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Original Research

Factors Affecting Vaccine Distribution Activities For The Community With Door To Door Method

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ABSTRACT

Background: *The "pick up the ball" system requires distribution facilities such as vehicles and special storage areas that guarantee the quality of vaccines, using the door-to-door method to speed up and reach more residents who need to get vaccinated directly at the home of the vaccine participant.*

Methods: *A cross-sectional study with a retrospective approach. This study collected data in 2 districts in Yogyakarta's special regency: the Kulon Progo district and the Gunung Kidul district. The sample for this study was drawn from a community of 249 vaccine recipients using random sampling.The original questionnaire for the factors was used. The pilot study results for the validity and reliability test for the original questionnaire showed that the validity of each statement was 0.4409 and the reliability was 0.772. A chi-square test was employed for data analysis.*

Results: *It was found that the participant's age, occupation, knowledge, and education level have no relationship with the activity of vaccination distribution. One factor has a relationship with the activity of vaccination distribution, namely the vaccine schedule factor with an OR value of 1,205.*

Conclusion: *The factor affecting the activity of distributing the COVID-19 vaccine was the respondent's schedule, while the factor that had no relationship was the participant's age, occupation, knowledge, and education level. Health workers can maximize the performance of the COVID-19 vaccination by using the door-to-door method by paying attention to the community's schedule.*

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INTRODUCTION

One of the programs carried out to control the coronavirus pandemic is the COVID-19 vaccination program. Vaccines work by exposing small parts of the virus so the immune system can learn to recognize the source of the disease. Giving more than one dose of the vaccine increases the possibility of the body's immune system studying the virus and finding ways to ward off an advanced infection (CNN Indonesia, 2020).

The success of the vaccination program will depend on the uptake rate among the entire population. It is important to prepare and develop effective policies and messaging for vaccinations to maximize uptake when vaccines become available (Sherman et al., 2021). Challenges and concerns over the inequality and adequacy of the COVID-19 vaccine cover four things: a lack of supply, a gap in access to developing or poor countries, an imbalance in coverage, and the distribution of logistics (Kesehatan, 2020).

Also, many respondents do not believe that COVID-19 (SARS-CoV-2) is real, likely to be contagious, or threatening public health. Several respondents stated that the pandemic is a product of propaganda, conspiracy, hoax, and/or deliberate attempts to spread fear through media for profit (Lasmita et al., 2021). Some of the efforts made by the Indonesian government include compiling a communication strategy that takes into account the diversity of information needs of the community before, during, and after the introduction of vaccines, especially those related to safety, effectiveness, and even the distribution.

Vaccines applying efforts to prepare the COVID-19 vaccine to the fullest, including making adjustments to the Risk Communication and Community Empowerment (KRPM) steps. Including medical staff as the primary party involved in planning communications and increasing its capacity and finding ways to reach people with the most limited access to information, such as those who are classified as poor and vulnerable (Kesehatan, 2020). In early April 2021, the Deputy Speaker of the Indonesian House of Representatives, Azis Syamsuddin, asked the government to implement a "jemput bola" or "pick up the ball" system in the COVID-19 vaccination program, namely visiting people who have been registered as vaccine recipients in the RT/RW scope and not focusing on the construction of vaccination centers that far away and causing crowds (Parlementaria, 2021).

In April 2021, the government appreciated the innovation of the "pick up the ball" system carried out by the community to accelerate the achievement of vaccinations for the elderly. The "pick up the ball" system was then carried out by various parties to reach people with disabilities, schools, and communities that were constrained by geographical conditions. Not only that, the State Intelligence Agency, together with the TNI and POLRI, also took part in carrying out vaccinations with a "pick up the ball" system that targets the general public in areas with low vaccination achievements.

With the involvement of actors outside of health, the achievement of vaccination will be faster, even in the midst of limited government resources. The "pick up the ball" system is effective in accelerating vaccination achievement by bringing vaccination services closer to the community so that public accessibility increases (Yuningsih, 2021). Regarding people's willingness to be vaccinated, there will definitely be groups of people who refuse to be vaccinated, even though the "pick up the ball" system has been implemented. The "pick up the ball" system requires preparation in advance. Preparations were made by all relevant stakeholders in socialization efforts, including preventing hoax news and various innovations, so that people would want to be vaccinated.

In addition, people are often confused by the number of parties who carry out vaccinations, including the "pick up the ball" system in a community environment. Due to a lack of coordination in mapping and planning vaccination, there is an overlap in the implementation of vaccinations at the same time. In this case, vaccination organizers can coordinate with the local government to map and plan vaccinations carried out by

various parties in their working areas. Coordination is also needed to ensure the availability of vaccine stocks. Resource support in the implementation of the "pick up the ball" system. There are still areas that have limited facilities that support the distribution of vaccines to carry out a "pick up the ball" system, especially in areas with geographical conditions that are difficult to reach.

The "pick up the ball" system requires distribution facilities, such as vehicles and special storage areas, that guarantee the quality of vaccines from the warehouse until the vaccine is injected into the community. In addition, support also comes from the presence of health workers who carry out vaccinations. Therefore, it is necessary to cooperate with all parties, not only the central government and local governments, but other institutions, private parties, communities, and the public, to participate in organizing the COVID-19 vaccination.

Since September 2021, Yakkum Emergency Unit (YEU) has continued to carry out vaccination activities for at-risk groups in several areas in Gunungkidul Regency, Sleman Regency, Kulon Progo Regency, and Klaten Regency, Central Java. As of December 31, 2021, as many as 2,783 people have received vaccinations facilitated by YEU, namely the "pick up the ball" system using the door-to-door method to speed up and reach more residents who need to get vaccinated. The areas that received vaccinations using the door-to-door method were the districts of Gunungkidul and Kulon Progo.

This area was chosen because it is still difficult for the community to reach in terms of finding health facilities, and the population is quite widely spread in the districts of Gunungkidul and Kulon Progo. The service carried out by the vaccinator in the door-to-door method is to meet the community directly at the home of the vaccine participant. So that the vaccine can be directly given to the community. Based on the data above, the researcher wants to analyze what factors affect the distribution of the COVID-19 vaccine to the community.

MATERIALS AND METHOD

This was a cross-sectional study with a retrospective approach. This study was conducted in the vaccine recipient community as a response. This study collected data in two districts in Yogyakarta's special regency: one in Kulon Progo and the other in Gunungkidul. Accidental sampling was used to sample the vaccine recipients' community. The inclusion criteria for the sample were getting the vaccine from the YEU program, being willing to fill out a questionnaire, and being able to use the Indonesian language. Meanwhile, the exclusion criteria were vaccine recipients with disabilities. This study's sample included 249 vaccine recipients.

In this study, original questionnaires were delivered to the respondents. The total was 11 questions for the vaccine recipients' community, consisting of questions regarding age, occupation, knowledge about the COVID-19 vaccine, level of education, vaccine schedule, and distribution of vaccinations. The validity results for the vaccine recipients' community questionnaire on each question were >0.4409, and the reliability results were 0.772. Data were analyzed using the Chi-Square test in SPSS version 26.

This research was conducted after passing the ethical clearance at the Health Research Ethics Committee of STIKES Bethesda Yakkum with the number: 075/KEPK.02.01/VI/2022. Before conducting the study, the researchers explained the purpose of the study, the procedures for data collection, and the benefits of participation to the potential subjects. The participants were offered the opportunity to ask any

questions and were assured that they could withdraw from the study at any time. Their personal information was kept confidential.

RESULTS

The results of the calculation of the characteristics of the respondents affecting the vaccine distribution activities for the community with the door-to-door method can be seen in the master table in Table 1.

Tabel 1. Respondent's characteristic affecting the vaccine distribution activities for the community with door to door method

Variable	f	%
Age		
Late adolescent (17-25 years old)	19	7,6
Early adult (26-35 years old)	31	12,4
Late adult (36-45 years old)	34	13,7
Early elderly (46-55 years old)	49	19,7
Late elderly (56-65 years old)	61	24,5
Senior citizen (more than 65 years old)	55	22,1
Occupation		
Student	11	4,4
Civil servant	15	6
Private sector employee	23	9,2
Farmer	96	38,6
Breeder	35	14,1
Businessman	22	8,8
Laborer	47	18,9
Knowledge		
High	119	47,8
Middle	122	49
Low	8	3,2
Level of education		
No school	38	15,3
Kindergarten	11	4,4
Primary school	71	28,5
Junior high school	74	29,7
Senior high school	40	16,1
College	15	6
Vaccine schedule		
Appropriate	222	89,2
Inappropriate	27	10,8
Vaccine Distribution		
Well distributed	217	87,1
Sufficiently distributed	32	12,9

In table 1, it is found that the characteristics of the majority of research respondents are aged 56–65 years old (late elderly) and most have farming jobs (38.6%). In terms of the respondents' knowledge about the COVID-19 vaccine, it was found that the respondents had medium category knowledge (49%), while the education

level of the respondents was mostly that of junior high school graduates (29.7%). In the schedule of respondents receiving the COVID-19 vaccine, it was found that the schedule was the most appropriate (89.2%) and the distribution of the COVID-19 vaccine was well distributed (87.1%).

Table 2 show that there is not any factor affecting the vaccine distribution activities for the community with door to door method. Age of vaccinator, occupation, knowledge, level of education, and vaccine schedule not affect to vaccine distribution activities.

Tabel 2. Analysis factors affecting the vaccine distribution activities for the community with door to door method

Variable		Distribusi Vaksin		Total	*Result*
		Well distributed	**Sufficiently distributed**		
Age of vaccinator	Late adolescent (17-25 years old)	16	3	19	***p value*** 0,364
	Early adult (26-35 years old)	28	3	31	
	Late adult (36-45 years old)	27	7	34	
	Early elderly (46-55 years old)	40	9	49	
	Late elderly (56-65 years old)	56	5	61	
	Senior citizen (more than 65 years old)	50	5	55	
Occupation	Student	10	1	11	***p value*** 0,807
	Civil servant	13	2	15	
	Private sector employee	20	3	23	
	Farmer	86	10	96	
	Breeder	28	7	35	
	Businessman	18	4	22	
	Laborer	42	5	47	
Knowledge	High	107	12	119	***p value*** 0,323
	Middle	104	18	122	
	Low	6	2	8	
Level of education	No school	36	2	38	***p value*** 0,373
	Kindergarten	10	1	11	
	Primary school	61	10	71	
	Junior high school	61	13	74	
	Senior high school	37	3	40	
	College	12	3	15	
Vaccine schedule	Appropriate	194	28	222	***p value*** 0,747
	Inappropriate	23	4	27	***OR*** 2,333

DISCUSSION

In this section, we analyze and discuss what factors influence the activity of vaccination distribution, which is carried out door to door. There have not been many studies regarding the factors that influence the activity of vaccination distribution. Other studies (Kamal et al., 2021) (Roy et al., 2022) discuss additional potential factors influencing COVID-19 vaccine acceptance and hesitancy, willingness, receipt, and awareness.

The results of statistical tests showed that the age of most vaccine participants was in the late-embedded elderly category, with an age range of 56–65 years, which accounted for as much as 24.5% of the total. This age is the main target for the door-to-door COVID-19 vaccination. Obstacles for the elderly who cannot travel long distances to vaccinate. So the conducted door-to-door vaccination can reach all people.

According to Budiono and Rivai's, (2021) the elderly face barriers to receiving services due to their weaker physical condition to go to health services (Budiono & Rivai, 2021). In addition, the distance from home to the location of health services is quite far, and the cost of transportation as a cost incurred from home to health service facilities is quite high, thus preventing the elderly from getting their health fulfillment facilities (Laksono et al., 2019). The increase in age will be accompanied by a decrease in the physical body, the emergence of various diseases, body balance, and the risk of falling. The health status of the elderly, which decreases with age, is contrary to the desire of the elderly themselves to stay healthy (Courtin & Knapp, 2017).

The results of the statistical test found that the age of the vaccine participants did not affect the vaccination distribution activities carried out door to door. This is evidenced by the p-value > (0.364 > 0.05), which means that the age of the vaccine participants does not significantly affect the vaccination distribution activity, which is carried out door to door. In the implementation of door-to-door vaccines, officers go directly to the elderly so that the distribution of vaccines goes directly to the target, so it does not affect the elderly.

In line with the research of Fulmer et al., (2021) it was found that health services that were directly provided to the elderly would greatly have an impact on improving their health (Fulmer et al., 2021). The COVID-19 vaccination activity is an activity to improve health in terms of disease prevention (Tonnara et al., 2022). Community disease prevention is carried out by health workers of all ages, not just the elderly, but all ages who are targets in improving health (Arregocés-Castillo et al., 2022).

In addition to age, the respondent's occupation is one of the factors studied in this study. The results of statistical tests show that most occupations of vaccine participants are in the former category, by as much as 38.6%. The districts of Gunung Kidul and Kulon Progo are areas that have many fertile land fields, so many of the residents work as farmers. Most of the residents of the Gunung Kidul and Kulon Progo districts are farmers.

This is supported by the areas in the two districts where there are still large areas of land to be managed into rice fields (Kuswantoro & Pramono, 2020) (Saladi et al., 2020). The results of the statistical test found that the work of the vaccine participants did not affect the vaccination distribution activities carried out door to door. This is supported by a p-value greater than (0.807 > 0.05), indicating that the work of vaccine participants has no significant impact on vaccination distribution activities carried out door to door.

Vaccine research on the acceptability of the COVID-19 vaccine was conducted in all genders and occupations. Because the workplace is one of the most common places for the COVID-19 virus to spread, the COVID-19 vaccination does not take work or gender into account (Al Kaabi et al., 2021) (Harapan et al., 2020). According to the results of statistical tests, the level of knowledge of respondents about the COVID-19 vaccine is in the middle category, with as many as 49%.

The results of the statistical test revealed that vaccine participants' knowledge had no effect on vaccination distribution activities carried out door to door. This is evidenced by a p-value> (0.323 > 0.05), which means that the knowledge of vaccine participants does not significantly affect the activity of vaccination distribution, which is carried out door to door. The amount of information obtained by respondents regarding the COVID-19 vaccine is very large, starting from community leaders, medical officers, and even social media. Since it was reported that the COVID-19 vaccine had been found, a lot of information has begun to spread. It's just that both true and hoax news are accepted (Kesehatan, 2020) (Lasmita et al., 2021).

Knowledge of the COVID-19 vaccine is an important factor in the decision to receive the vaccine. In a study conducted by Kamal et al., (2021) the risk of morbidity and the possible risk of death motivated respondents to be willing to receive the vaccine (Kamal et al., 2021). Respondents who believed that they were at risk of being infected with COVID-19 had a 1.48 times higher chance of agreeing to be vaccinated (Sherman et al., 2021) (Smith et al., 2017).

These findings indicate that respondents perceive the COVID-19 vaccine as a necessary measure to prevent new infections as well as disease transmission. In addition, knowledge about the dangers of the COVID-19 disease will further influence the willingness to receive the vaccine, which may be due to the increase in the COVID-19 mortality rate. This study is in line with a study conducted in the UK in which a population at greater clinical risk of serious illness from COVID-19 showed a higher intention to vaccinate (Sherman et al., 2021).

In addition to knowledge, the level of education is a factor studied in this study. The results of statistical tests showed that the education of most vaccine participants was in the junior high school category by as much as 29.7%. The results of the statistical test found that the education of the vaccine participants did not affect the vaccination distribution activities carried out door to door. This is evidenced by the p-value> (0.373 > 0.05), which means that the education of vaccine participants does not significantly affect the activity of vaccination distribution, which is carried out door to door.

Education level is also a predictor of reluctance to receive the COVID-19 vaccine. A study conducted by Jabessa and Bekele in 2022 revealed that higher vaccine availability was reported with increasing education levels (Jabessa & Bekele, 2022). Other researchers also agree that better-educated individuals are more likely to receive COVID-19 vaccination Graffigna et al., (2020) and lower levels of education are associated with significant levels of vaccine aversion (Khubchandani et al., 2021). Better-educated people are more concerned about health and well-being because they have access to more sources of information and become more involved in life events that may affect them, such as the COVID-19 vaccine (Islam et al., 2021).

The results of statistical tests show that the most appropriate vaccine implementation schedule is in the appropriate category by as much as 89.2%. The results of the statistical test found that the vaccine implementation schedule had an

effect on the door-to-door vaccination distribution activities carried out door-to-door. This is evidenced by the results of the Odds Ratio (OR) test, which is a measure of the exposure association (risk factor), and the OR (1,205) results, which mean that the vaccine implementation schedule has a 1-fold effect on vaccination distribution activities carried out door to door.

The assumption from the researcher is that this can happen due to work schedules that are mostly carried out in the morning by the community, maximizing the door-to-door implementation of the COVID-19 vaccine, which is carried out starting at noon, so that the community is right at home and can immediately receive the vaccine COVID-19. This COVID-19 vaccine is carried out door to door by first collecting data from the intended area. So that the vaccination target data and schedule have been adjusted to account for the presence of people who are right in their respective homes. This increases the likelihood that people living in remote areas will be able to receive the COVID-19 vaccine directly.

There were five overall factors studied for the vaccination participants: the participant's age, occupation, knowledge, education level, and vaccine schedule. In the bivariate analysis, it was found that only 1 factor has a relationship with the activity of vaccination distribution: the vaccine schedule factor, with an OR value of 1,205, which means that the vaccine implementation schedule has a 1-fold effect on the vaccination distribution activity, which is carried out door to door. Meanwhile, the participants' age, occupation, knowledge, and education have no relationship with the vaccination distribution activities, which were carried out door to door. The analysis of vaccine participant responses was not continued to the multivariate analysis stage because there was only one influential factor.

CONCLUSION

The most important finding was that factors affecting the activity of distributing the COVID-19 vaccine were the respondent's vaccine schedule, while the factors that had no relationship were the participant's age, occupation, knowledge, and education level. COVID-19 vaccination is one of the ways to prevent the spread of the COVID-19 virus in the community. By using the door-to-door method, this prevention can be further prevented with a wider and more equitable reach of the Indonesian people. Health workers can maximize the performance of the COVID-19 vaccination by using the door-to-door method and paying attention to the community's schedule so that they can directly meet with vaccine recipients.

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