

PERCEPTION ON COVID-19 VACCINATION AMONGST MEN AND WOMEN UNIVERSITY STUDENTS: A PRELIMINARY STUDY

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ABSTRACT

Previous studies reported differences in the perceived fear and risks on COVID-19 between men and women. We conducted a preliminary study to examine sex-based differences in the comprehension on COVID-19 vaccination. We analyzed findings of individual perception on COVID-19 related topics delivered via mini on-line survey amongst university students in East Java, Indonesia (n=76) aged 18-23 years. All respondents have been given consent and agreed to be included in both the study and publication of the study results prior to the survey. We pre-tested all items which showed to be valid ($p < 0.01$) and reliable (Cronbach's alpha = 0.581). There were 25 (32.9%) male respondents and 51 (67.1%) female respondents. There were no significant differences seen between males and females on each item asked ($p = 0.73$, $p = 0.353$, $p = 0.148$ and $p = 0.535$, respectively). Most respondents agreed that vaccination can increase immunity towards the infection and wider coverage is better to contain the spread of the infection. Here we observed a similar level of perception on COVID-19 vaccination amongst the university students with different sexes.

Keywords: COVID-19; vaccination; gender difference; perception

Introduction

High vaccination coverage improves the COVID-19 pandemic situation and the activities have been restored with “new normal” behaviors.¹ However, the pandemic still continues, since several new variants of SARS-CoV-2 emerged and reduced vaccine effectiveness. Re-introduction of the vaccine or boosters still becoming a strategy for prolonged immunity to SARS-CoV-2.²

Vaccine knowledge and perception are important to drive vaccine acceptance and the success of the vaccination program, including in the COVID-19^{3,4} and influenza vaccination program.⁵ Sociodemographic factors are associated with vaccine knowledge, perception, and acceptance, including age, economic status or level of income, education level, marital status and sex.⁶

Gender-based differences in the perception of COVID-19 risks and threats have been reported. COVID-19 consequences affect vast aspects of life of men and women worldwide. Women reported greater affective levels and experienced negative emotions including fear and anxiety than men. On the other hand, women had been reported to have a greater perception of the severity of the COVID-19 pandemic and higher obedience to prevention measures.⁷⁻⁹

A study involving 1,367 Canadian adults reported that female respondents and lower education levels were more likely to have the unwillingness to receive the COVID-19 vaccine.¹⁰ Moreover, a study in 5,300 Botswana adults concluded that male has higher odds to receive the vaccination compared to female adults.¹¹ Since the sociodemographic factors affect the vaccine perceptions, as well as its

acceptance, it is important to understand its effect in Indonesia. Thus, this preliminary study aims to investigate the differences of COVID-19 vaccine perception between males and females, as we hypothesized a level of good literacy despite the difference in their sexes.

Methods

This study has been granted an ethical clearance from KEPK no. No.145/EC/KEPK/FKUA/2021. All respondents have agreed to both informed consent and consent for information for the inclusion in this study and the publication of the study results. There are four items asked: “(1) booster (the 2nd and 3rd) vaccination for COVID-19 is needed to increase immune response when infected” (1=agree, 2=disagree, 3= do not know); “(2) COVID-19 vaccination is better to be given to all people in the pandemic area” (1=agree, 2=disagree, 3= do not know); “(3) COVID- 19 vaccination can increase immunity against COVID-19 and delta variant” (1=agree, 2=disagree, 3= do not know); “(4) vaccination can stimulate body immune against infection and decrease morbidity when infected” (1=agree, 2=disagree, 3= do not know). All items with study consents were uploaded in a google-form and distributed to each respondent who could only fill once and recruited via consecutive random sampling technique in this cross-sectional study. This study was adhered to the STROBE checklist for an epidemiology survey (4). Frequency of each response of each item was calculated using SPSS 17.0 (USA); differences between males and females on each item were analyzed using Chi-Square test with a level of significance of $p < 0.05$. This activity was aimed as a community

service conducted by a team from our institution after being granted funding and local ethical clearance.

Result

In this study, there were 25 (32.9%) male respondents and 51 (67.1%) female respondents. Prior to the mini survey, we tested the validity and reliability of each item and get acceptable results with $p < 0.01$ and Cronbach’s alpha = 0.581 (SPSS 17.0, USA). There were 94.7%, 92.11%, 93.42% and 94.74% of respondents who

answered “agree” to item number 1-4, respectively. Whilst none answered “disagree” to item number 1, there were 7.9%, 5.3%, and 2.63% to number 2-4. There were none to answer “don’t know” for item number 2, and there were 5.3%, 1.3% and 2.63% for items number 1, 3 and 4. Each response to each item was shown in table 1. There were no significant differences on the response of each item 1-4 between males and females with $p=0.73$, $p=0.353$, $p=0.148$ and $p=0.535$, respectively (table 1).

Table 1. Items validity and reliability scores and the differences on responses between males and females

No.	Items	Validity Score ($p < 0.001$)	Male Respondents (n, %)	Female Respondents (n, %)	p (Chi-Square test)
1	Booster (the 2 nd and 3 rd) vaccination for COVID-19 is needed to increase immune response when infected	0.592	25 (32.89%)	51 (67.11%)	0.73
	Agree		24	48	
	Disagree		0	0	
	Don’t Know		1	3	
2	COVID-19 vaccination is better to be given to all people in the pandemic area	0.366	25 (32.89%)	51 (67.11%)	0.353
	Agree		22	48	
	Disagree		3	3	
	Don’t Know		0	0	
3	COVID-19 vaccination can increase immunity against COVID-19 and delta variant	0.44	25 (32.89%)	51 (67.11%)	0.148
	Agree		22	49	
	Disagree		3	1	
	Don’t Know		0	1	
4	Vaccination can stimulate body immune against infection and decrease morbidity when infected	0.448	25 (32.89%)	51 (67.11%)	0.535
	Agree		24	48	
	Disagree		1	1	
	Don’t Know		0	2	

Discussion

Here we observed no significant differences in the perception on COVID-19 vaccination value between men and women. On the booster vaccination, most respondents were agreed for its necessity to improve body immunity whilst most respondents also agreed on the importance of COVID-19 vaccination to increase immunity against the SARS-COV-2 infection and its delta variant and its function to decrease morbidity. The results proved our hypothesis; this is arguably due to the similar formal education background of all respondents regardless of sex. Previous study also reported similar values amongst Asian/ Pacific Islanders university and graduate students on the protective measures, although female students has higher scores for protocol effectiveness, concern about COVID-19 and on the consequences of protocol breaking.⁵ In other studies, it has been reported that women also have greater levels of emotions and anxiety towards COVID-19 than men.⁷⁻⁹ It has been reported also that women were more adhered to health protocols although having less morbidity compared to men when infected.

Perception on the COVID-19 vaccination is arguably a part of health literacy.¹²⁻¹⁴ This might be affected by several factors i.e. education levels and individual's experience on the related topics; whilst the language and content of the information also play a vital role. Other factors such as environment, technology adeptness, personal needs and interests, socio-culture, habits and beliefs could affect an individual's perception on certain issues. Nowadays, the internet has been an inevitable tool of information providers. Whilst almost unlimited data might be

sought via the internet, the hoax information, levels of difficulty of specific information needed due to language use, aim and scope of the information provided can be quite a challenge. Confirmation to authority and/ or experts could not always be done, whilst the ability to communicate certain subjects can be a hindrance i.e. for the minority groups such as elderly people and children. In terms of COVID-19 vaccination, the novelty of the topics with relatively limited scientific data could add to the above challenges.¹⁴⁻¹⁶

In Indonesia, vaccination for COVID-19 has been a national project started in the February of 2021. This activity is done by many health facilities in the district area in Indonesia, with the first priority given to the health providers and public servants, followed by the majority of people by the age above 12 years old. By the 31st of August, 2021, according to the World Bank report, approximately 100 million doses of the COVID-19 vaccine have been given. This number seems huge, however, the end target has a way to go when the total population of this country reaches approximately 270 million people with challenging archipelago geography.¹⁶⁻¹⁹

In the meantime, the vaccination was given for gratis from the government, and alternative paid booster vaccination in the next year has yet to be confirmed. As an archipelago nation, it is arguably a challenge to obtain a high level of literacy by updating valid news on these topics without an online platform. The growth of internet networks and providers have been vast in recent years, thus the internet is a vital tool that might be applied for these particular reasons. However, hoaxes can jeopardize the literacy levels by hampering valid information obtained thus online

educational health platforms with correct content are needed.¹⁶⁻²⁰

This study is a preliminary study, with a relatively small number of respondents, thus a larger survey with extended variables to study public health literacy on COVID-19 and COVID-19 vaccination is needed. Despite the small number of respondents, to the best of our knowledge, this study is amongst the first to report the perception value analysis between men and women in a specific sample population on COVID-19 vaccination. The results of our study would serve, at least in parts, as the basis for determining the direction of further study as mentioned above and to understand how university students, who are expected to have good health literacy, view the booster and vaccination in Indonesia.

Conclusion

We observed no significant differences in the perception on COVID-19 vaccination between men and women. Most of them perceived positive value towards the topic and could represent, partly, a good health literacy amongst the university students.

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