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Mask-Wearing Adherence Among University Students During Covid-19 Pandemic: The Role of Self-Efficacy and Cue-to-Action

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Abstract

Indonesia's Community Activities Restrictions Enforcement (CARE) has lowered its level. Various onsite activities are allowed, including university activities. Even so, the Indonesian government continues to regulate people to adhere to Covid-19 health guidelines, especially mask-wearing. The researchers found non-adherence to mask-wearing in some university students. This behaviour would increase the risk of Covid-19 transmission. This study aims to explore students' adherence and its correlation with self-efficacy and cue-to-action in university settings. Theoretically, this study is based on Health Belief Model, focusing on self-efficacy and cue-to-action factors. The data were collected from 103 university students using a cross-sectional online survey. Most respondents (45.6%) have a high level of mask-wearing adherence, 29.1% on the average level, and the rest have a low and very high level. This study found that students' mask-wearing adherence is predicted by self-efficacy ($r = 0.692$, $p<0.01$) and cue-to-action ($r = 0.336$, $p<0.01$), especially cues from the government, friends, and family. This result indicates the importance of self-efficacy and cue-to-action on mask-wearing adherence. This finding is valuable for health administrators, policymakers, and universities as a strategy to preserve or improve students' adherence to health guidelines. Future work could design interventions based on self-efficacy and cue-to-action to support people in adhering to health guidelines since intervention studies based on cue-to-action were relatively rare.

Keywords: Covid-19, adherence, self-efficacy, cue-to-action

Introduction

Since October 2021, The Community Activities Restrictions Enforcement (CARE) to prevent the spread of Covid-19 in some regions in Indonesia has lowered its level, including Semarang (Instruction of the Minister of Internal Affairs No. 53, 2021). Since then, various onsite activities, included university activities, have been allowed. Even so, the Indonesian government continues to regulate people, even completely vaccinated, to adhere to health guidelines, especially mask-wearing (covid19. go.id, 2021).

Adherence is how far a person performs the behaviour and treatment recommendations recommended by health practitioners (Sarafino & Smith, 2011). Indonesia's government and health practitioners recommend people to 1) Wearing a mask consistently, 2) Wear medical masks > 3 ply concurrently with cloth masks or > 4 ply masks without needing to be duplicated, 3) Bring spare masks, 4) Change masks every four hours, 5) The mask is worn to cover the nose tightly, 6) The mask is worn to cover the mouth tightly, and 7) The mask covers the chin tightly (Instruction of the Minister of Internal Affairs No. 53, 2021; Circular Letter of The Rector of Soegijapranata Catholic University Concerning Limited Face-to-Face Learning No. 0105/E.4/Rek/X/2021, 2021; Covid-19 Task Force, 2020). Based on this definition, the researchers conducted a simple preliminary survey by doing an interview and observation with several university students. The researchers found that two students did not wear the type of masks as recommended by health practi-

tioners, did not bring spare masks, and did not change masks every four hours. Three groups of students are also found not wearing masks consistently. These behaviours would increase the risk of Covid-19 transmission in university.

Based on Health Belief Model, the strategy to increase students' mask-wearing adherence is to increase their self-efficacy and to provide cue-to-action (Sarafino & Smith, 2011). This theory is strengthened by Tam et al. (2021) research. The research found that self-efficacy is positively related to adherence to Covid-19 prevention behaviours, such as maintaining hand and body hygiene ($r= 0.39$; $p<0.01$). Varol et al. (2021) also found that self-efficacy influences or strengthens the person's intention to carry out health behaviour, in this context adhering to Covid-19 health protocol.

The research by Al-Sabbagh, Al-Ani, Mafrachi, Siyam, Isleem, Massad, Alsabbagh, and Abufaraj (2021) on 5057 Jordanians found that cue-to-action from the government was a significant predictor of home quarantine adherence ($\beta= 0.05$; $p<0.05$; 95% CI 0.004-0.014). Most respondents already adhere to do home quarantine. It is possible because the Jordanian government participates in giving instruction and cue-to-action. Another research by Chen et al. (2021) found that cue-to-action from family and friends is directly related to increasing people's adherence to vaccination in China (OR 3.11; 95% CI 1.75-5.52). Even so, Jones et al. (2020) stated that intervention studies based on cue-to-action were relatively rare.

This study aims to explore students' adherence and its correlation with self-efficacy and cue-to-action in university settings. Proposed hypotheses in this study are 1) There is a positive relationship between self-efficacy and mask-wearing adherence; 2) There is a positive relationship between cue-to-action and mask-wearing adherence.

Method

The participants' criteria in this study are: 1) First to the fifth-year active student enrolled in an academic program in this university; 2) Doing an onsite activity at campus when filling out the survey. By incidental sampling, the total sample is 103 students from a university in Semarang, Indonesia. The sample consisted of 53 male (51.5%) and 49 (47.6%) female; 1 (1%) participant chose not to give information about their gender. Most participants are in their 2nd year (39.8%) and from Department of Psychology (11.7%).

The participants were asked to fill out an online cross-sectional survey that contains three scales: Mask-wearing Adherence Scale, Cue-to-action Scale, and Self-efficacy Scale. Mask-wearing Adherence Scale constructed based on 1) Instruction of the Minister of Internal Affairs No. 53 of 2021 (2021), 2) Circular Letter of The Rector of Soegijapranata Catholic University Concerning Limited Face-to-Face Learning No. 0105/E.4/Rek/ X/2021 (2021), and 3) Guidelines for Behavior Change in Handling Covid-19 from Covid-19 Task Force (2020). The scale consisted of 7 indicators: 1) Wearing mask consistently, 2) Wear medical masks >3ply concurrently with cloth masks or >4ply masks without needing to be duplicated, 3) Bring spare masks, 4) Change masks every four hours, 5) The mask is worn to cover the nose tightly, 6) The mask is worn to cover the mouth tightly, and 7) The mask is worn to cover the chin tightly. Participants were asked to answer all items on a 5-point Likert scale from 1= strongly disagree to 5= strongly agree. This scale is reliable, with the Alpha-Cronbach coefficient being 0.767 and the item validity coefficient from 0.198-0.584.

Cue-to-action Scale consists of 4 sources: cue-to-action from the government, university, friend, and family (e.g., I receive information about how to wear a mask correctly from the government, and my friend encourages me to wear masks correctly). Participants were asked to answer all items on a 5-point Likert scale from 1=strongly disagree to 5=strongly agree. This scale is reliable, with the Alpha-Cronbach coefficient is 0.888 and an item validity coefficient of 0.216-0.595.

The self-efficacy Scale was constructed based on Bandura's (1997) self-efficacy aspects: level, strength, and generality (e.g. I am sure I can wear a mask to cover my mouth, nose, and chin). Participants

were asked to answer all items on a 5-point Likert scale from 1=strongly disagree to 5=strongly agree. This scale is reliable, with the Alpha-Cronbach coefficient is 0.767 and an item validity coefficient of 0.294-0.638.

The data were analyzed with Pearson's product moment bivariate correlation test in SPSS 21.0. Other analyses were also performed to get more comprehensive data, such as an independent t-test to examine whether there is a mask-wearing adherence difference between males and females.

Results

Table 1 shows that most respondents (45.6%) have a high level of mask-wearing adherence, 29.1% on average, and the rest have a low and very high level. None of the respondents has a deficient level of mask-wearing.

Table 1. Participants' level of mask-wearing adherence (N=103)

Level	Score Range	N	%
Very Low	x ⩽ 24,5	0	0%
Low	24,5 < x ⩽ 31,5	5	4.9%
Average	31,5 < x ⩽ 38,5	30	29.1%
High	38,5 < x ⩽ 45,5	47	45.6%
Very High	45,5 < x	21	20.4%

Hypothesis testing was conducted to see the relationship between 1) self-efficacy and mask-wearing adherence and 2) cue-to-action and mask-wearing adherence. Hypothesis testing was carried out using the Pearson's Product Moment bivariate correlation test method. This method is used because the data meets the test requirements: the data is normally distributed, and there is a linear relationship. The results can be seen in Table 2.

Refers to the results of the correlation test between self-efficacy and mask-wearing adherence, it was found that the value of the correlation coefficient is r_{xy}= 0.692 (p< 0.01). These results indicate a significant positive relationship between mask-wearing adherence and self-efficacy. The higher self-efficacy, the higher the mask-wearing adherence, and vice versa. All aspects of self-efficacy are directly related to mask-wearing adherence: level aspect (r_{xy}= 0.570; p< 0.01), strength aspect (r_{xy}= 0.600; p< 0.01), and generality aspect (r_{xy}= 0.595; p< 0.01).

Based on the results of the correlation test between cue-to-action and mask-wearing adherence, the correlation coefficient value r_{xy}= 0.336 (p< 0.01). These results indicate that there is a very significant positive relationship between cue-to-action and mask-wearing adherence. The higher the cue-to-action, the higher the mask-wearing adherence, and vice versa. Aspects of cue-to-action that are directly related to mask-wearing adherence are cue-to-action from the government (r_{xy}= 0.217; p< 0.05), friends (r_{xy}= 0.333; p< 0.01), and family (r_{xy}= 0.301; p< 0.01).

Table 2. Pearson's Product Moment Test with Mask-wearing Adherence

	Adherence	
	r	p
Self-efficacy	0.692**	0.000
Level aspect	0.570**	0.000
Strength aspect	0.600**	0.000
Generality aspect	0.595**	0.000
Cue-to-action	0.336*	0,001

Table 2. Pearson's Product Moment Test with Mask-wearing Adherence

	Adherence	
	r	p
Cue-to-action from government	0,217*	0,028
Cue-to-action from university	0,133	0,182
Cue-to-action from friends	0,333**	0,001
Cue-to-action from family	0,301**	0,002

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

An independent t-test was also conducted to see the different levels of mask-wearing adherence between males and females. The value of t= -2.770 ($p< 0.05$). These results show a significant difference in mask-wearing adherence between males and females. Females' adherence levels are higher than males.

Table 3. The result of the independent t-test on mask-wearing adherence

Gender	N	Mean	t	p
Male	53	39.40	-2,770*	0,007
Female	49	42.39		

* Correlation is significant at the 0.05 level (2-tailed).

Discussion

This research's first hypothesis is accepted: There is a positive relationship between self-efficacy and mask-wearing adherence. The results of this study are in line with the theory proposed by Sarafino and Smith (2011) that there are several psychosocial aspects, one of them is self-efficacy, in a person that could affect their adherence to health recommendations. This fact can occur because when students have confidence that they can carry out the medical recommendations to wear masks properly and this behaviour can prevent the spread of Covid-19, they will be encouraged to wear the mask. The result is similar to Tam et al. (2021) research. The research found that self-efficacy is positively related to adherence to Covid-19 prevention behaviours, such as maintaining hand and body hygiene ($r= 0.39$; $p<0.01$).

This research's second hypothesis is accepted: there is a positive relationship between cue-to-action and mask-wearing adherence. This finding is consistent with the theory of Sarafino and Smith (2011), that one of the factors that influence adherence to health recommendations is cue-to-action. This is possible because if students are reminded about Covid-19, they feel threatened by the virus, so they take preventive measures, including wearing masks.

Aspects of cue-to-action directly related to mask-wearing adherence are cue-to-action from the government, friends, and family. This finding is similar to the results of research by Al-Sabbagh et al. (2021), who found that cue-to-action from the government predicts adherence to quarantine at home. This is possible because people will tend to perform a behaviour if external cues enforce it. These external instructions are considered for making decisions to carry out this behaviour. Likewise, this result is like the findings of Chen et al. (2021). They found that one factor directly related to increased adherence to vaccination was cue-to-action in the form of recommendations from friends or family. This is possible because their close people provide encouragement that helps them to make decisions to adhere to the Covid-19 health protocol. Other findings also state that recommendations from partners or friends are an essential cue for someone in making

decisions to adhere to health recommendations (Wong et al., 2017).

Of the four aspects of the cue-to-action, only cue-to-action from the university was not directly related to the mask-wearing adherence of students. This is different from the opinion of Al-Sabbagh et al. (2021) that people tend to perform a behaviour if an external, authoritative direction enforces it. Even so, Chen et al. (2021) mention that although cue-to-action from an authoritative external party may be less effective in motivating a person to elicit adherence, the presence of a friend or family member who is more effective in encouraging one's adherence can be used as a strategy tool.

The result also shows a significant difference in mask-wearing adherence between males and females, with females' adherence levels being higher than males. This finding can be explained by the theory of Sarafino and Smith (2011) that one of the factors that influence compliance is gender. Gender, with sociocultural factors, influences adherence depending on the conditions or forms of behaviour that need to be elicited. For example, related to weight, females pay more attention to and control their weight than males because weight could affect their appearance. This finding is also similar to the results of research by Al-Sabbagh et al. (2021) that found that gender was a significant predictor of adherence, with females' adherence levels being higher than males ($p < 0.01$). Due to this funding, university or health policymakers should pay more attention to male students so that their mask-wearing adherence does not get any lower. Self-efficacy and cue-to-action strategies must be developed, even gender-based if needed.

Conclusions

From the results of research conducted at a university in Semarang, it can be concluded that there is a very significant positive relationship between self-efficacy and cue-to-action with mask-wearing adherence. The higher the mask-wearing adherence, someone who has higher self-efficacy and receives the higher cue-to-action, and vice versa. This result indicates the importance of self-efficacy and cue-to-action on mask-wearing adherence. Cue-to-action that are directly related to mask-wearing adherence are cue-to-action from the government, friends, and family.

Future work could design interventions based on self-efficacy and cue-to-action, even gender, to support people adhering to health guidelines since intervention studies based on cue-to-action were relatively rare.

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