effort to increase herd immunity in the Bekasi Municipality area. Specifically, the research objective is to measure the effectiveness of online education, Study Live Method with online education treatment using zoom media with Study Live Method, which is a hybrid method of combining offline as if online, when live zooming uses additional Open Broadcaster software (OBS) to create running text to make it easier, fun, in understanding the education provided with varied and creative media. The main feasibility study from the safety and financial aspects, the prospect of non-pharmacological feasibility, easy to implement, efficient, effective, and innovative. The study aimed to determine the effect of online education study live method on reducing hesitancy of the COVID-19 vaccine among community in Bekasi (7).

METHODS

Study design and intervention

This study used a quasi-experimental with a pretest - posttest with control design. The control group was given health education by giving a pocket book about the COVID-19 Vaccine, the Intervention Group was given online education with the Study Live Method via zoom. Data was collected through a questionnaire distributed online via google form.

Sample

The target population was communities at Bekasi Municipality. The inclusion criteria were age over 18 years old and has a smart phone with zoom application. The total sample included in this study was 48 (24 for each group). The sampling technique used purposive sampling method.

Measure

The questions were categorized into three domains for analysis: general vaccination

hesitancy (GVHS), COVID-19-specific concerns (CVHS), and overall reluctance to receive the COVID-19 vaccine (overall CVHS). On a 5-point Likert scale, each item was ranked (1 – strongly disagree, 5 – strongly agree). Negatively phrased items had their scoring keyed backward. Low reluctance corresponds to high scores. Validity and Reliability Test is carried out on a questionnaire.

Data analysis

Bivariate analysis to identify the average difference before and after the online education intervention using the dependent sample t-test, the difference in the average decrease in hesitancy after the online education treatment between the intervention and control groups, using the Independent T Test. Bivariate analysis to prove the relationship between Online Education on Decreasing Hesitancy and Increasing Herd Immunity using the Chi Square test. Homogeneity test and normality test. Univariate analysis to explain or describe the characteristics of each variable to be studied. Before conducting the analysis, the normality test of numerical data was carried out, by looking at the results of the Kolmogorof Smirnov test, if the result was p value > 0.05. The results of the data normality test showed data with a normal distribution. Univariate analysis was conducted to

describe all the variables studied. The variables analyzed by univariate are age which is numerical data by calculating the mean, standard deviation, minimum and maximum values with 95% confidence interval (8).

RESULTS

The age characteristics of the respondents in this study consisted of numerical data, namely age and categorical data on gender, education and occupation. The age of the respondents will be analyzed using the central tendency of 95% which produces the mean, median, standard deviation with a minimum value and a maximum value. From table 1, it is found that the average age of respondents in the intervention group is 41.71 with the youngest respondent age 18 years and the oldest 71 years old, with a standard deviation of 12,582, the control group is an average age of 39.25 years with the youngest respondent age 21 years old and the oldest 60 years old, with a standard deviation of 14,038. This study were mostly male by 29 people (60.4%). The most education is junior high school, amounting to 27 people (56.3%). The most occupations are IRT with 19 people (39.6). Most of the religions in this study are Muslims, amounting to 48 people (100).

Table 1.
demographic characteristics of respondent (n=48)

Variable	Control Group		Intervention Group		Total	
	n	%	n	%	n	%
Age	41.71 (SD= 43.50)		39.25 (SD=14.0 38)			
Gender						
Men	12	25,0	17	35,4	29	60,4
Women	12	25,0	7	14,6	19	39,6
Education						
Elemntary school	1	2,1	2	4,2	3	6,3
Junior high school	12	25,0	15	31,3	27	56,3
Senior high school	9	18,8	7	14,6	16	33,4
College	2	4,2	0	0,00	2	4,2
Work						

Unemploye	5	10,4	4	8,3	9	18,7
Household	11	22,9	8	16,7	19	39,6
Private work	4	8,3	8	16,7	12	25,0
Others	4	8,3	4	8,3	8	16,6
Religion						
Moslem	24	100,0	24	100,0	4	100,0
Non Moslem	0	00,0	0	00,0	0	00,0

Table 2.
Effectiveness of Online Education Before and After Intervention in Bekasi Municipality July-August 2022 (n=48)

Research Group	n	Pretest	Posttes t	Mean Diff	95% CI	SD Diff	Df	P Value
Control Group	24	61,21	65,54	-4,333	-6,075-2,592	4,125	23	0,000
Intervention Group	24	69,67	76,29	-6,625	-8,484-4,766	4,402	23	0,000

Note: paired t test

Based on table 2 shows the average increase in the effectiveness of online education in the control group before the intervention from 61.21 to 65.24. The intervention group showed an average increase in the effectiveness of online education using the Live Method Study Method from 69.67 to 76.29. The results of the statistical test showed that there was a significant change in the effectiveness of online education before and after the intervention on the Covid-19 vaccine with a p value of 0.000 ($p < 0.05$) meaning that there was significant effectiveness in both groups.

Results of the Effectiveness of Online Education Study Live Method on Reducing Hesitancy of the COVID-19 Vaccine on Efforts to Increase Herd Immunity in Bekasi Municipality. The results of the analysis can be seen from table 5.

Table 3.
Effectiveness of Online Education Study Live Method on Reducing COVID-19 Vaccine Hesitancy on Efforts to Increase Herd Immunity in Bekasi Municipality in July-August 2022 (n=48)

Research Group	N	Mean	SD	F	95% CI	P Value
Control Group	24	66,13	9,223	2,86	5,064-15,270	
Intervention Group	24	76,29	8,312	4	5,065 – 15,268	0,000

Note: Independent t test

Based on table 3 shows that the average effectiveness of online education is highest in the intervention group, an average of 76.29 with a standard deviation of 8.312. Statistical test results obtained with a p value of 0.000 ($p > 0.05$) showed that after the intervention there was a significant difference in the effectiveness of online education on the reduction of COVID-19 vaccine hesitancy.

Table 4.

Online Education Study Live Method on Reducing COVID-19 Vaccine Hesitancy to Efforts to Increase Herd Immunity in Bekasi Municipality July-August 2022 (n=48)

Online Education	Reducing COVID-19 Vaccine Hesitancy			P Value	OR
	Good	Very Good	Total		
	n (%)	n (%)	n (%)		
Control Group	9 (37,5)	15 (62,5)	24 (100)	0,001	14,6
Intervention Group	0 (0)	24 (100)	24 (100)		
Amount	9 (18,75)	39 (81,25)	48 (100)		

Based on table 4, it shows that the relationship between online education and decreasing hesitancy of the COVID-19 vaccine on efforts to increase herd immunity in Bekasi Municipality shows that, out of 24 respondents in the 100% intervention group, the decrease in hesitancy was very good. The results of the statistical test obtained with a p value of 0.001 ($p > 0.05$) showed that after the intervention there was a significant difference in the reduction of COVID-19 vaccine hesitancy in efforts to increase herd immunity in Bekasi Municipality.

DISCUSSION

Based on the results of the study, it is known that the age of the respondents above the control group is 21-61 years old, the age in the control group is 18-71 years. According to the Indonesian Ministry of Health releasing the results of the COVID-19 Vaccine acceptance survey, 76% are aged 18 to 45 years and more than 1 percent are over 65 years old. research by (9) age characteristics Based on the age group, respondents were dominated by the age

group between 20-24 years as many as 93 respondents (77.5%). The gender involved in this study was dominated by 29 men (60.4%), Covid-19 disease can attack both men and women, adult men often carry out social activities and have more contact with the environment outside the home. Male and female sexes have the same proportion in prevention and treatment (10). The highest education level is Junior High School (SMP) 27 people (56.3%), knowledge can help in determining attitudes and actions towards prevention. The level of education affects the ability to receive health information provided by health workers through health education, the higher a person's education the better his knowledge and the higher his awareness of the need for the importance of health information. Based on the literature, it can be concluded that good knowledge is relatively more obedient to prevention and treatment. The results showed that the respondent's occupation as housewives was 19 people (39.6%). Characteristics of work related to the fulfillment of daily needs. According to research by (11) respondents with other jobs (housewives) are 24.30% so

that the ability to provide nutritious food that is lacking can reduce body resistance. The religion of the respondents involved in this study is mostly 48 people (100%). Healthy living behavior can be influenced by socio-culture, values and beliefs. The higher a person's spiritual value, the ability to change behavior can be reflected in how to behave and show good behavior. Based on the research, it is not quantity based on a particular religion but how the quality of a person in carrying out his religion is in accordance with the beliefs held so that spiritual values can show the ability of healthy behavior.

The results of the analysis showed p value 0.000 (p value <0.05) there was an effectiveness of Online Education with the Live Method Study Method before and after the intervention on the COVID-19 Vaccine which was significant in both groups. Respondents who have received education have increased knowledge about the Covid-19 Vaccine, have a positive attitude towards the benefits of vaccines, and can get rid of doubts about the COVID-19 Vaccine (12). The average increase that increases progressively after the intervention is given to the intervention group, as evidenced by the research of (13) The discussion process that occurs with resource persons on a podcast content is considered to have the advantage of getting deeper information, different experiences when obtaining information with audiovisual, and easy access.

After online education, more of respondent were amenable to vaccination, which, if extrapolated to the remainder of the base population, could be sufficient to exceed the anticipated herd immunity threshold. There are, however, a few exceptions to this extrapolation. Although the respondent population appears to be a representative sample of the base population, respondents were self-selected and comprised just a tiny proportion of seminar attendees, exposing our findings to an unknown, unaccounted-for margin of error. Moreover, the intention

to vaccinate does not necessarily translate into vaccinations, which is the crux of herd immunity. However, there is certainly a considerable correlation between purpose and vaccination. Due to new of COVID-19 disease and the quick development of its vaccinations, there is no tested education model for tackling vaccination reluctance. In a primary care environment, a physician-targeted communication intervention did not diminish vaccine reluctance, according to a randomized controlled trial. (14) However, population-based education initiatives involving influential leaders and targeting specific demographics have boosted knowledge, improved awareness, and increased vaccine acceptability. In addition, interventions that have addressed aversion to vaccination campaigns in the past (e.g., influenza and human papillomavirus) can provide significant insight. Lastly, the utilization of social media, similar to our virtual sessions, may contribute to an increase in vaccine uptake.

Study limitation

This study has limitations on small sample size and without randomization that could limited generalizability and potential for selection bias. Thus, future study should involve more sample size with randomization.

CONCLUSION

This study found that online education could potentially improve COVID-19 vaccine hesitate among community's member. Future research is required to address additional problems pertaining to vaccine hesitancy, as well as to improve educational interventions, develop more effective instructional approaches, and address these challenges in both military and nonmilitary groups. It is unknown when the COVID-19 epidemic will stop, but increasing people's openness to the use of vaccines that are both safe and effective would speed up the process.

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