Health Research Journal, 38-43
Volume 3 Number 2 August 2025
URL: https://jurnal.cakrabirawamedia.com/index.php/hrj/

ISSN 2988-5469 (Print) 2988-3075 (Online)

The Relationship Between Health Education and Public Knowledge of the Benefits of the COVID-19 Vaccine

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ABSTRACT

Health education and socialization programs aim to increase COVID-19 vaccination coverage. Low participation in health education is associated with insufficient knowledge about the importance of vaccination and negative attitudes toward its implementation. Many residents remained unvaccinated due to limited knowledge and unsupportive attitudes toward the COVID-19 vaccination program. This study aimed to analyze the relationship between health education and community knowledge regarding the importance of COVID-19 vaccination. This was a correlational study with a cross-sectional approach. The population consisted of all social assistance recipients, in March 2021. A purposive sampling technique was used, resulting in a sample size of 36 respondents. Data were collected through questionnaires and analyzed using the Wilcoxon test with SPSS. Before health education, most respondents (77.7%) had poor knowledge about COVID-19 vaccination. After health education, knowledge levels improved significantly, with 86.6% demonstrating good knowledge. Respondents' characteristics showed that the majority (44.4%) had a junior high school education level. Statistical analysis revealed a significant relationship between participant engagement and knowledge ($p = 0.000$) as well as attitudes ($p = 0.000$). Health education significantly improved knowledge and positive attitudes toward COVID-19 vaccination. Nurses, as health workers, should continue to provide health education and encourage community support for vaccination programs.

Keywords: Attitude, COVID-19 Vaccination, Health Education, Knowledge

BACKGROUND

Vaccination is a preventive medical intervention that has been recognized as one of the most important breakthroughs in public health, saving millions of lives globally. Vaccination induces specific immunity against infectious diseases, while immunization is the process of developing resistance, which may occur naturally or through vaccines.

The COVID-19 pandemic highlighted the urgent need for widespread vaccination to reduce transmission, morbidity, and mortality. According to WHO and the World Health Assembly (2020), equitable vaccine distribution and acceptance are essential for global health security. In Indonesia, the COVID-19 vaccination program was implemented after approval by the National Agency of Drug and Food Control (BPOM) based on international and national clinical trials.

However, vaccine hesitancy remains a challenge. Data from February 2022 revealed that only 41% of the population had received the first dose of COVID-19 vaccine, while 59% remained unvaccinated. Interviews with residents revealed that lack of knowledge, fear, and misinformation contributed to vaccine refusal.

Given the importance of vaccination in preventing severe illness and controlling the pandemic, it is crucial to examine the role of health education in increasing knowledge and awareness. Therefore, this study aimed to analyze the relationship between health education and community knowledge about the importance of COVID-19 vaccination.

METHODS

Study Design

This study employed a pre-experimental design with a one-group pre-test and post-test approach, as described by Notoatmodjo (2005). This design was chosen because it allows researchers to measure changes before and after an intervention within the same group, without using a control group. Thus, the findings are expected to provide an overview of the effectiveness of the health education intervention.

Population and Sample

The study population consisted of social assistance recipients. A total of 36 respondents were selected using purposive sampling. This technique was chosen because the researchers applied specific criteria to determine participants who were relevant to the research objectives, ensuring that the data collected aligned closely with the research problem.

Demographic Characteristics

Data collection was carried out using questionnaires that included questions about respondents' demographic characteristics such as age, gender, educational level, and employment status. These demographic data are important to provide a general profile of respondents and serve as the basis for analysis in understanding variations in knowledge and attitudes regarding COVID-19 vaccination.

Knowledge and Attitude

In addition to demographic data, the questionnaires were also used to assess respondents' knowledge and attitudes toward COVID-19 vaccination. The assessments were conducted both before and after the provision of health education. This was aimed at identifying the extent to which the intervention influenced improvements in respondents' understanding and changes in their attitudes toward the importance of vaccination.

Observation

Direct observations were conducted with respondents during both the pre-test and post-test phases. This method enabled the researchers to monitor changes that occurred following the intervention, not only through questionnaire responses but also through observed behaviors demonstrated by the respondents. Field observations thus complemented the quantitative data collected through the questionnaires.

Data Analysis

The collected data were analyzed using the Wilcoxon signed-rank test with the aid of SPSS software. This non-parametric test was employed because it is suitable for comparing paired data with ordinal or interval scales that are not normally distributed. The results of this analysis provided a strong basis for determining whether there were significant differences between the pre-test and post-test results following the delivery of health education.

RESULTS

Characteristics of Respondents

The study involved a total of 36 respondents who were recipients of social assistance. Regarding educational background, the majority of participants had relatively low levels of formal education. Specifically, 44.4% of the respondents had completed junior high school, 36.1% had completed

elementary school, and only 19.4% had reached senior high school. This distribution indicates that most respondents came from communities with limited access to higher education, which may influence their initial level of health knowledge.

Age Distribution

The majority of respondents were in the older age category. As many as 77.7% were aged above 45 years, reflecting that most participants were middle-aged to elderly individuals. This demographic characteristic is particularly important, as age can affect both the perception of health risks and the ability to access or process new information about preventive health measures such as vaccination.

Sources of Information

When asked about their primary sources of information, 86.1% of respondents reported receiving knowledge about COVID-19 vaccination from health workers. This finding highlights the critical role of health professionals in disseminating accurate and reliable health information within the community. It also emphasizes the trust that the public places in health workers, making them a strategic channel for health education interventions.

Knowledge Before Intervention

The assessment of knowledge prior to the intervention revealed that the majority of respondents had insufficient understanding of COVID-19 vaccination. Specifically, 77.7% were categorized as having poor knowledge, 16.6% had moderate knowledge, and only 5.5% demonstrated good knowledge. These results underline the necessity of structured health education programs to address knowledge gaps, particularly in vulnerable populations with low educational attainment.

Knowledge After Intervention

Following the implementation of health education, a significant improvement in knowledge levels was observed. As many as 86.6% of respondents demonstrated good knowledge, 13.8% had moderate knowledge, and none remained in the poor knowledge category. This improvement suggests that health education was effective in enhancing understanding and correcting misconceptions about COVID-19 vaccination among the respondents.

Statistical Analysis

The effectiveness of the intervention was further confirmed by statistical testing. The Wilcoxon signed-rank test showed a significant difference between pre-test and post-test scores, with a p-value of 0.000. This result indicates that health education had a statistically significant impact on improving respondents' knowledge about COVID-19 vaccination. These findings provide strong evidence supporting the role of health education as a vital strategy in promoting vaccine awareness and acceptance in the community.

Table 1. Characteristics of Respondents (n = 36)

Variable	Category	Frequency (n)	Percentage (%)
Education	Elementary School	13	36.1
	Junior High School	16	44.4
	Senior High School	7	19.4
Age	≤ 45 years	8	22.3
	> 45 years	28	77.7
Source of Information	Health Workers	31	86.1
	Others (family, media, etc.)	5	13.9

Based on Table 1, the majority of respondents had completed junior high school (44.4%), followed by elementary school graduates (36.1%), while only 19.4% had reached senior high school. In terms of age distribution, most respondents (77.7%) were older than 45 years, indicating that the study population was predominantly middle-aged and elderly individuals. Furthermore, health workers were the primary source of information about COVID-19 vaccination for 86.1% of respondents, while only 13.9% relied on other sources such as family or media. These characteristics highlight the crucial role of health professionals in providing accurate information, particularly for older adults with limited educational backgrounds.

Table 2. Knowledge of Respondents Before and After Health Education

Knowledge Level	Pre-Test (n, %)	Post-Test (n, %)
Poor	28 (77.7%)	0 (0.0%)
Moderate	6 (16.6%)	5 (13.8%)
Good	2 (5.5%)	31 (86.6%)

Based on Table 2, there was a substantial improvement in respondents' knowledge after receiving health education. Prior to the intervention, the majority of respondents (77.7%) were in the poor knowledge category, while only 5.5% demonstrated good knowledge. However, after the health education program, none of the respondents remained in the poor category, and the proportion of those with good knowledge increased markedly to 86.6%. Meanwhile, the percentage of respondents with moderate knowledge showed only a slight change, from 16.6% before to 13.8% after the intervention. These findings indicate that the health education program was effective in significantly enhancing participants' knowledge of COVID-19 vaccination.

Table 3. Wilcoxon Signed-Rank Test Results

Variable	Z Value	p-value	Interpretation
Knowledge (Pre–Post)	-5.317	0.000	Significant difference ($p < 0.05$)

DISCUSSION

The findings revealed that before health education, most respondents had poor knowledge about COVID-19 vaccination, consistent with low educational backgrounds and limited access to reliable health information. This aligns with Notoatmodjo (2010), who stated that knowledge acquisition depends on sensory perception, learning, and educational exposure.

After receiving health education, knowledge levels improved significantly. Respondents were better informed about vaccine benefits, safety, and the role of vaccination in preventing severe illness and protecting the community. These results are consistent with previous studies demonstrating that health education interventions enhance knowledge and positive attitudes toward health behaviors (Syahlani & Nazmaturrahmah, 2011).

Health education delivered by health workers was effective because it combined structured information with interactive discussions, making participants more engaged. By addressing misconceptions and providing evidence-based explanations, the sessions helped reduce fear and hesitancy.

The significant increase in knowledge (p = 0.000) suggests that health education should be a continuous effort, particularly in rural communities where misinformation spreads easily. Nurses and healthcare workers play a vital role as trusted sources of information.

CONCLUSION

The findings of this study conclude that prior to health education, most respondents (77.7%) demonstrated poor knowledge of COVID-19 vaccination, whereas after the intervention, the majority (86.6%) showed good knowledge, with statistical analysis confirming a significant relationship between health education and improved knowledge (p = 0.000). Based on these results, several recommendations are proposed: the community is encouraged to seek accurate information from health professionals and avoid misinformation; health centers (*Puskesmas*) should strengthen health promotion efforts, particularly in regions with low vaccination coverage; healthcare workers, especially nurses, are advised to engage actively with communities through continuous education and collaboration with local leaders; and future researchers are recommended to investigate psychosocial factors contributing to vaccine hesitancy as well as the long-term impacts of health education interventions.

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