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ANALYSIS OF THE RELATIONSHIP PERCEPTION OF BENEFITS AND PERCEPTION OF OBSTACLES TO VACCINATE COVID-19 BOOSTER DOSAGE

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ABSTRACT

This study aims to analyze the relationship between perceived benefits and perceived obstacles to vaccinating booster doses of COVID-19 in Pemalang Regency. This research is quantitative research with a cross-sectional study design. From the results of the hypothesis testing, it was obtained that the p-value of perceived benefits was 0.000, and the P value of perceived obstacles was 0.000. In conclusion, there is a significant relationship between the perception of benefits and intention to vaccinate booster doses of COVID-19 and a meaningful relationship between perceptions of obstacles and choice to vaccinate booster doses of COVID-19.

Keywords: Booster, Barriers, Benefits, Intentions, COVID-19 Vaccine

INTRODUCTION

Coronavirus Disease 2019 (COVID-19) is an infectious disease caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2). SARS-CoV-2 is a new type of coronavirus that has never been previously identified in humans (RI Ministry of Health, 2020). The outbreak of the coronavirus disease 2019 (COVID-19) and its worldwide spread is having an unprecedented impact on the daily lives of many people (Li & Zhao, 2021). The goals of vaccination in tackling the COVID-19 pandemic include reducing transmission/transmission of COVID-19, reducing morbidity and mortality from COVID-19, achieving herd immunity in the community (RI Ministry of Health, 2021).

Vaccination can be considered as a social contract that must be morally obeyed by every member of society for two reasons: first, vaccination is associated with various social benefits, such as protection of vulnerable members of society; secondly, because of individual costs, some people may feel tempted to get a 'free ride' relying on protection provided by someone else. For this reason, society is interested in ensuring that this social contract is respected (Korn et al., 2020). At the beginning of the implementation of the COVID-19 vaccination there were only two doses of vaccine given to the public, but now there are booster doses of vaccination.

Administration of a follow-up dose (booster) is carried out after receiving a complete primary vaccination dose at least three months after receiving a complete primary vaccination (RI Ministry of Health, 2022). Recent studies have shown that receiving a COVID-19 booster dose after a primary series increases antibody titers and neutralizes response among older adults without safety concerns (Munro et al., 2021; Eliakim-Raz et al., 2021). Booster doses provides the greatest gain in protection among adults aged ≥65 years Unvaccinated older adults have 11.3−22.3 times the risk of confirmed infection, 19.5 times

the risk of severe disease, and 61.4 times the risk of death associated with COVID-19 compared with fully vaccinated older adults who received booster doses (Bar-On et al., 2021; Johnson et al., 2022).

Based on vaccine data https://vaksinkemkes.go.id/#/vaccines as of June 25 2022 at 18.00 WIB, the lowest booster dose of COVID-19 vaccination in Central Java Province is currently Tegal Regency (12.73%), Magelang Regency (13.68%), Pemalang Regency (14.85%), Pati Regency (14.86%), and Pekalongan Regency (14.86%). Based on these data, the results of the booster dose COVID-19 vaccination in Pemalang Regency were in the third lowest rank. The Central Java Provincial Government is targeting COVID-19 vaccination coverage at the end of May 2022, namely dose 2 of at least 70% and a booster dose of at least 30%. The coverage of the booster dose COVID-19 vaccination in Pemalang Regency is still far from the predetermined target, namely until June 25 2022, it is only 14.85%.

The conditions in Pemalang Regency are in contrast to the results of studies in China which show that people in China have a high willingness to receive the third dose of the COVID-19 vaccine (Qin et al., 2022a). The same thing was also obtained from the results of a study in Italy which stated that the majority of respondents (85.7%) reported that they were willing to receive a booster dose of the COVID-19 vaccine (Folcarelli et al., 2022). The existence of benefits and obstacles in receiving vaccines can influence a person's decision making. The adverse effects brought about by a single external crisis event (eg, the current COVID-19 pandemic) will pervade and distort decision-makers' judgments about other routine matters through negative emotions (Li & Zhao, 2021). The lack of perceived benefits and differences in knowledge caused people to hesitate in accepting vaccines during the COVID-19 pandemic (Robertson et al., 2021). The main cognitive barrier to vaccination is related to concerns about efficacy and safety. (Mostafapour et al., 2019).

Research on acceptance or intention of booster vaccines has been carried out in several countries using the Health Belief Model theory approach, in analyzing the dependent and independent variables only to analyze the relationship between variables, while in this study an analysis will be carried out to examine the relationship between complex variables so as to obtain an overview thorough understanding of the relationship between variables in a model. In this study using Structural Equation Modeling Partial Least Square (SEM PLS) analysis and the application used is Smart PLS. The purpose of this study was to analyze the relationship between perceived benefits and perceived obstacles with the intention to vaccinate booster doses of COVID-19 in Pemalang Regency. With this research, it is hoped that it can provide recommendations to the Pemalang Regency government in an effort increasing coverage of booster doses of COVID-19 vaccination in Pemalang Regency.

RESEARCH METHODS

This research is a quantitative research with a cross sectional study design. The research was conducted in the Pemalang Regency area from July to October 2022. The population for this study was all the people of Pemalang Regency who had received two doses of COVID-19 vaccination and had not received a booster vaccine, totaling 1,406 people. Determination of the population based on the inclusion and exclusion criteria determined by the researcher. The sample size in this study was calculated using the Lemeshow formula, which totaled 333 respondents using the Proportional Random Sampling sampling technique.

Data collection using a questionnaire was carried out from September to October 2022 which was distributed directly to the respondents. In collecting data from respondents, the researchers went directly to conduct interviews and were assisted by enumerators. Data analysis used Structural Equation Modeling (SEM), namely Partial Least Square (SEM-PLS) using SmartPLS 3.0. In this SEM-PLS analysis, an evaluation of the measurement model (outer model) and evaluation of the structural model (inner model) will be carried out. Evaluation of the measurement model includes validity and reliability tests. The evaluation of the structural model includes R Square (R^2) analysis and hypothesis testing (Hair et al., 2021).

RESEARCH RESULT

Table. 1
Distribution of Respondent Characteristics

Age (Years)	n	Percentage (%)
19-29	110	33,03
30-40	74	22,22
41-51	74	22,22
51-62	48	14,41
>62	27	8,11
Jumlah	333	100
Gender	n	Percentage (%)
Man	141	42,34
Woman	192	58,66
Amount	333	100
Last Education	n	Percentage (%)
No school	7	2,10
Not completed in primary school	13	3,90
Graduated from elementary school	92	27,63
Middle school graduate	64	19,22
Graduated from high school	124	37,24
Completed D2/D3	6	1,80
Graduated S1	27	8,11
Amount	333	100
Work	n	Percentage (%)
PNS / Retired PNS	12	3,60
Private sector employee	33	9,91
Self-employed	66	19,82
Trader	55	16,52
Farmer	14	4,20
Laborer	37	11,11
Fisherman	4	1,20
Student / Student	10	3,00
Housewife	77	23,12
Other	25	7,51
Amount	333	100

Based on table 1 above, the most respondents were aged 19-29 years, namely 110 people (33.03%), 192 female respondents (57.66%), the last education of respondents was dominated by high school graduates 124 people (37.34%), and most of the respondents work as housewives, namely 77 people (23.12%).

Table. 2
Convergent Validity Test Results

Variable	Indicator	Outer Loading Value	Information
Perceived Benefit (X1)	X1.1	0,796	Valid
	X1.2	0,826	Valid
	X1.3	0,720	Valid
	X1.4	0,828	Valid
	X1.5	0,820	Valid
Perceived Obstacles (X2)	X2.1	0,736	Valid
	X2.2	0,709	Valid
	X2.3	0,778	Valid
	X2.4	0,707	Valid
	X2.5	0,781	Valid
Intention of Vaccination	Y1.1	0,879	Valid
COVID-19 Booster Dose (Y1)	Y1.2	0,858	Valid
	Y1.3	0,855	Valid
	Y1.4	0,788	Valid

Data analysis used SEM-PLS which included evaluation of the measurement model (outer model) and evaluation of the structural model (inner model). At this stage of the measurement model (outer model), validity and reliability tests were carried out. In the convergent validity test, the 14 research indicators show the outer loading value is > 0.70.

Table. 3
Discriminant Validity Test Results

Variabel	Perceived Obstacles (X2)	Perceived Benefit (X1)	Intention of Vaccination COVID-19 Booster Dose (Y1)
Rasio Heterotrait-Monotrait (HTMT)			
Perceived Obstacles (X2)			
Perceived Benefit (X1)	0,481		
Intention of Vaccination COVID-19 Booster Dose (Y1)	0,507	0,811	

Discriminant validity testing is carried out at the level of indicators and variables. HTMT is recommended because it is considered more sensitive or accurate in detecting discriminant validity. The recommended HTMT value is < 0.9. Based on table 3 above, it shows that the HTMT value for each pair of variables is <0.9 so that all variables are declared discriminantly valid.

Table. 4
Results of Construct Validity and Reliability

Variable	Composite Reliability	Information
Perception of Obstacles (X5)	0,860	Reliable
Perceived Benefits (X4)	0,899	Reliable
Intention (Y1)	0,909	Reliable

Based on the results of construct validity and reliability calculations in table 4, all variables have a Composite Reality value of > 0.70 so that reliability is acceptable. Based on the evaluation of the measurement model (outer model) it can be concluded that the validity and reliability tests are acceptable because they fulfill the existing conditions.

Evaluation of the structural model (inner model) includes model fit tests and hypothesis testing. The goodness of the model test is done by analyzing the value of R Square. From the analysis results, the R^2 value is 0.526 so that it has the predictive power of the model in the moderate category. Hypothesis testing is done by analyzing the significance value of the path coefficient and the P value. The path coefficient is statistically significant if the P value < the significance level (0.05). The significance value of the parameter coefficients can be calculated using the bootstrapping method. Bootstrapping output can be seen in Figure 1 above.

Table. 5
Hypothesis Test Results

Variable	*Path Coefficient*	P-value	Information
Perceived Benefits (X4) -> Intention (Y1)	0,630	0,000	Significant Positive
Obstacle Perception (X5) -> Intention (Y1)	0,183	0,000	Significant Positive

From the results of hypothesis testing, the P value of perceived benefits is 0.000. and the perceived P value of obstacles is 0.000.

DISCUSSION

Relationship between Perceived Benefit and Intention to Vaccinate COVID-19 Booster Dose

Based on the hypothesis, it is known that the P value (0.000) <0.05 and the path coefficient value is 0.630. From the results of this analysis, it can be concluded that perceived benefits are significantly positively related to the intention of booster doses of COVID-19 vaccination. This can be interpreted that the perception of good benefits can increase the intention of booster doses of COVID-19 vaccination. In the perceived benefit variable, there are five indicators, namely more effective (X1.1), protecting me and my family (X1.2), beneficial to health (X1.3), not afraid to travel (X1.4) and not afraid of crowds (X1. 5). The highest mean value is 2.961 and the highest percentage is in the agreed answers, namely 81.08% in the statement "Booster vaccines are beneficial for health". The percentage of respondents' answers indicated that of the several benefits of booster dose vaccines, respondents believed more that booster vaccines were beneficial to health compared to other benefits. Regarding the efficacy of booster vaccines in the statement "Booster vaccines are more effective at preventing the transmission of COVID-19" from 333 respondents, 6.31% answered strongly agree and 70.87% answered agree.

This research is in line with several previous studies. Research conducted in China shows that the higher the perceived benefit, the higher the acceptance of the three-dose COVID-19 vaccine in China (Qin et al., 2022). and the same thing was also found in other Chinese studies, where high perceived benefits were significantly related to high vaccine acceptance, namely 83% (Lin et al., 2020). The same thing was also obtained from a study conducted in Malaysia where a high perceived benefit in the community was associated with receiving the COVID-19 vaccine (Wong et al., 2020). Czech research shows that the perceived effectiveness of a booster dose of a COVID-19 vaccine is a significant and strong

predictor of booster dose acceptance in the Czech Republic (Klugar et al., 2021). The risk-benefit relationship can be modified, information highlighting benefits can increase the intention to be vaccinated against other diseases. The benefits felt by respondents from the vaccine increased significantly after receiving information about the high benefits or low risks of the vaccine, as well as the benefits felt from the vaccine decreased significantly after receiving information about the high risks or low benefits of the vaccine (Mostafapour et al., 2019).

Relationship between Perceived Barriers and Intention to Vaccinate COVID-19 Booster Doses

Based on the hypothesis, it is known that the P value (0.000) <0.05 and the path coefficient value is 0.183. From the results of this analysis, it can be concluded that perceived obstacles are significantly positively related to the intention of booster doses of COVID-19 vaccination. This can be interpreted that smaller obstacles can increase the intention of booster doses of COVID-19 vaccination. There are five indicators of perceived resistance variables, namely busyness (X2.1), speed of vaccine service (X2.2), transportation costs (X2.3), staff attitude (X2.4) and no family support (X2.5). . The highest percentage was in the disagree answer of 79.28% in the statement "I don't want booster vaccinations because no one in my family does booster vaccinations". From the percentage of respondents' answers it indicated that 79.28% of respondents had the intention to do a booster dose of COVID-19 vaccination not because they saw their family whether they had done a booster vaccine or not, so it can be concluded that no family support is not an indicator of obstacles .

According to Fisk, there are two obstacles, namely structural barriers and attitudinal barriers. Structural barriers are systemic problems that affect a person's ability to access services, while attitudinal barriers are beliefs or perceptions that can reduce a person's desire to seek or receive vaccine services (Fisk, 2021). Public attitudes and perceptions about vaccines are key factors that determine vaccine acceptance (Sallam, 2021). Research conducted in Pemalang Regency used indicators of structural barriers, but the results of this study were in line with several previous studies. Research by Puspasari and factory workers in China concluded that perceived obstacles were significantly related to the intention to vaccinate against COVID-19. According to Puspasari, the variable perception of barriers, namely worry about the ability to pay, worry about side effects, and worry about the halalness of the vaccine, is considered to be significantly related to receiving the COVID-19 vaccine (Puspasari & Achyadi, 2021), while the perceived barriers to factory workers in China include concerns about safety and duration of booster dose protection, these concerns need to be mitigated (Qin et al., 2022).

Another cause of obstacles is that it can be seen from the results of a study in Punjab Pakistan which stated that barriers to vaccination were influenced by many myths and misinformation (Zakar et al., 2022). In Pakistan, the acceptance rate of vaccines is low because the health decisions of the majority of the population are also influenced by various religious, cultural, social and ethnic values. Various studies from Pakistan show that people in Pakistan perceive vaccination campaigns as a Western/American agenda (Ali et al., 2021). Research conducted in Poland concluded that the main reasons for not receiving a booster dose of COVID-19 were due to side effects experienced after the previous dose, the opinion that further vaccination was not necessary, and uncertainty over safety.(Rzymski et al., 2021).

CONCLUSION

This study concludes that perceived benefits and perceived obstacles are related to the intention to vaccinate booster doses of COVID-19 with a positive relationship.

SUGGESTION

There needs to be an effective and targeted information, education and communication strategy carried out by the Pemalang Regency Government to increase the coverage of booster doses of COVID-19 vaccination.

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