

# The Effect of Showing COVID-19 Vaccination Educational Videos on the Knowledge Level of 10<sup>th</sup> Grade Darul Ulum 1 Jombang High School Students

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## ABSTRACT

**Introduction:** Hoaxes and respondents' ignorance of the significance of COVID-19 vaccination can both have an impact on respondents' adequate knowledge levels. Despite being one of the age groups most likely to spread the COVID-19 virus quickly, some teenagers may be reluctant to get vaccinated due to the spread of hoaxes; the reason for this is yet unknown. Teenagers are also a particularly susceptible age group, and it can be challenging to diagnose them with the virus. Young people must thus receive vaccinations. The younger generation, who may not know much about vaccinations, can benefit from education and socialization. According to Tindaon's (2017) research, video content has been shown to be more successful than pamphlets at spreading knowledge.

**Method:** This study employs a clustered randomized controlled trial methodology in its research design. 10<sup>th</sup> grade students at SMA Darul Ulum 1 Jombang make up the research sample. Cluster random sampling is the method

of sampling that is used. Univariate descriptive analysis and bivariate analysis with the *Mann Whitney Test* are used in statistical analysis.

**Result:** The average knowledge score of the participants in this study rose as a result of watching instructional videos that provided health education. There were still students in the control group who did not watch any instructional videos. The study's findings indicate that after watching instructional videos, 10<sup>th</sup>-grade students at SMA Darul Ulum 1 Jombang's knowledge of the COVID-19 vaccination increased. Video educational media has been shown to be successful in raising students' understanding.

**Keywords:** Educational videos, Increased knowledge, Covid-19 vaccination

## INTRODUCTION

According to research by Pamungkas, et al. (2022), 90.2% of the 74 respondents had a sufficient level of knowledge about the Covid-19 vaccine, the remaining respondents had a good level of knowledge,

and none of the respondents had a poor level of knowledge. Lack of exposure to information regarding the significance of the Covid-19 vaccine and the acceptance of false information or "hoax" messages that circulate among the public, leading to numerous misunderstandings, are two factors that contribute to an inadequate level of knowledge.

Lack of knowledge and the spread of "hoaxes" may cause some teenagers to reconsider getting vaccinated as the government advises. Though the exact cause is still unknown, teenagers are among the age groups that the Covid-19 virus can spread more quickly than other age groups. Adolescents are particularly susceptible to the virus, and it can be challenging to determine whether they have it or not.<sup>[1]</sup> Teens can spread the virus because the majority of teenagers who contract COVID-19<sup>[2]</sup> don't know they're sick. According to Anthony Skelton (cited in Affandi et al., 2020), new and more dangerous Covid-19 variants will appear the longer a child waits to receive vaccinations. For instance, the Delta variant, which is 97% more contagious than the original coronavirus, is a mutation of the UK variant.<sup>[3]</sup>

Arumsari et al. (2021) conducted research which revealed that out of the 12 statements made by the public regarding the acceptance of the Covid-19 vaccine, nine statements received negative responses. These statements included doubts about the vaccine's effectiveness, safety, and halal. be concerned about vaccination-related side effects and consequences.<sup>[4]</sup> Based on the aforementioned explanation, it can be inferred that the prevailing information regarding the Covid-19 vaccine may have an impact on teenagers' inadequate knowledge of it. Teenagers' understanding of the Covid-19 vaccine will improve with increased exposure. Teenagers who don't know about vaccinations benefit greatly from socialization or education. Based on research by Tindaon (2017), it shows that video media is more effective in increasing knowledge compared to leaflets, because

videos use sound effects and moving animations to demonstrate certain steps, so that the information conveyed is easier to absorb.

## **MATERIALS & METHODS**

In May 2023, data collection took place at SMA Darul Ulum 1 Jombang. By separating the participants into the intervention group and the control group, this study is experimental quantitative research. On January 9, 2023, the Health Research Ethics Committee, Faculty of Medicine, Airlangga University, approved this study under number 7/EC/KEPK/FKUA/2023.

In this study, 184 students in grade 10 made up the population. 32 children for each group plus 15% of the estimated dropout rate resulted in 37 children for each group after the sample was computed using the average hypothesis test formula in two independent groups.<sup>[5]</sup> While the control group received no treatment, the intervention or treatment group received education about the Covid-19 vaccination in the form of a video. The cluster random sampling technique was used to divide the samples into groups.

The instructional videos, which totalled two, were created by a group of lecturers at Airlangga University's Faculty of Medicine<sup>[6]</sup>. The first video, which lasts roughly 13 minutes, provides general information about the Covid-19 vaccination. The second, which lasts roughly 9 minutes, focuses on the halal and sanctity of the Covid-19 vaccination.

Two waves of data collection were conducted in the school computer lab: the intervention group collected data in the first wave, and the control group collected data in the second. Pretest, educational video presentation, and post test are the phases of putting the intervention group into practice. The intervention group received instruction for about twenty-two minutes, followed by a ten-minute Q&A period. In order to determine whether or not students in the intervention group have watched the

instructional video through to the end, a brief question regarding the video's applicability will be posed at the conclusion of the session. Following their completion, the intervention group was asked to return to their respective dorms, and the second wave, which included the control group, continued. In the control group, the implementation phases comprised a pretest, a five-minute sharing period, a post test, and a ten-minute Q&A session. The Google form link that the researcher shared was used to complete the pretest and post test. The validity and reliability of the questionnaire had been examined prior to the study. Each statement item's validity test results yielded an r-table value of 0.239, indicating that all of the statement items are

legitimate and suitable for use as research measuring instruments. The reliability test yielded a Cronbach's Alpha value of 0.928, indicating that all of the statement items used in this study are occasionally consistent.

### Statistical Analysis

The degree of students' knowledge regarding the Covid-19 vaccination was described by univariate descriptive analysis, which was the method used for data analysis in this study. Next, employing the *Mann Whitney U-test* and the Statistical Product and Service Solution (SPSS) program, ascertain the efficacy of video media in raising knowledge between the intervention group and the control group.

## RESULT

**Table 1. Respondent Characteristics**

Characteristics	Control		Intervention		p
	n	%	n	%	
Gender :					
Male	24	33,3	48	66,7	0,000
Female	48	66,7	24	33,3	
Age :					
15 years old	10	13,9	11	15,3	0,826
16 years old	55	76,4	52	72,2	
17 years old	7	9,7	9	12,5	

The following table presents descriptions based on knowledge in the intervention group and control group prior to the

showing of instructional videos about the Covid-19 vaccination:

**Table 2. Respondents' knowledge before viewing educational videos**

Information	Control Pretest	Intervention Pretest
Average	76,25	75,00
Deviation Standard	14,09	13,94
Minimum	40	40
Maximum	100	100
Median	80	80
Mean	60	60

The Guttman scale is used to calculate the level of knowledge regarding the Covid-19 vaccination. The number of correct scores divided by the total number of questions and

multiplied by 100% is the formula used to calculate the percentage of answers from the questionnaire<sup>[7]</sup>. The following table shows how the post test results are grouped:

**Table 3. Grouping of Control Pretest and Intervention Pretest scores**

Knowledge	Control Pretest		Intervention Pretest		Mann Whitneu U-test p
	N	%	N	%	
Good	44	61,11	39	54,2	0,579
Enough	22	30,56	27	37,5	
Not Enough	6	8,33	6	8,33	
Total	72	100,0	72	100,0	

The pretest scores on the ratio scale for the control and intervention groups were compared using the *Mann Whitney U-Test*; the outcome was 0.579 ( $p > 0.05$ ), indicating that there was no significant difference between the pretest scores for the two groups.

The following table presents descriptions based on knowledge in the control and intervention groups following the viewing of instructional videos about the Covid-19 vaccination:

**Table 4 Respondents' knowledge after viewing educational videos**

Information	Control Post- test	Intervention Post-test
Average	77,36	82,50
Deviation Standard	12,45	11,06
Minimum	50	60
Maximum	100	100
Median	80	80
Range	50	40

The Guttman scale is used to calculate the level of knowledge regarding the Covid-19 vaccination. The number of correct scores divided by the total number of questions and

multiplied by 100% is the formula used to calculate the percentage of answers from the questionnaire<sup>[7]</sup>. The following table shows how the post test results are grouped:

**Table 5 Control Grouping Intervention and Post test Results scores on the post test**

Knowledge	Control Post-test		Intervention Post-test		Mann Whitney U-test
	N	%	N	%	p
Good	39	54,2	52	72,2	0,022
Enough	27	37,5	20	27,8	
Not Enough	6	8,33	0	0,0	
Total	72	100,0	72	100,0	

When the *Mann Whitney U-Test* was used to compare the post test score data on the ratio scale of the control and intervention groups, the result was 0.022 ( $p > 0.05$ ). This suggests that there is an average difference between the post tests of the control and intervention groups, indicating an increase in the average score. After a 10<sup>th</sup> grade Darul Ulum 1

Jombang High School class watched an instructional video, the students' average knowledge of the Covid-19 vaccination was assessed.

The following table compares the adolescents' knowledge of the Covid-19 vaccination between the control and intervention groups:

**Table 6 Pretest with Control and Intervention Groups and Post test Results**

Knowledge Score	Intervention Group	Control Group	Mann Whitney U-test
	Mean±SD	Mean±SD	p
Before	75,00±13,94	76,25±14,09	0,579
After	82,50±11,1	77,36±12,45	0,022
Difference	7,50±19,12	1,11±12,62	<b>0,042</b>

Each group completed a pre- and post-test, and in order to determine the differences between the intervention and control groups, they had to pass a difference test using the

*Mann Whitney Test*. To determine the difference between the pre-test and post-test scores of the intervention group and the control group, the pre-test and post-test

results must first be analyzed using the gain score (actual gain), prior to the *Mann Whitney Test*. It is known from the data collection that there is a difference in the average difference between the control group and the intervention group, with a p-value of 0.042 <0.05. The average value,

which was 75.00 prior to the intervention and increased to 82.50 following it, further illustrates this.

*The distribution of right or wrong answers from the pretest and post test regarding knowledge of Covid-19 vaccination is presented in the following table:*

**Table 7 Distribution of correct and incorrect answers to the questionnaire**

Question	Answer	Control Group		Intervensi Group	
		Pretest	Post test	Pretest	Post test
1. In your opinion, how does Covid-19 spread?	Correct	61	62	63	71
	Wrong	11	10	9	1
2. What is the purpose of Covid-19 vaccination?	Correct	59	65	67	69
	Wrong	13	7	5	3
3. Through vaccine administration, the body will produce antibodies against the virus.	Correct	71	70	69	72
	Wrong	1	2	3	0
4. Everyone should receive the vaccine, except those who have been confirmed positive for Covid-19.	Correct	51	58	55	60
	Wrong	21	14	17	12
5. Individuals who have completed the first stage of vaccination must proceed to the subsequent stage.	Correct	59	60	58	67
	Wrong	13	12	14	5
6. The second stage of Covid-19 vaccination is administered one week after the first vaccination.	Correct	53	51	43	52
	Wrong	19	21	29	20
7. The central MUI fatwa commission has not declared the Sinovac-produced vaccine halal.	Correct	33	34	30	36
	Wrong	39	38	42	36
8. The CoronaVac vaccine produced by Sinovac is guaranteed to be safe.	Correct	66	65	70	72
	Wrong	6	7	2	0
9. After receiving the Covid-19 vaccination, we will not be susceptible to infection.	Correct	45	43	41	49
	Wrong	27	29	31	23
10. What are the systemic side effects of the Sinovac vaccine?	Correct	50	43	43	41
	Wrong	22	29	29	31

Question number 7 asked about the halal of vaccines; more specifically, it asked about the statement "The central MUI fatwa commission has not determined that the vaccine produced by Sinovac is halal." This question received the most incorrect or incorrect answers from students.

## DISCUSSION

With a significance value of 0.579 ( $p > 0.05$ ), the adolescents' knowledge prior to watching instructional videos did not seem to differ significantly between the control and intervention groups. Based on

the knowledge description, the control group's average score was 76.25, whereas the intervention group's average score was not significantly different at 75.00. Therefore, the control group's knowledge is superior to that of the intervention group. With a significance value of 0.579 ( $p > 0.05$ ), the adolescents' knowledge prior to watching instructional videos did not seem to differ significantly between the control and intervention groups. Based on the knowledge description, the control group's average score was 76.25, whereas the intervention group's average score was not

significantly different at 75.00. Therefore, the control group's knowledge is superior to that of the intervention group. Age is one of the variables that affects knowledge. Seven students (9.7%) in the control group were among the responders who were 17 years old. Conversely, nine students (12.5%) in the intervention group were 17 years old. Therefore, it should be the case that the intervention group knew more, but in this study, the opposite was true. A person's age can affect their knowledge because as people age, their cognitive processes and ability to grasp information improve, leading to a higher quality of knowledge.<sup>[8]</sup> One of the external factors that affects someone's ability to learn more is information. For example, students' prior exposure to information about the Covid-19 vaccination may have come from newspapers, radio, television, or the internet. Because there are many resources available to make information easier to obtain, new knowledge can be absorbed quickly. In addition, environmental factors have a significant impact on the advancement of knowledge.

The study's final findings demonstrated that the intervention group's average post test knowledge score was higher than that of the control group, indicating a difference in average post test knowledge scores between the two groups and an increase in knowledge between the groups that received educational video shows and those that did not. Those being 77.36 and 82.50. After watching instructional videos, people's knowledge of the Covid-19 vaccination increased. This could be because students learn information more quickly when watching videos. After the treatment was administered, the knowledge of both the control and intervention groups produced a significant value of 0.022 ( $p < 0.05$ ), indicating that there was a significant difference in the post test scores between the two groups. The average value or knowledge category shows that the respondents' level of knowledge increased after receiving health education

through the showing of educational videos. Prior to the intervention group's showing of the educational video, there were 6 respondents in the poor category and 39 respondents in the good category; following the showing of the video, the intervention group increased to 44 respondents in the good category and no respondents in the poor category. It is evident that three respondents, or the control group, who did not receive instructional videos, still possessed less knowledge than the other students. According to additional research, knowledge grows following health education.<sup>[9]</sup> In addition, video media employs audio and visual effects to demonstrate specific actions, which facilitates the acceptance of the information being presented.<sup>[10]</sup> Internal variables, such as a student's interest in the material presented in the video, can also have an impact on an individual's ability to learn more. Interest motivates people to try new things and eventually learn more in-depth information.

The Indonesian Ulema Council (MUI) has issued Fatwa Number 2 of 2021 concerning Covid-19 Vaccine Products from Sinovac Life Sciences Co. Ltd. China and PT Bio Farma (Persero). This fatwa was issued on January 11 2021 in Jakarta and stated that the vaccine is halal and holy for use by Muslims. This fatwa was issued after the Food and Drug Supervisory Agency (BPOM) approved the Emergency Use Authorization (EUA) for the vaccine produced by Sinovac on the same date. This fatwa also states that the vaccine can be used as long as its safety is guaranteed by credible experts. This fatwa is important to provide certainty to Muslims regarding the halal of the Covid-19 vaccine and promote vaccination efforts among the Muslim community in Indonesia. The Indonesian Ulema Council (MUI) has issued Fatwa Number 2 of 2021 concerning Covid-19 Vaccine Products from Sinovac Life Sciences Co. Ltd. China and PT Bio Farma (Persero). This fatwa was issued on January 11 2021 in Jakarta and stated that the

vaccine is halal and holy for use by Muslims. This fatwa was issued after the Food and Drug Supervisory Agency (BPOM) approved the Emergency Use Authorization (EUA) for the vaccine produced by Sinovac on the same date. This fatwa also states that the vaccine can be used as long as its safety is guaranteed by credible experts. This fatwa is important to provide certainty to Muslims regarding the halal of the Covid-19 vaccine and promote vaccination efforts among the Muslim community in Indonesia. MUI has also deemed a number of other Covid-19 vaccines, such as Zifivax and Merah White, halal. The majority of students' perceptions regarding this matter were incorrect, despite a video explaining that the MUI fatwa had determined the Sinovac vaccine to be halal. This was revealed by the student response regarding the halal of the vaccine, which stated, "The central MUI fatwa commission has not determined that the Sinovac vaccine is halal." Because of restricted access within the boarding school, students may perceive disagreements regarding the halal of the Covid-19 vaccination. Additionally, students may still have doubts about the vaccination's halal status. Based on this study, a number of students stated that there is no issue if a student is not vaccinated because, in accordance with the rules of Islamic boarding schools, students are not permitted to leave the school, which can reduce the spread of the Covid-19 virus. However, a few students also stated that vaccination is permissible in case of emergencies. There are still concerns regarding students' perceptions of halal. Some students doubt the halal of the vaccine-making materials, while others doubt the effect of injecting the Covid-19 vaccine. Still others question the quality of the vaccine being injected.<sup>[11]</sup> Therefore, more research is required to determine the precise cause of the students' disagreement over whether the Sinovac vaccine is halal.

## CONCLUSION

After displaying instructional videos to 10<sup>th</sup> grade Darul Ulum 1 Jombang High School students, there was an increase in their average score. According to the study's findings, video educational media has been shown to be successful in raising students' knowledge. In addition to health services, educators and boarding school administrators are also involved in health socialization. They can offer health outreach by employing the more successful video presentation method.

### Declaration by Authors

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**Conflict of Interest:** None

## REFERENCES

1. Pamungkas, B., Rizqiea, N., and Windyastuti, E. "Overview of Knowledge Levels About Covid-19 Vaccines in Teenagers at SMP Negeri 1 Andong." Dissertation. 2022; p.6.
2. Wong, W. H. S., Leung, D., Chua, G. T., et al. "Adolescents' Attitudes Toward COVID-19 Vaccination." *Vaccine*. 2022; 24–26.
3. Affandi, A., Sarwani, A. S., Erlangga, H., Siagian, A. O., et al. "Optimization of MSMEs Empowerment in Facing Global Market Competition During the COVID-19 Pandemic." *Systematic Reviews in Pharmacy*. 2020; 11(11), pp. 1506-1515.
4. Sari, M. "Education on Post-Immunization Events and Adolescent Anxiety Levels in Facing Covid-19 Vaccination." *Jurnal Karya Abadi*. 2021; 5, p.543.
5. Lemeshow, S., et al. "Adequacy of Sample Size in Health Studies." Chichester u.a.: Wiley. 1990.
6. Handayani, S., Joko, Umiastuti, P., et al. "Covid-19 Vaccination – Pros and Cons." YouTube. 2021.

7. Arikunto, S. "Research Procedures: A Practical Approach." Revised Edition. Jakarta: PT. Rineka Cipta. 2013.
  8. Simamora, R. H. "The Influence of Identification Patient Counseling Using Audiovisual Media on Inpatient Patient Knowledge." *Jurnal Keperawatan Silampari*. 2019; 3(1), 342-351.
  9. Mariyam and Nuradita, E. "The Effect of Health Education on Knowledge About the Dangers of Smoking in Adolescents at SMP Negeri 3 Kendal." Semarang: Universitas Muhammadiyah Semarang. *Jurnal Keperawatan Anak*. 2013; Vol. 1, No. 1, pp. 44-4.
  10. Tindaon, R. L. "The Influence of Communication, Information, and Education (KIE) Through Leaflet and Video Media on Adolescent Knowledge and Attitude Toward Exposure to Pornography at SMP Negeri 1 Sidamanik, Sidamanik District, Simalungun Regency in 2016." *JUMANTIK (Scientific Journal of Health Research)*. 2017; 3(1), 44-64.
  11. Ramadlan, M. G., Rosidah, A., & Sulistyowati, E. "The Relationship Between Knowledge, Behavior, and Perception of COVID-19 Vaccination in Santri (Students) of Islamic Boarding Schools in Malang City." *Jurnal Kedokteran Komunitas (Journal of Community Medicine)*. 2022; 10(1).
  12. Pamungkas, B., Rizqiea, N. and Windyastuti, E. "Gambaran Tingkat Pengetahuan Tentang Vaksin Covid-19 Pada Anak Usia Remaja Di SMP Negeri 1 Andong". Diss. 2022;p.6.
  13. Wong, W. H. S., Leung, D., Chua, G. T., et al. Adolescents' attitudes to the COVID-19 Vaccination. *Vaccine*. 2022;24–26.
  14. Affandi, A., Sarwani, A. S., Erlangga, H., Siagian, A. O., et al. "Optimization of MSMEs Empowerment in Facing Competition in the Global Market during the COVID-19 Pandemic Time". *Systematic Reviews in Pharmacy*, 2020;11(11), hh 1506-1515.
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