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ANALYSIS OF THE RELATIONSHIP BETWEEN COVID-19 ANXIETY SYNDROME AND COVID-19 VACCINE ACCEPTANCY IN MEDAN, INDONESIA

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ABSTRACT

High infectivity and death rates of COVID-19, as well as the restrictions imposed, inflicted significant psychological distress including COVID-19 anxiety syndrome. To overcome this situation, a vaccination program was implemented. However, many issues have emerged regarding the public acceptance of the vaccine. There are several factors that may affect vaccine acceptancy. This study aims to determine the relationship between COVID-19 anxiety syndrome and COVID-19 vaccine acceptancy. This research was developed using a cross-sectional research design. The samples included people in Medan, gathered based on the consecutive sampling method. All respondents received a questionnaire and the data collected was analyzed using Spearman Rho correlation analysis. This study showed that there was a significant relationship between COVID-19 anxiety syndrome and vaccine acceptancy ($p<0,001$), with moderate level of correlation ($r=0,510$). This study suggests that a higher level of COVID-19 anxiety syndrome leads to a higher acceptance of the vaccine.

1. Introduction

The world is currently being profoundly affected by COVID-19. Globally, as of December 14th 2021, there have been over 270 million confirmed cases with over 5 million deaths, and in Indonesia, there have been over 4 million confirmed cases with over 143,960 deaths, reported by the WHO.[1] High infectivity and death rates of COVID-19, as well as the restrictions imposed by the government in order to reduce these rates, inflicted significant psychological distress.[2] A survey in Indonesia showed that 64.8% respondents experience psychological distress, with 65% of them experiencing anxiety.[3] Psychological distress related to the pandemic includes COVID-19 anxiety syndrome which is characterized by COVID-19-related avoidance, checking, worrying and threat monitoring.[4]

Various efforts have been made by the government to curb the number of infections and deaths, one of which is the vaccination program. However, many issues have emerged regarding the public acceptance of the COVID-19 vaccine in Indonesia. Consequently, there were only around 243 million doses administered in Indonesia while over 8 billion doses of vaccine were administered globally.[1] Moreover, there are several factors that may affect the vaccine acceptancy. A survey shows that respondents, whom themselves or their relatives had been infected by COVID-19, were more willing to receive the vaccine because they tended to be more anxious about the threat of COVID-19.[5]

This study aims to find the factors that may affect vaccine acceptancy in order to increase the vaccination rate. The focus of this study is to find the relationship between COVID-19 anxiety syndrome and vaccine acceptancy, as there are some previous studies that showed the influence of anxiety on vaccine acceptance. general health among undergraduate medical rehabilitation students

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2. Methods

This study used a descriptive-analytical method with a cross sectional study design and was conducted in Medan, Indonesia from July 2021 to December 2021.

We approached people that reside in Medan. Only people above 18-years-old with consent and who had completed the questionnaire were included in this study. By using the consecutive sampling method, we selected 260 respondents.

COVID-19 Anxiety Syndrome Scale (C-19ASS) was used to measure the level of COVID-19 anxiety syndrome. The C-19ASS questionnaire consists of 9 questions, each scored on a 5-point Likert scale from zero "strongly disagree" to four "strongly agree". Total scores were categorized into: 0-9 indicated "Normal", 10-18 indicated "Mild", 19-27 indicated "Moderate", 28-36 indicated "Severe" level of COVID-19 anxiety syndrome.[4]

1. Vaccine acceptancy was measured using Vaccine Hesitancy Scale that consists of 7 questions, each scored on a 5-point Likert scale from one "strongly disagree" to five "strongly agree". Total scores were categorized into: 7-15 indicated "Unwilling", 16-25 indicated "In Doubt", 26-35 indicated "Willing" to accept the vaccine.[6]

The data was then analyzed using the Spearman rho correlation analysis, Mann-Whitney test and Kruskal-Wallis test, with the 25th edition of Statistical Package for Social Sciences (SPSS) as a tool. This study was approved by the Health Research Ethical Committee of the Faculty of Medicine, Universitas Sumatera Utara. Written informed consent from the respondents was also obtained before the research.

3. Results and discussion

The details of the 260 subjects are summarized in Table 1. Male and female gender subjects were only slightly different (42.3% and 57.7%). Most of the sample subjects (97.7%) were between the ages of 18-59. Samples were obtained from all districts in Medan, with majority of the subjects (15%) resided in Medan Kota districts (data not whowed).

Most of the subjects had good education, who were mostly senior high school graduates (58.8%) and university graduates (40.4%). Corresponding with education, sample subjects were mostly students (81.2%) and employees (10%). Subjects were mostly Buddhist (44.6%). Most of the sample subjects (88.1%) had received COVID-19 vaccine.

COVID-19 Anxiety Syndrome

The level of COVID-19 anxiety syndrome of the 260 subjects is presented in Table 1. Most of the sample subjects experienced COVID-19 anxiety syndrome, with the majority experiencing moderate (38.1%) to severe (34.6%) level of COVID-19 anxiety syndrome. Only a very small portion of subjects (3.5%) did not experience COVID-19 anxiety syndrome.

Table 2 presents the summary of the correlation between sample characteristics and the level of COVID-19 anxiety syndrome. Amongst the various characteristics, only age was found to be significantly exaggerating COVID-19 anxiety syndrome (p=0.009).

In this study, subjects of the age group ≥ 60 mostly experienced severe level of COVID-19 anxiety syndrome, while majority of the sample of the 18-59 age group experienced a moderate level.

These results were in accordance with other studies that showed increased age was a factor that influenced the level of COVID-19 anxiety syndrome, as the elderly are in a higher risk group.[7]

Characteristics	Frequency (n=260)	Percentage (%)
Gender		
Male	110	42.3
Female	150	57.7
Age (years)		
18-59	254	97.7
≥60	6	2.3
Highest Education		
Junior High School	2	0.8
Senior High School	153	58.8
University	105	40.4
Occupation		
Student	211	81.2
Employee	26	10.0
Officer	2	0.8
Entrepreneur	8	3.1
Doctor	3	1.2
Housewife	6	2.3
Others	4	1.5
Religion		
Buddhism	116	44.6
Islam	83	31.9
Christianity	58	22.3
Hinduism	3	1.2
COVID-19 Vaccination Status		
Received	229	88.1
Not received	31	11.9
Level of COVID-19 anxiety syndrome		
Normal	9	3.5
Mild	62	23.8
Moderate	99	38.1
Severe	90	34.6

Table 1. Frequency Distribution of Sociodemographic Characteristics, COVID-19 vaccination status and level of COVID-19 anxiety children

Sample Characteristics		Level of COVID-19 Anxiety Syndrome				P-value
		Normal	Mild	Moderate	Severe	
Gender	Male	8	24	42	36	0.214**
	Female	1	38	57	54	
Age (years)	18-59	9	62	98	85	0.009**
	≥60	0	0	1	5	
Highest Education	Junior High School	0	0	0	2	0.114
	Senior High School	6	41	53	53	
	University	3	21	46	35	
Occupation	Student	7	50	86	68	0.756
	Employee	2	5	9	10	
	Officer	0	0	1	1	
	Entrepreneur	0	3	1	4	
	Doctor	0	1	1	1	
	Housewife	0	2	0	4	
	Others	0	1	1	2	
Religion	Buddhism	3	27	41	45	0.583
	Islam	4	19	36	24	
	Christianity	2	14	22	20	
	Hinduism	0	2	0	1	
COVID-19 Vaccination Status	Received	8	57	88	76	0.083**
	Not received	1	5	11	14	

* Kruskal-Wallis test, **Mann-Whitney test, P-value<0,05

Table 2. Bivariate between Sample Characteristics with Level of COVID-19 Anxiety Syndrome

There was no correlation between gender and level of COVID-19 anxiety syndrome (p=0.214). This result was in accordance with other studies that showed gender had no significant correlation to COVID-19 related anxiety.[8]

Both genders experienced moderate to severe level of COVID-19 anxiety syndrome. However, female gender was more prone to experiencing COVID-19 anxiety syndrome, as there was only 1 out of 150 females (0.6%) who did not experience it. On the other hand, there were 8 out of 110 males (7.2%) who did not experience COVID-19 anxiety syndrome. This result was in accordance to other studies that showed females were more prone to COVID-19 related anxiety.[9]

In this study, there was no correlation between highest level of education and level of COVID-19 anxiety syndrome (p=0.114). To the contrary, other studies showed that education had a significant correlation with COVID-19 anxiety syndrome, where respondents with a higher education level were more prone to anxiety.[8]

There was no correlation between occupation and level of COVID-19 anxiety syndrome (p=0.756). However, there were other studies that showed productive groups who go to work or school tended to experience higher level of COVID-19 anxiety syndrome as they were more exposed to the environment.[7]

Religion had no correlation with level of COVID-19 anxiety syndrome (p=0.583). This result was in accordance to other studies that showed religion had no correlation to COVID-19 related anxiety.[10]

There was no correlation between vaccination status and level of COVID-19 anxiety syndrome (p=0.083). Most of the sample subjects experienced moderate to severe level of COVID-19 anxiety syndrome. This was in accordance with the concerning pandemic situation.[11]

Vaccine Acceptancy

The COVID-19 vaccine acceptancy of the sample subjects is presented in Table 3. Majority of the subjects (88.1%) were willing to get vaccinated, with only 2.3% of them were unwilling and 9.6% were still in doubt to get vaccinated.

The correlation of sample characteristics and vaccine acceptancy is presented in Table 4. Amongst the various characteristics, only gender was found to have a significant correlation with vaccine acceptancy (p=0.029).

In this study, there was a correlation between gender and vaccine acceptancy. This result was in accordance with other studies that showed female gender tend to be more willing to get the vaccine.[12] In addition, another study also showed that females were more willing to get the vaccine, where 10% of male respondents refused to get the vaccine, while there were only 5% of female respondents who refused to get the vaccine.[5]

There was no correlation between age and vaccine acceptancy (p=0.179). This was in accordance with other studies that showed there was no correlation between age and vaccine acceptancy.[13,14] In this study, most of the subjects were between the ages of 18-59, which was the productive age. Hence, most of the subjects were willing to get the vaccine. This was in accordance with other studies that showed productive age influenced vaccine acceptance.[15]

Lastly, education had no correlation with vaccine acceptancy (p=0.374). This result was in accordance with other studies that showed there was no correlation between education and vaccine acceptancy.[14]

Most of the subjects with different occupations were willing to get the vaccine, as there was no correlation between occupation and vaccine acceptancy (p=0.447). This result was in accordance with other studies that showed there was no correlation between occupation and vaccine acceptancy.[13, 14]

There was no correlation between religion and vaccine acceptancy (p=0.741). Other studies also showed that vaccine acceptancy was not affected by religion, where the vaccine acceptancy among different religious groups was almost the same.[5]

Vaccination status had no correlation with vaccine acceptancy (p=0.088). Most of the subjects who had either received or not received the vaccine were willing to get vaccinated. This result was in accordance with other studies that showed similar results.[16-19]

	Frequency (n=260)	Percentage (%)
Vaccine Acceptancy		
Unwilling	6	2.3
In Doubt	25	9.6
Willing	229	88.1

Table 3. Frequency Distribution of Vaccine Acceptancy

Sample Characteristics		Vaccine Acceptancy			P-Value
		Unwilling	In Doubt	Willing	
Gender	Male	5	15	90	0.029**
	Female	1	10	139	
Age (years)	18-59	6	25	223	0.179**
	≥60	0	0	6	
Highest Education	Junior High School	0	0	2	0.374
	Senior High School	4	15	134	
	University	2	10	93	
Occupation	Student	5	19	187	0.447
	Employee	1	4	21	
	Officer	0	0	2	
	Entrepreneur	0	2	6	
	Doctor	0	0	3	
	Housewife	0	0	6	
	Others	0	0	4	
Religion	Buddhism	3	14	99	0.741
	Islam	1	0	2	
	Christianity	1	6	76	
	Hinduism	1	5	52	
COVID-19 Vaccination Status	Received	5	24	200	0.088**
	Not received	1	1	29	

* Kruskal-Wallis test, **Mann-Whitney test, P-value<0,05

Table 4. Bivariate between Sample Characteristics with Vaccine Acceptancy

Relationship between COVID-19 Anxiety Syndrome and Vaccine Acceptancy

The relationship between COVID-19 anxiety syndrome and vaccine acceptancy is summarized in Table 5.

There was a significant relationship between COVID-19 anxiety syndrome and vaccine acceptancy ($p<0.001$), with moderate level of correlation ($r=0.510$). The relationship was that the higher level of COVID-19 anxiety syndrome would lead to higher willingness of vaccine acceptance.

This result was in accordance with other studies that showed groups with COVID-19-related anxiety tended to be more willing to get the vaccine.5 Other studies also showed that there was correlation between COVID-19-related anxieties with willingness to get the vaccine.[20]

Another study also showed that vaccine acceptance increased with the increased anxiety of COVID-19 infection.[21]

		Vaccine Acceptancy			Correlation Coefficient (r)	P-value
		Unwilling	In Doubt	Willing		
COVID-19	Normal	3	4	2	0.510	<0.001
Anxiety	Mild	3	21	38		
Syndrome	Moderate	0	0	99		
	Severe	0	0	90		
	Total	6	25	229		

*Spearman rho correlation, p-value<0.05

Table 5. Bivariate between COVID-19 Anxiety Syndrome with Vaccine Acceptancy

4. Conclusions

Until now, COVID-19 is still a concern. High Infectivity and death rates inflicted anxiety in society, especially when we are adapting to the "new normal". This type of anxiety is known as COVID-19 anxiety syndrome, characterized by COVID-19-related avoidance, checking, worrying and threat monitoring.[4] Vaccination plays an important role in tackling this pandemic. However, there are many factors that may affect public acceptance of the vaccine.[14]

In this study, there is a significant relationship between COVID-19 anxiety syndrome and vaccine acceptancy. The relationship shows that a more severe COVID-19 anxiety syndrome will lead to higher vaccine acceptance. Most of the sample subjects are females between the ages of 18-59, graduated from Senior High School, students, Buddhist, and have received the vaccine. In addition to the correlation between COVID-19 anxiety syndrome and vaccine acceptancy, age has a correlation with COVID-19 anxiety syndrome, where increased age is a risk factor. Furthermore, gender has a correlation with vaccine acceptancy, where females are more willing to get vaccinated.

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