

THE RELATIONSHIP BETWEEN DEMOGRAPHIC FACTORS AND INDIVIDUAL PERCEPTION ABOUT COVID-19 VACCINES

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Abstract

Background: The cases of Covid-19 disease continue to rise in Kendari city, Southeast Sulawesi Province, Indonesia. In 2020, the task force of Covid-19 cases reported there were about 3,736 people who got Covid-19 diseases in Southeast Sulawesi Province. To reduce the cases, the Indonesian government have prepared some of covid-19 vaccines. However, the majority of community in this Province are still hesitant to accept covid-19 vaccines. Therefore, this study aimed to understand the relationship between demographic factors and individual perception about covid-19 vaccines surrounding people in Southeast Sulawesi Province.

Methods: This study was conducted since January 2020 until October 2020 in Southeast Sulawesi Province of Indonesia. This study recruited 210 respondents with 95% of interval confidence. Dependent variables were demographic factors which comprised age, sex, educational status, marriage status and occupation. Independent variable was individual perception about covid-19 vaccines. Data collection used Google form which was sent through WhatsApp of social media. Statistical analysis used chi-square test and Cramer's test to understand significant association.

Results: This study showed Sex had significant association with individual perception about covid-19 vaccines (P value=0.041<0.05; Cramer's value=0.174). However, age, educational status, marriage status, and occupation were not associated significantly with the individual perception about covid-19 vaccines. Female had better perception than male about covid-19 vaccines.

Conclusions: This study shows that female have more information than male about covid-19 vaccines. This is caused by several media to get information including female organizations in the village such as women organization, islamic women organization and social media groups. Women is more communicative than male.

Key words: Demographic, Perception, Covid-19, Disease, Virus

INTRODUCTION

Covid-19 is a disease which is caused by severe acute respiratory syndrome corona virus 2 (SARS-Cov-2) (1). The covid-19 cases continue to rise around the world. On September 19, 2020, the cases became about 30,369,778 cases and about 3.1% was death (948,795 patients) (2). Patients who died were caused by several factors such as pneumonia and other degenerative diseases, including coronary artery for five years, diabetes mellitus type 2 for 14 years, and chronic pulmonary obstructive for 8 years (3). Other cause are covid-19 patients who had palsy cerebral for 10 years, pregnant mothers who had complication disease and those who got HIV disease for 5 years.

Also in Indonesia, the covid-19 cases became about 344,749 people and 12,156 patients died on October 14, 2020 (4). The cases increased compared to 266,8445 people and 10,218 of them died on September 25, 2020. Southeast Sulawesi province of Indonesia gave 1.1% contribution of increase the covid-19 cases in Indonesia. The covid-19 cases in Southeast Sulawesi province were reported around 3,736 people and 2,393 of them died on October 14, 2020 (4). One of seventeen districts or cities in Southeast Sulawesi Province, Kendari city had the highest cases of covid-19. On October 14, 2020, People who got Covid-19 diseases were reported about 1,924 people in Kendari City. Kendari city is a smallest city compared to sixteen cities or districts in Southeast Sulawesi Province, namely about 300.89 with big population, about 334,335 people. (5).

Based on worst condition of covid-19 cases around the world, World Health Organization (WHO) motivated all countries in the world to develop covid-19 vaccine. Currently, WHO has identified 42 candidate covid-19 vaccine and those were took clinical tests (6). The ten vaccines of those were on the level of three of clinical tests. While in Indonesia, there are only six types

of Covid-19 vaccines which are allowed in vaccination program such as vaccines which are produced by PT Bio Farma (Persero), AstraZeneca, China National Pharmaceutical Group Corporation (Sinopharm), Moderna, Pfizer Inc. and BioNTech, and Sinovac Biotech Ltd (7).

However, the majority of community in Indonesia feel anxiety about affectivity of covid-19 vaccines which are testing clinically. Several questions emerge in public media about the ways of SARS-Cov-2 mutation. The SARS-Cov-2 mutated fastly, while the vaccines are still tested clinically. Therefore, communities in Indonesia, including communities in Kendari city of Southeast Sulawesi Province are confused with the effective Covid-19 vaccines although those have not been exist yet. This condition happens in the communities because there were many huge misleading information in social media. The misleading information which are received by communities will affect to their perception and success of the vaccination program in Indonesia, including in Southeast Sulawesi Province. Therefore, the study to understand public perception about covid-19 vaccine is necessary because the result will help Indonesian government to develop appropriate health promotion strategies which can increase public perception.

Specific questions in this study were followed as: 1) How is community's perception about Covid-19 vaccine in Southeast Sulawesi Province?; and 2) What does community's perception associate with individual demography such as sex, age, education, job and marital status?

The objectives of this study:

This study have two objectives. The first objective of this study is to understand the level of community's perception about covid-19 vaccine in Southeast Sulawesi Province. The second objective of this study is to analyse the relationship between

community's perception with their demography characteristic, such as sex, age, education, job and marital status

The Impacts of this study:

This study will give benefit for government to take health promotion and develop appropriate tools to increase community perception about covid-19 vaccine. Increasing the community perception will affect to acceptance for covid-19 vaccination which protect human's immunity. Finally, this will affect to increase public health status in Southeast Sulawesi Province of Indonesia.

MATERIALS AND METHODS

This study used a quantitative method with using a cross sectional study design. This study was conducted since September 2020 until December 2020 in Southeast Sulawesi Province. This study recruited 210 people through social media, WhatsApp with using Snowball sampling technique. The questioners were developed through google form with link as below:

https://docs.google.com/forms/d/e/1FAIpQLScjeubOJes3lcMBqJuW5t3_nJSmc2VJuZYX4DDIVWWZ1eKV8w/viewform?usp=sf_link.

Data analysis used descriptive and inferential analysis. Descriptive analysis was used to understand distribution of the level of community perception and demography. While, the inferential analysis was used to understand the relationship between the individual perceptions about covid-19 vaccine with their demography characteristic such as sex, age, education, job and marital status. The inferential analysis with statistical tests included Chi-Square and Cramer's tests. The significant association between individual perception and their each demographical variable were based on p-

value < 0.05 . The symmetric measures used Cramer's value between 0 and 1. The Cramer's value of more than 0.5 was decided as a strong association between individual perception and demographical variable. However, if the Cramer's value was less than 0.5, the association between individual perception and demographical variable was decided to be a weak association. The criteria of the individual perception level included three categories, namely:

Less : If the total scores of the perception about covid-19 vaccine is less than 6;

Medium : if the total scores of the perception about covid-19 vaccine is between 7 and 13;

Good : If the total scores of the perception about covid-19 vaccine is more than 14.

Research Ethics

This study was approached by Research and Development Agency of Southeast Sulawesi Province number 070/7089/Balitbang/2020. In questionnaire form is attached about informed consent to participate in this study. Identification of the participants was protected and the documents became anonymity.

RESULTS

1. Participant's demographic Characters and The level of perception about the covid-19 vaccines

The participants who involved in this study were 64 males (30.5%) and 146 females (69.5%) (See on table-1). The majority of participants were married (49.5%) and single (48.6%). There were only 4 participants who were widow/ widower (1.9%). Most of



participants passed from bachelor degree (39.5%) and undergraduate (28.1%). While, other participants passed from Senior High School (4.8%), Diploma (15.7%), Master degree (11.0%) and 1 % of Doctoral degree. Most of them had no job (37.6%), civil servant (31%), and private (21.4%). There were a few people who were a honorary in the local government institution (3.8%) and a lecturer/ teacher (6.2%). The majority of participant aged between 20-29 years old (35.7%) and between 30-39 years old

(25.2%). Other few participants aged between 10-19 years old (18.6%), between 40-49 years old (12.9%) and only 7.6% of them who aged between 50-59 years old.

This study found that there were only 14.3% people who had good perception about covid-19 vaccine (see on table-2). The majority of participants had medium level of perception about covid-19 vaccine (59%). However, there were still people who had less perception about the vaccine.

Table-1. Distribution of participants' demographic Character In Southeast Sulawesi Province in 2020

Demographic Variables	Number (n)	Percentage (%)
Sex:		
Male	64	30.5
Female	146	69.5
Marriage status:		
Widow/widower	4	1.9
Marry	104	49.5
Single	102	48.6
Educational level:		
Senior High School	10	4.8
Undergraduate	59	28.1
Diploma	33	15.7
Bachelor	83	39.5
Master	23	11.0
Doctor	2	1.0
Occupation:		
No Job	79	37.6
Honorary	8	3.8
Lecturer/ Teacher	13	6.2
Civil Servant	65	31.0
Private	45	21.4
Age: (Year)		
10 – 19	39	18.6
20 – 29	75	35.7
30 – 39	53	25.2
40 – 49	27	12.9
50 - 59	16	7.6
Total of participants	210	100.0

Table-2. Distribution of community's perception about Covid-19 Vaccine in Southeast Sulawesi Province in 2020

Level of perception	Number (n)	Percentage (%)
Less	56	26.7
Medium	124	59.0
Good	30	14.3
Total	210	100.0

2. The relationship between Demographic factors and individual perception about Covid-19 Vaccines

Based on the chi-square test, one of the demographic variables which had significant association was sex (see on table-3). However, the level of significant association between sex and perception about covid-19 vaccine was weak ($p\text{-value} = 0.041 < 0.05$; Cramer's value = 0.174). Male tended to have medium perception (37.1%). Male

participants who had good perception about covid-19 vaccine were around 23.3% and there were only 19.6% of participants who had less perception. In contrast, female participants did not have significant differences of the level of perception about covid-19 vaccine. Females who had less perception about covid-19 vaccine were about 80.4%. Similarly, they who had medium and good perception about covid-19 vaccine were 62.9% and 76.7%, respectively.

Table-3. The relationship between Sex and individual perception about Covid-19 Vaccines in Southeast Sulawesi in 2020

Sex	Perception Level						Total	Percentage (%)	P-value	Cramer's value
	Less		Medium		Good					
	n	%	n	%	n	%				
Male	11	19.6	46	37.1	7	23.3	64	30.5	0.041	0.174
Female	45	80.4	78	62.9	23	76.7	146	69.5		
Total	56	100.0	124	100.0	30	100.0	210			
%	26.7		59.0		14.3			100.0		

Other demographic factors did not have significant association with perception about covid-19 vaccine. The other demographic factors included marriage status ($p\text{-value} = 0.467 > 0.05$) (table-4), educational status ($p\text{-value} = 0.302 > 0.05$) (table-5), occupation ($p\text{-value} = 0.124 > 0.05$) (table-6), and age ($p\text{-value} = 0.218$) (table-7).

Table-4. The relationship between Marriage Status and Individual perception about Covid-19 Vaccines in Southeast Sulawesi in 2020

Marriage Status	Perception			Total	Percentage (%)	P-value	Cramer's value
	Less	Medium	Good				
Single	28	56	18	102	100.0	0.467	0.092
Marry	26	66	12	104	100.0		
Widow/ Widower	2	2	0	4	100.0		
Total	56	124	30	210	100.0		

%	26.7	59.0	14.3				
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Table-5. The relationship between Educational Status and Individual perception about Covid-19 Vaccines in Southeast Sulawesi in 2020

Educational Status	Perception			Total	Percentage (%)	P-value	Cramer's value
	Less	Medium	Good				
Senior High School	4	5	1	10	100.0	0.302	0.167
Undergraduate	14	35	10	59	100.0		
Diploma	14	16	2	33	100.0		
Bachelor	20	52	11	83	100.0		
Master	3	16	4	23	100.0		
Doctor	1	0	1	2	100.0		
Total	56	124	30	210			
%	26.7	59.0	14.3		100.0		

Table-6. The relationship between Occupation and Individual perception about Covid-19 Vaccines in Southeast Sulawesi in 2020

Occupation	Perception			Total	Percentage (%)	P-value	Cramer's value
	Less	Medium	Good				
Lecturer/ Teacher	3	6	4	13	100.0	0.124	0.174
Honorary	3	4	1	8	100.0		
Civil Servant	23	37	5	65	100.0		
Private	6	33	6	45	100.0		
No Job	21	44	14	79	100.0		
Total	56	124	30	210	100,0		
%	26.7	59.0	14.3				

Table-7. The relationship between Age and Individual perception about Covid-19 Vaccines in Southeast Sulawesi in 2020

Age (Year)	Perception			Total	Percentage (%)	P-value	Cramer's value
	Less	Medium	Good				
10-19	13	23	3	39	100.0	0.218	0.160
20-29	16	44	15	75	100.0		
30-39	13	32	8	53	100.0		
40-49	6	19	2	27	100.0		
50-59	8	6	2	16	100.0		
Total	56	124	30	210	100,0		
%	26.7	59.0	14.3		100.0		



DISCUSSION

This study shows that the majority of people in Southeast Sulawesi have had medium level of their perception about covid-19 vaccine, namely about 59%. There were only around 14.3% of them who had good perception. This community perception generated them to be vaccinated if covid-19 vaccine is ready. There were about 66.2% people who were willing to be vaccinated with covid-19 vaccine. However, there were still about 26.7% of Southeast Sulawesi people who had less perception about covid-19 vaccine. This means that Southeast Sulawesi province government, especially for the task force team of covid-19 disease treatment in this province remain to have urgent task to increase the community's perception about covid-19 vaccination. Increasing the community's perception is very important to result the successful program of covid-19 vaccination especially in Southeast Sulawesi province and in Indonesia, generally. The successful program of this vaccination will lead to reduce or eliminate the covid-19 disease transmission.

One of demographic factors which associated significantly with individual perception about covid-19 vaccine is sex. Based on this research, woman had better perception about covid-19 vaccine than man. This means that woman had enough access to information about covid-19 compared to man. In Indonesia generally including in Southeast Sulawesi Province, there are many women organization in each area or in each village such as Family Welfare Empowerment organization, Islamic Women Organization, and Ten Households Group organization. Those women organizations are the organizations which had the role to increase woman's general knowledge and skill, including about health. Family Welfare empowerment organization was established by Indonesia President in the president regulation number 99 in 2017 (8). This organization has the important roles to help the village governments in increasing family

welfare, harmonious and autonomous. The study also shows that those women organizations are effective as a group which can increase women knowledge and skill, including accessibility to information. Accessibility to huge information is very important for people cognition and consciousness (9). Both cognition and consciousness system are essential for individuals to have good sensitivity in surrounding life. People will have high intellectuality and high capacity to manage their social relationships.

As we know that some of members of women organizations are marriage rather than single women. A mother who involves actively, especially in the women organization will increase their knowledge and skill, including about covid-19 vaccines. Therefore, they can share their knowledge and skill to their family members, including their children. Married people who involved in this study were around 49.5%. This means that they can become a information source for other people including their family members and neighbours. This study also identified other information sources which influenced to community's perception about covid-19 vaccines. The information sources included television, new papers, social media such as facebook, instagram, whatsapp, telegram, website, youtube, radio and posters. Another information source to increase individual knowledge and perception about covid-19 vaccine was a friend. People when used the social media will have big change to get information through some their sense organs including eyes and ear. Many sense organs which can involve in the information transmission mechanism, people can remember and recall the information in their memories (10). Eventually, those can affect to the individual belief and perception (11).

However, the way of emerging individual perception also is based on the individual ability to analyse and synthesize all of information which they got. This individual ability is significant association

with individual formal educational level (12). People with higher educational level will have high capacity to analyze and synthesize information and become lighter for them and other people surrounding them. Because there were still about 26.7% participants who had less perception about covid-19 vaccine, so this study gives some recommendation for Southeast Sulawesi government, especially about how to increase the community perception about covid-19 vaccine in Southeast Sulawesi province. First of all, the Southeast Sulawesi government has to take health promotion through several mass media, such as television and social media including facebook, whatsapp and instagram. Several interesting programs in the television must be created to increase the viewers. Television programs have strong power to stimulate public's perception because the viewers can record the message from some sense organs, including eyes and ear. The two sense organs can increase recall power the message until 60% (13). Television prepare writing messages, videos, images and audios. Thus, the social media also prepare several interesting message forms including writing messages, image, audios, graphic and video. Those of interesting forms include one of common motion which translates information through horizontal and vertical motion with colour and texture. Eventually, those become two object parts which can influence human cognitive and perception (14).

CONCLUSION

Other strategy to increase public perception about covid-19 vaccine is improving the role of community organizations such as women organization, teenage organization, and several religion organizations in health promotion program. To implement the strategy, the local governments need to collaborate with village leaders, village traditional leaders and religious leaders. Those village leaders

become the role model for communities in Southeast Sulawesi province. They can motivate the village community to participate in all of health promotion program which are done by the local governments. The local government is necessary to engage with the religious leaders in covid-19 vaccine promotion because the majority of community in Indonesia including in Southeast Sulawesi province is Muslim (15). This is because the public issue of covid-19 vaccine is about halal issue of covid-19 vaccine composition in Indonesia. Those strategies can be implemented in Indonesia including in Southeast Sulawesi province to increase the public perception about covid-19 vaccine. Thus, covid-19 vaccine will be accepted by all of community in Indonesia and eventually, all communities increase their immunity and covid-19 disease transmission can be prevented or eliminated in Indonesia.

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Conflict Of Interest Statement

The author has no potential conflict of interest associated with the material presented in this article.

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REFERENCES

1. Yuan, Z., Xiao, Y., Dai, Z., Huang, J., Zhang, Z., & Chen Y. Modelling the effects of Wuhan's lockdown during Covid-19, China. Bull World Heal

- Organ. 2020;98(7):484–94.
2. World Health Organization. WHO Coronavirus Disease (COVID-19). Geneva: World Health Organization; 2020.
 3. World Health Organization. Medical certification, ICD mortality coding, and reporting mortality associated with Covid-19. Geneva: World Health Organization; 2020.
 4. Task force for Covid-19 treatment. Distribution of Covid-19 cases in Indonesia [Internet]. Task force for Covid-19 treatment, Indonesia. 2020 [cited 2020 Oct 14]. Available from: <https://covid19.go.id/peta-sebaran>
 5. Southeast Sulawesi Province Agency of Statistic Center. Southeast Sulawesi Province in 2020. Kendari: Southeast Sulawesi Province Agency of Statistic Center; 2020.
 6. World Health Organization. Draft landscape of Covid-19 candidate vaccines. Geneva: World Health Organization; 2020.
 7. Health Ministry of Republic of Indonesia. Regulation of Health Ministry of Republic of Indonesia Number HK.01.07/MENKES/9860/2020 about Types of vaccines to Corona Virus Disease 2019 (COVID-19) vaccination Program. Jakarta: Health Ministry of Republic of Indonesia; 2020.
 8. President of Republic of Indonesia. President Regulation of Republic of Indonesia [Internet]. Jakarta: Ministry of Law & Human Right of Republic of Indonesia; 2017. Available from: http://gurudesas.com/wp-content/uploads/2018/10/PERPRES_NO_99_2017.pdf
 9. Tononi G. Information integration: its relevance to brain function and consciousness. *Arch Ital Biol.* 2010;148:299–322.
 10. Sari, R. A. Students' perceptions on the video project in their speaking class: A study of 11th grade of SMAN 1 Kasian Students [Internet]. Sanata Dharma University; 2016. Available from: https://repository.usd.ac.id/7303/2/121214043_full.pdf
 11. Ramadhani, Y. R., Masrul, Ramadhani R, Rahim R, Tamrin AF, Daulay JS, et al. *Method and Technique in Inovative learning.* Medan, Indonesia: Yayasan Kita Menulis; 2020.
 12. Brandley KS, Brandley, J. A. Teaching students to organize and synthesize information. *J Int Assoc Spec Education.* 2006;7(1):75–9.
 13. Davis B, Summers, M. Applying Dale's Cone of Experience to increase learning and retention: A study of student learning in a foundational leadership course. West Lafayette, USA: Purdue University; 2015.
 14. Kuhn D, Siegler, R. S. *Handbook of child psychology: Cognition, perception, and language.* New Jersey: John Wiley & Sons; 2006. 138 p.
 15. Padmawati, R. S, Heywood A, Sitaresmi MN, Atthobari J, Macintyre CR, Soenarto Y, et al. Religious and community leaders' acceptance of rotavirus vaccine introduction in Yogyakarta, Indonesia: A qualitative study. *BMC Public Health.* 2019;19(368):1–6.