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Determinants of Health Protocols Compliance on Office Workers

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Abstract. *The high number of Covid-19 cases contributed to office clusters. To reduce the spread of Covid-19, the government has implemented the 5M health protocol. However many people, especially office workers, violate this health protocol. One of the available approaches to analyze non-compliance behavior is by using the Health Belief Model (HBM). This study aims to determine the factors affecting office workers' compliance with the Covid-19 preventive health protocol, explained bythe Health Belief Model (HBM) theory to develop health promotion programs which may contribute to the compliance level of the office workers. This research is a correlational quantitative study with a sample of 357 office workers in the Surakarta residency. The data were collected online by usings six scales uploaded in the Google Form, consisting of the perceived susceptibility scale, perceived severity scale, perceived barriers scale, perceived benefits scale, self-efficacy scale, and the Covid-19 prevention protocol compliance scale. The path analysis was carried out by using JASP 14.1 to analyze the collected data. The result shows that health protocols are greatly helped for workers by many cues/stimuli that will appear with the many perceived barriers in implementing health protocols but will increase with relevant facts. Self-efficacy plays a vital role in influencing health protocol compliance in office workers. Providing more intense education that focuses on providing solutions that workers can take when facing difficulties in implementing health protocols can be one way to further increase confidence in workers in implementing health protocols.*

Keywords: *compliance; health belief model; health protocol; office worker.*

INTRODUCTION

WHO declared the Coronavirus Disease 2019 (Covid-19) pandemic in March 2020. As of February 7, 2021, Indonesia ranks first in the most COVID-19 cases in South East Asia, with an additional 1,157,837 cases and 31,556 deaths (Worldometer., 2021). The positive cases of COVID-19 are dominated by people aged ±31-45 years due to their mobility outside the home (Hidayati, 2020).

The office cluster contributes the most Covid-19 cases in DKI Jakarta. As of September 18, 2020, the most Covid-19 cases came from ministry offices with 1,223 cases, private offices

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with 639 cases, state agencies/institutions with 625 cases, and the regional government of DKI Jakarta with as many as 601 cases (Wicaksono, 2020). Office clusters also dominate cases in Central Java, such as Semarang, where public service offices were four positive cases were found in local government agencies (Safuan, 2020). The Solo City Government did the same thing after 11 employees were confirmed positive for Covid-19 on November 4 (Saputra, 2020). The high number of office clusters in the spread of COVID-19 cases should be a concern. Thus, the preventive measures can be established to lower the rate of cases spread. This precaution applies not only to the workers but also applies to the companies and offices where the employees work.

The government has implemented the 5M health protocol (wearing masks, maintaining distance, washing hands with soap, avoiding crowds, and reducing mobility) as one of the strategies to overcome the Covid-19 pandemic (Kemenkes RI, 2020). The general chairman of the Indonesian Association of Epidemiologists said that health protocols are the primary key to prevent the spread of the Covid-19 virus, even though a vaccine is available (Meidinata, 2021). However, there are still many people who violate this health protocol. As of October 12, 2020, the Deputy Chief of Police reported that there are 5.7 million health protocol violators throughout Indonesia and increasing, especially in three provinces, namely Yogyakarta, West Java and Central Java (Satgas Covid, 2020). The increase in the number of health protocol violations is due to people forgetting to apply health protocols such as wearing masks, feeling uncomfortable and disturbed when eating or smoking, to admitting they do not believe in the Covid-19 virus (Ricky, 2020). The emergence of negative perceptions related to the truth of the Covid-19 virus arises because of the large amount of negative news about Covid-19 on social media, thus making people not feel the threat of the Covid-19 pandemic and making people not comply to carry out health protocols (Romer & Jamieson, 2020). In this research, we adopt the concept of compliance behavior proposed by Blass (1999). According to this concept, compliance can be defined as receiving orders from others, divided into three dimensions: (a) Belief, (b) Acceptance, and (c) Action. Low compliance with health protocol among office workers will be discussed by using Health Belief Model (HBM). The Health Belief Model (HBM) is a psychological theory of public health behavior that examines the impact of health beliefs on disease prevention behavior, which originally consisted of five constructs, namely perceived susceptibility, perceived severity, perceived benefits, perceived barriers, and cues to action. This theory also examines sociodemographic factors to condition individual perceptions of preventive actions (Rosenstock et al., 1994).

Research with the HBM approach has emerged to understand the behavior and reactions of the community regarding Covid-19 (Afrianti & Rahmiati, 2021; Aradista et al., 2020; Barakat & Kasemy, 2020; Shahnazi et al., 2020; Tong et al., 2020). However, no empirical evidence explicitly shows whether there is an effect between the Health Belief Model (HBM) and health protocol compliance in office workers. This study aims to determine what factors affecting office worker compliance with the Covid-19 prevention protocol by adopting the Health Belief Model (HBM) theory. This research can help the government to develop health promotion programs to improve office worker compliance with the COVID-19 protocol.

Previous research that examined the effect between the Health Belief Model (HBM) and compliance showed that compliance would directly increase when it is associated with perceived susceptibility (Attamimy, H. B., Qomaruddin, 2018; Barakat & Kasemy, 2020; Fitriani et al., 2019). Some other researches also indicated that compliance also directly increases when it is associated with perceived severity (Fadilah et al., 2020; Tong et al., 2020; Tshuma et al., 2017), perceived benefit (Shahnazi et al., 2020; Yu et al., 2020), and cues to action (Tadesse et al., 2020; Yang et al., 2016). Nevertheless, compliance will decrease when perceived barriers are higher. When

a person's belief in obstacles decreases or disappears, compliance will increase (Al-Sabbagh et al., 2021; Barakat & Kasemy, 2020; Shahnazi et al., 2020; Tong et al., 2020).

Self-efficacy acts as a mediating variable in this study. In the previous studies, self-efficacy had a critical mediating role in explaining the relationship between the construction of the HBM and behavioral changes, including medication adherence. Moreover, self-efficacy is also a mediator between perceived susceptibility (Tshuma et al., 2017), perceived severity (Agustin et al., 2018; Yang et al., 2016), perceived benefit (Tshuma et al., 2017; Yu et al., 2020), perceived barriers (Tshuma et al., 2017; Yang et al., 2016; Yu et al., 2020), and cues to action (Yang et al., 2016) with treatment adherence. The operational research framework can be seen in Figure 1.

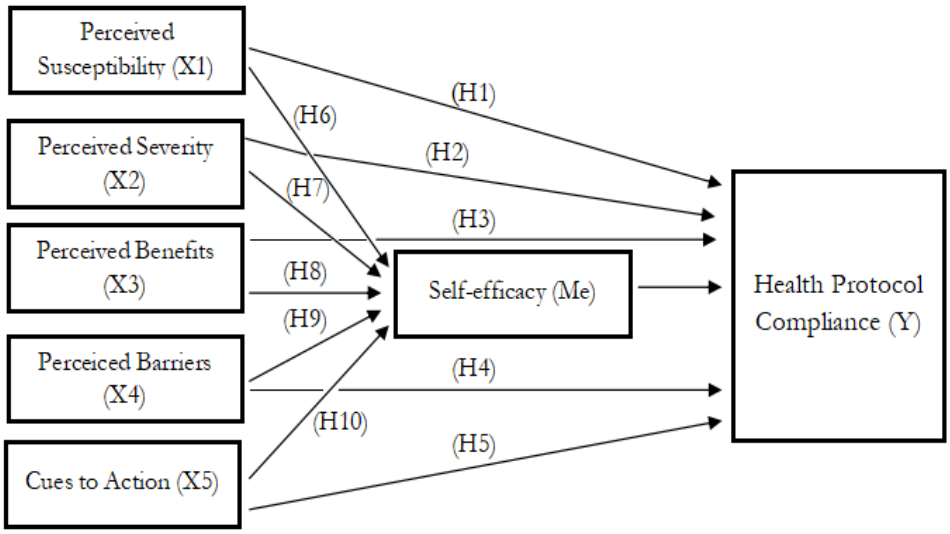


Figure 1.
The Operational Research Framework

Table 1.
Hypotheses

H	Hypotheses Content
H1	There is a direct and positive effect between perceived susceptibility to health protocols compliance
H2	There is a direct and positive effect between perceived severity to health protocols compliance
H3	There is a direct and positive effect between perceived benefits to health protocols compliance
H4	There is a direct and negative effect between perceived barriers to health protocols compliance
H5	There is a direct and positive effect between cues to action to health protocols compliance
H6	There is an indirect and positive effect between perceived susceptibility through self-efficacy to health protocols compliance
H7	There is an indirect and positive effect between perceived severity through self-efficacy to health protocols compliance
H8	There is an indirect and positive effect between perceived benefits through self-efficacy to health protocol compliance
H9	There is an indirect and positive effect between perceived barriers through self-efficacy to health protocols compliance
H10	There is an indirect and positive effect between cues to action through self-efficacy to health protocols compliance

METHOD

This research is quantitative correlational research. The independent variables in this study are the five constructs of the Health Belief Model (HBM), namely, perceived susceptibility, perceived severity, perceived benefits, perceived barriers, and cues to action. The workers health protocol compliance with COVID-19 prevention is the dependent variable, whilst self-efficacy acts as the mediating variable.

The population of this study is the people of the Surakarta Residency who work in offices. The sample selection used a sampling technique by Isaac and Michael's table with an error rate of 5%, as many as 349 respondents (Sugiyono., 2017), so in this study, the minimum sample size to be used is 350 office workers.

This study uses the used tryout method, where the data used in this study are data used for instrument testing and as final data for research data analysis. Data collection was carried out on March 8-25 2021 using an online scale on Google form which was circulated through online media (Whatsapp, Instagram, Twitter, and Telegram). So, the total data obtained was 387 respondents. After selecting the data by aborting multiple data, respondents who did not agree, did not suit the criteria, and outlier data, the total data used in this study were 357 respondents.

The data collection procedure began by creating a blueprint consisting of these following scales: 1) perceived susceptibility, 2) perceived severity, 3) perceived benefits, 4) perceived barriers, 5) cues to action, 6) self-efficacy, 7) health protocol compliance. The preparation of the instrument begins with making an operational definition of each variable, which then classifies aspects according to their operational definition, except for the self-efficacy scale and health protocol compliance scale. Indicators of each scale are arranged based on these aspects and arrange items based on existing indicators. The rating scale in this study uses a Likert scale with six answer choices because it has higher reliability than the Likert scale with five answer choices (Chomeya, 2010; Simms et al., 2019).

These scales were then tested for their content validity which was assessed and confirmed by seven experts through the expert judgement process. All of the items used in this study was confirmed valid (the Aiken V value > 0.75). All of the scales was also proven reliable with Cronbach's Alpha value > 0.700. The detail can be seen in the Table 2.

Table 2.
Reliability Test Results

Variable	Cronbach's Alpha
Perceived susceptibility	0.804
Perceived severity	0.746
Perceived benefits	0.764
Perceived barriers	0.780
Cues to action	0.735
Self-efficacy	0.815
Health protocol compliance	0.873

The data were then analyzed by using path analysis to examine the direct and indirect effect between variables in the model (Ghozali, 2017). There are two types of mediation assessment, full and partial mediation. The steps in conducting path analysis were 1) Model specification, 2) Model-

identification, 3) Model-suitability, and 4) Parameter estimation (Murti, 2016). The analysis was done by using JASP 14.1.

RESULTS AND DISCUSSION

The data were collected online by involving 357 respondents, where the summary of the data can be seen in the Table 3.

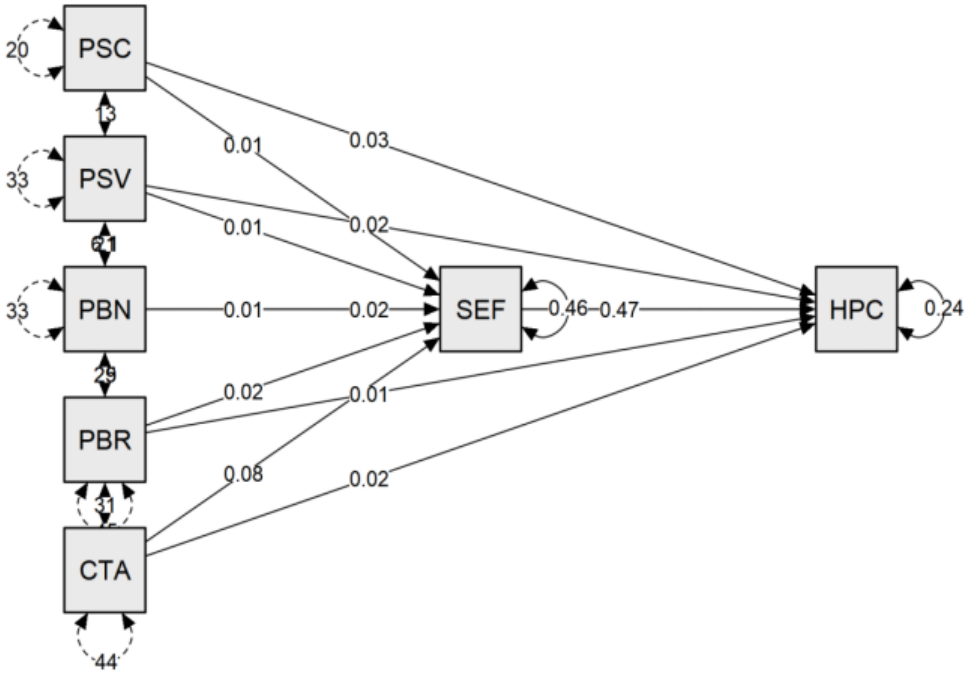
Table 3.
Subject Descriptive

Criteria	Health Protocol Compliance			
	Low		High	
	N	(%)	N	(%)
Gender				
Male	82	47%	39	34%
Female	94	53%	142	66%
Age				
19-30	129	74%	102	57%
31-40	32	18%	35	19%
41-50	13	7%	36	20%
>50	2	1%	8	4%
Education				
Senior High School	15	9%	9	5%
Associate's Degree	18	10%	18	10%
Bachelor Degree	132	75%	133	74%
Master Degree	11	6%	19	10%
Doctoral Degree	0	0%	2	1%
Workplace				
Government agency	41	23%	74	41%
Private agency	135	77%	107	59%
Profession				
Civil servant	22	13%	48	27%
Private-employee	78	44%	63	35%
Teacher	47	27%	41	23%
Health workers	7	4%	24	13%
Factory workers	22	13%	5	3%
Work System				
Work from Office	145	82%	138	76%
Work from Home	6	4%	12	7%
Combination	25	14%	31	17%
Income (Rupiah)				
<1.000.000	24	13%	19	11%
±1.000.000-2.000.000	63	36%	38	21%
±2.000.000-3.000.000	40	23%	49	27%
±3.000.000-5.000.000	39	22%	42	23%
>5.000.000	10	6%	33	18%

Based on Table 3, female workers (66%) in Surakarta who are above 40 years old (24%) have high health protocol compliance. The group that has high compliance with health protocol is dominated by masters and doctoral graduates (11%), followed by those who are working in the government agencies as civil servants (27%) and health workers (13%) with work from the home system and combination (24%) and income > 2,000,000 (68%).

Prior to performing the path analysis, the normality, linearity, multicollinearity, and heteroscedasticity assumptions of the data were tested. The data distribution was confirmed normal as they have skewness and kurtosis values between -1.96 and 1.96. The data was also proven to be linear, with the formation of a straight line pattern between the independent and dependent variables. In addition, the data has a VIF value <10 and not forming a unique pattern in the scatterplot results. Therefore, the data met the criteria to perform path analysis

Path analysis in this study was analyzed by using JASP 14.1. The variables used in the study were seven variables, consisting of 2 endogenous variables, five exogenous variables, and nine parameters. The calculation of degrees of freedom was needed to determine the continuity of the path analysis test. Path analysis can be done if df > 0. Meanwhile, in this model, the value of df = 12 > 0. Therefore the path analysis can be done



Note. PSC: Perceived Susceptibility; PSV: Perceived Severity; PBN: Perceived Benefits; PBR: Perceived Barriers; CTA: Cues to Action; SEF: Self-Efficacy; HPC: Health Protocol Compliance

Figure 2.
Path Analysis Model

Based on the direct table (table 4), it can be seen that perceived susceptibility to health protocol compliance has a path coefficient value (standardized) of 0.030 and a significance value (sig.) is <0.001 where p < 0.05. It shows that there is a significant direct and positive effect. Thus, the hypothesis 1 is accepted. For perceived severity on health protocols compliance, it has a path coefficient value (standardized) of 0.021 and a significance value (sig.) of 0.002 where p < 0.05. This indicates that there is a significant direct and positive effect. Therefore hypothesis 2 is accepted.

Table 4.
Path analysis test results (direct effect with 95% Confidence Interval)

Variable			Estimate	Std. Error	z-value	p	Lower	Upper
Perceived Susceptibility	->	Health Protocol Compliance	0.030	0.007	4.410	< .001	0.017	0.044
Perceived Severity	->	Health Protocol Compliance	0.021	0.007	3.115	0.002	0.008	0.035
Perceived Benefits	->	Health Protocol Compliance	0.021	0.008	2.654	0.008	0.006	0.037
Perceived Barriers	->	Health Protocol Compliance	0.010	0.007	1.493	0.136	-0.003	0.022
Cues to Action	->	Health Protocol Compliance	0.023	0.007	3.230	0.001	0.009	0.038

Note. Delta method standard errors, normal theory confidence intervals, ML estimator.

The perceived benefits on health protocols compliance, it has a path coefficient value (standardized) of 0.021 and a significance value (sig.) of 0.008 where $p < 0.05$. This shows that there is a significant direct and positive effect, so hypothesis 3 is accepted. For cues to action on health protocols compliance, it has a path coefficient value (standardized) of 0.023 and a significance value (sig.) of 0.001 where $p < 0.05$. This shows that there is a significant direct and positive effect, then hypothesis 5 is accepted. Meanwhile, perceived barriers to health protocols compliance, have a path coefficient value (standardized) of 0.010 and a significance value (sig.) of 0.136 where $p < 0.05$. This shows that there is no significant effect, then hypothesis 4 is rejected.

Table 5.
Path analysis test results (indirect effect with 95% Confidence Interval)

Variable					Estimate	Std. Error	z-value	p	Lower	Upper
Perceived Susceptibility	->	Self-efficacy	->	Health Protocol Compliance	0.004	0.004	0.907	0.364	-0.005	0.013
Perceived Severity	->	Self-efficacy	->	Health Protocol Compliance	0.004	0.004	0.982	0.326	-0.004	0.013
Perceived Benefits	->	Self-efficacy	->	Health Protocol Compliance	0.004	0.005	0.801	0.423	-0.006	0.014
Perceived Barriers	->	Self-efficacy	->	Health Protocol Compliance	0.009	0.004	2.108	0.035	6.278×10-4	0.017
Cues to Action	->	Self-efficacy	->	Health Protocol Compliance	0.038	0.005	7.266	< .001	0.028	0.048

Note. Delta method standard errors, normal theory confidence intervals, ML estimator.

Based on the indirect effects table (Table 5), the perceived susceptibility to health protocol compliance through self-efficacy has a path coefficient value (standardized) of 0.004 and a significance value (sig.) of 0.364 where $p < 0.05$. This shows that there is no significant indirect effect, then hypothesis 6 is rejected. For the perceived severity to health protocol compliance

through self-efficacy, it has a path coefficient value (standardized) of 0.004 and a significance value (sig.) of 0.326 where p <0.05. This shows that there is no significant indirect effect, then hypothesis 7 is rejected. The perceived benefits to health protocol compliance through self-efficacy, it has a path coefficient value (standardized) of 0.004 and a significance value (sig.) of 0.423 where p < 0.05. This shows that there is no significant indirect effect, then hypothesis 8 is rejected.

Meanwhile, perceived barriers to health protocol compliance through self-efficacy have a path coefficient value (standardized) of 0.009 and a significance value (sig.) of 0.035 where p < 0.05. This shows that there is a significant indirect and positive effect, so hypothesis 9 is accepted. For cues to action to health protocol compliance through self-efficacy it has a path coefficient value (standardize) of 0.038 and a significance value (sig.) is <0.001 where p < 0.05. This shows that there is a significant indirect and positive effect, so hypothesis 10 is accepted. Identity versus identity confusion is a stage of psychosocial development in adolescence. Erikson suggested that individuals without a clear identity will feel depressed and lack self-confidence because they have no goals. Individuals can accept a negative identity given as a loser to be recognized. Being an individual with a negative identity is still better than having no identity (Nadiah et al., 2021).

Based on the total effect table (Table 6), it shows that the most substantial predictor factor affecting health protocols compliance on office workers is the cues to action variable with a path coefficient value (standardized) of 0.034, and the weakest predictor is the perceived barrier variable with a path coefficient value (standardized) of 0.019.

Table 6.
Path analysis test results (total effect with 95% Confidence Interval)

Variable			Estimate	Std. Error	z-value	p	Lower	Upper
Perceived Susceptibility	->	Health Protocol Compliance	0.034	0.008	4.204	< 0.001	0.018	0.050
Perceived Severity	->	Health Protocol Compliance	0.026	0.008	3.156	0.002	0.010	0.042
Perceived Benefits	->	Health Protocol Compliance	0.025	0.009	2.668	0.008	0.007	0.044
Perceived Barriers	->	Health Protocol Compliance	0.019	0.008	2.422	0.015	0.004	0.034
Cues to Action	->	Health Protocol Compliance	0.062	0.008	7.916	<0 .001	0.046	0.077

Note. Delta method standard errors, normal theory confidence intervals, ML estimator.

The results showed that the determinants of health protocol compliance are cues to action factors that greatly affected the health protocols compliance on office workers. Other factors such as perceived susceptibility, perceived severity, and perceived benefits significantly affect health protocol compliance among office workers. Meanwhile, perceived barriers can affect health protocol compliance, if office workers have self-efficacy or confidence that they are able to comply with the Covid-19 prevention health protocols.

In this study, mediation effectiveness is divided into two types, namely, full mediation and partial mediation. Based on the mediator effectiveness table (Table 7), it is known that the perceived susceptibility is a full mediation to the health protocol compliance, The direct effect test results are 0.03 and significant p= <0.001. Meanwhile, the results of the indirect effect test increased to 0.004 but not significantly p= 0.355. This shows that perceived susceptibility is not able to significantly influence health protocol compliance without self-efficacy as the mediating variable. The perceived

severity also has a full mediation, the direct effect test result was 0.021 and a significant p= 0.002. Meanwhile, the results of the indirect effect test decreased to 0.005 but not significant p= 0.307. Itshows that the perceived severity variable is not able to significantly influence health protocol compliance without self-efficacy.

Table 7.
Mediator Effectiveness

Variable					Direct effect	p	Indirect effect	p	Type of Mediation
Perceived Susceptibility	->	Self-efficacy	->	Health Protocol Compliance	0,03	< 0.001	0.004	0.355	Full Mediation
Perceived Severity	->	Self-efficacy	->	Health Protocol Compliance	0,021	0.002	0.005	0.307	Full Mediation
Perceived Benefits	->	Self-efficacy	->	Health Protocol Compliance	0,021	0.008	0.004	0.438	Full Mediation
Perceived Barriers	->	Self-efficacy	->	Health Protocol Compliance	0,009	0.146	0.009	0.031	Full Mediation
Cues to Action	->	Self-efficacy	->	Health Protocol Compliance	0,024	0.001	0.038	< .001	Partial Mediation

Our result is in accordance with the previous researches conducted by Attamimy & Qomaruddin (2018); Barakat & Kasemy (2020); Fitriani et al., (2019), which indicate that when someone believes that they are vulnerable to contracting Covid-19 and believes in severe effects caused by Covid-19, it will lead to a belief that the virus can threaten themselves and others. However, without the belief in office workers that they are capable of taking preventive measures, they will not comply with health protocols.

The perceived benefit also has full mediation, where the direct effect test result was 0.021 and a significant p= 0.008. Meanwhile, the results of the indirect effect test decreased to 0.004 but not significant p= 0.438. This shows that the perceived benefits are not able to significantly influence health protocol compliance without self-efficacy. In accordance with previous research studies, office workers' belief in the benefits of implementing health protocols strengthens their motivation to comply with health protocols (M.Fadilah; Pariyana; S. Aprilia; R.A. Syakurah, 2020; Shahnazi et al., 2020). When office workers believe that the Covid-19 prevention health protocol is very important and effective in reducing the risk of Covid-19 transmission, they will be more motivated to comply with the health protocol.

The perceived barriers also have full mediation, the direct effect test result was 0.009 and not significant p= 0.146. Meanwhile, the results of the indirect effect test remained at 0.009 and significant p= 0.031. This shows that the perceived barriers is not able to significantly influence health protocol compliance without through self-efficacy. This is in accordance with research conducted by Tajeri moghadam et al. (2020), which shows that the high barriers experienced by office workers can make them tend to have low compliance to the implementation of health protocols, so that high self-confidence is needed in order to overcome the obstacles that arise, exist to continue implementing health protocols to reduce the threat of Covid-19. When office workers

believe in their ability to overcome difficulties experienced when implementing health protocols, they will perceive these difficulties as challenges (Tshuma et al., 2017; Yang et al., 2016; Yu et al., 2020).

Meanwhile, the cues to action variable have a partial mediation, which is the direct effect test result was 0.024 and significant p= <0.001. Meanwhile, the results of the indirect effect test increased to 0.038 and remained significant at p= <0.001. This shows that the cue variable to act is able to significantly influence health protocol compliance without self-efficacy as a mediator variable.

Our results confirm the finding of Yang et al., (2016), which find that the number of stimuli received is proven to increase the motivation of office workers to comply with the Covid-19 prevention health protocol. The cues that each individual gets are different from each other, depending on the type of work. Workers who work as health workers or civil servants will certainly be more compliant as they tend to have easier access to information,both via the mass media and from health workers. Meanwhile, those who work as private employees or factory workers tend to have limited access to this information and spend more time working to support their families, so they tend to be less compliant in implementing health protocols (Yang et al., 2016).

This study has limitations, such as the various types of work owned by the research subjects, thus allowing for a mismatch of the work the subject has with the research context used. In addition, using too many items on the scales has a high probability in making respondents easily bored and allowing them not to continue filling out the scale or filling out the scale at will without reading the statements in the items. This study also have not discuss the cultural factors and the possibility of social desirability. Moreover, the results of this study also only apply to office workers in the Surakarta residency area. Different results are likely to be found for office workers in other areas.

This study provides more intense education and focuses on solutions people can use when facing difficulties in implementing health protocols. It can be one way to increase worker compliance in implementing health protocols to help reduce the spread of Covid-19, and the pandemic can end soon.

CONCLUSION

Compliance with health protocols will increase when office workers feel susceptible to contracting Covid-19, believe in its severe effects, and believe that health protocols reduce transmission of Covid-19. In addition, the number of signals/stimuli that office workers get while implementing health protocols is very influential in increasing their motivation to be more obedient in implementing health protocols.

Health protocol compliance can decrease when office workers experience many obstacles/ difficulties in carrying out health protocols, but will increase again when they are confident of their competence in carrying out health protocols. Therefore, self-efficacy is very important in influencing the compliance behavior of office workers in carrying out health protocols.

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