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## The Role of Optimism Bias and Public Trust in the Government on Non-compliant Behavior with Health Protocols

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**Abstract.** *The occurrence of risky actions by the community and the inconsistencies of government policies regarding Covid-19 pandemic led to community non-compliance with the health protocols. The purpose of this study was to investigate the role of unrealistic optimism bias and public trust to the government towards non-compliance behavior during the COVID-19 pandemic. This study was a quantitative study with data collection procedures using the survey method. The three questionnaires i.e. the unrealistic optimism bias, public trust in government, and non-compliance behavior, have been adopted from the previous studies and validated using CVI for the purpose of this study. There were 740 participants ranging between 18-25 years old. Stepwise regression analysis was conducted. The results showed that the unrealistic optimism bias and public trust to the government simultaneously contributed to non-compliance behavior in which the unrealistic optimism bias had the highest contribution to non-compliance behavior during the COVID-19 pandemic. This study implies that the government and intervention agencies need to pay attention to the factors of cognitive biases by the individuals and public trust issues for improving the public adherence to the health protocols.*

**Keywords:** *COVID-19 pandemic; non-compliance behavior; public trust in government; unrealistic optimism bias.*

### INTRODUCTION

The 2019 coronavirus disease (COVID-19) outbreak was declared a public health emergency of international concern by the World Health Organization (WHO) on January 30, 2020, when 34 Chinese regions were affected by infection with the total number of cases surpassing the 2003 SARS (Ho et al., 2020). On March 11, 2020, WHO announced the COVID-19 as a pandemic. The classification of a pandemic for a disease confirms that an outbreak of contagious disease has occurred over a wide geographic area and with a high prevalence (Chryshna, 2020).

President Joko Widodo confirmed the first case of the COVID-19 in Indonesia on March 2, 2020. A year since Indonesia was declared affected by the pandemic, the total number of COVID-19 cases as of April 28, 2021, reached 1.66 million people, while the death toll from COVID-19 neared 45,334 (Our World in Data, 2020). Although the current COVID-19 cases in Indonesia had decreased in February-April 2021, according to epidemiologists from Airlangga University, it was a mere false decline. The decrease in daily cases was a result of the plunging

number of tests done in Indonesia. An epidemiologist from Griffith University Australia agreed that the decline in daily cases occurred due to the low number of COVID-19 tests and tracings in Indonesia. The minimum target for tracking by the WHO is 39,000 checks daily, while as per March 1, only 18,000 were searched. Consistently, two epidemiologist experts coincided that Indonesia was deemed not to have passed the peak of the first wave considering that the positive number of disease exposure was still above 10 percent. A year following the pandemic, Indonesia has administered more than 7 million tests. This number only covers approximately 2.67 percent of the entire population. Meanwhile, given the data from the Ministry of Health on March 1, 2021, the number of positive cases was 18.6 percent, below par the WHO standard regulating that the COVID-19 pandemic is declared under control if positive cases is a maximum of 5 percent (Purba, 2021; Sagita, 2021).

Conversely, the policy for the COVID-19 countermeasure in Indonesia is perceived as perplexing. The government planned to reduce the number of cases, yet on several occasions, it loosened public activities (Daud, 2020). It can be observed on the 27-29 October 2020 collective leave, in which mobilization of the people of Jakarta outside was observed regardless its state as the center of the pandemic. It was recorded that 509,140 vehicles departed from Jakarta in the course of holiday. The high mobility of residents affected the spike in cases that occurred in the following month. Not only were long holidays, but also the arrival of FPI (Islamic Defenders Front) leaders and the election campaign also provoked clusters. The increase in the number of cases emerging overwhelmed the hospital capacity. In early November, the bed occupancy rate of hospitals in Jakarta was 52 percent (Daud, 2020).

A year after the pandemic officially declared, people still neglect health protocols. In a big city such as Jakarta, many of them are not wearing masks in their daily activities (Wicaksono, 2021). The spokesperson for the COVID-19 National Task Force stated that compliance with health protocols abated in November 2020, for instance, wearing masks, washing hands, and social distancing. The public compliance rate for wearing masks was 59.32 percent and social distancing was 43.46 percent. In fact, to reduce the number of COVID-19 cases, compliance from 75 percent of Indonesia's population is required. To make it worse, out of 512 regencies/cities, less than nine regencies/cities comply with health protocols (Meydhalifah, 2020).

A report from Nanyang Technological University surveying Jakarta and Surabaya confirms that many people believe that they will not be infected by coronavirus (Salman, 2020). The survey reveals that 77% of respondents in Jakarta assumed that their chances of contracting COVID-19 were low and very small; while in Surabaya, the figure obtained 59%. Another survey by the Statistics Indonesia (2020) regarding Public Behavior amid the COVID-19 Pandemic discovers that the lowest level of compliance by age was at 17-30 years. The survey also indicates that the age group of 17-30 years had the highest percentage (20.2%) presuming that they were very unlikely to suffer COVID-19.

The age group data from the BPS reinforces the urgency of this research aimed at those of early adulthood. In addition, it is also in accordance with the research conducted by Chowdhury et al. (2020) suggesting that those of early adulthood are internationally identified as a potential group for non-compliance. The author opted for the age range of early adulthood referring to Arnett (2014) that early adulthood is a stage of development from late adolescence to early adulthood, which is the age of 18-25 years.

Early research on public non-compliance during pandemics has been associated with perceived risk and anxiety (Leung, 2003), experienced fear (Harper et al., 2020), unrealistic optimism bias (Boutebal et al., 2020), perceived susceptibility (Lau et al., 2008), knowledge regarding virus

transmission (Di Giuseppe et al., 2008), public trust in government (Wong & Jensen, 2020), and perceived effectiveness of countermeasures (Lau, 2003). Risky actions by the community during the pandemic and inconsistent government policies lead to public non-compliance to existing health protocols in order to diminish the spread of COVID-19 cases. This study focuses on analyzing the non-compliance behavior which can be indicated by the bias of unrealistic optimism and public trust in the government due to the inconsistency of results in early studies.

Dolinski et al. (2020) describe the unrealistic optimism bias as a disposition to believe that they are less likely to experience negative events and more likely to experience positive events than other people. People maintain to create comparative judgment grounds when evaluating their risk in the face of negative events and believe that they are less susceptible to risk than others (Klein & Helweg-Larsen, 2002; Weinstein, 1987, 1989)

Early research associated with unrealistic optimism bias found several different results. Boutebal et al. (2020) suggest that the level of optimism bias and the respondent's age range had a negative and significant relationship. It contradicts the findings of Druică et al. (2020) that age is a positive factor that affects the optimism bias, which corresponds with the results of the study of R. Chowdhury et al. (2014) that the optimism bias increases with age. From the findings of Druică et al. (2020), in conclusion, there are differences in the subjective characteristics and objective conditions of the population that result in different behaviors associated with optimism bias.

Druică et al. (2020) describe that optimism bias affects one's perception of the risk of transmission caused by the COVID-19 in Romania & Italy. Meanwhile, Bavel et al. (2020) report that optimism bias may lead people to underestimate their chances of contracting a disease and ignore health warnings. To Weinstein and Klein (1996), optimism bias may be a protective strategy and make a person believe that all is well. It may cause a person to underestimate the risk of various health problems.

Poortinga and Pidgeon (2003) define public trust in the government as to how someone perceives the government and its policies on a regulation. Meanwhile, according to Jack and Christopher (1976), public trust in the government is the public's belief that the authorities will obey the rules and serve the public interest. Mayer et al. (1995) narrate three antecedent factors that determine trust in government; competence (skills to do the task), benevolence (positive relationships based on selflessness and loyalty), and integrity (adherence to sound moral and ethical principles). Considering these three aspects, public trust in the government relies on the level of integrity and benevolence of the authorities.

Han et al., (2021) explain that a high public trust in government is significantly associated with higher adoption of health measures. In the context of pandemics, higher adoption of health measures encourages one's compliance. These results highlight the importance of public trust in the government in controlling the pandemic. However, a study by Wong and Jensen (2020) in Singapore regarding public trust shows that people had high trust in the government and it was accompanied by a low level of perceived risk. This results in low compliance with risk management measures taken by the government. Wong and Jensen (2020) affirm that the COVID-19 pandemic unraveled another dimension of trust, where a high level of public trust produces lower compliance and the belief that individual action is not necessary to manage risk effectively. It is due to the fact that respondents had significant positive perceptions regarding risk management and government communication efforts. Most respondents also rated the risks experienced as very low since they assumed that the government had been transparent. Respondents considered the government to be very competent and effective in taking action.

Based on the results of early studies, the hypotheses in this study are that (H1) an unrealistic

optimism bias and (H2) public trust in the government can predict public non-compliance with health protocols during the COVID-19 pandemic.

## METHOD

In this study, participants consisted of 740 general public in their early adulthood. Participants were spread across 24 provinces in Indonesia, with the majority coming from East Java 41.6 percent, West Java 17.2 percent, Jakarta 10.5 percent, Central Java 7.2 percent, Yogyakarta 6.1 percent, and Banten 5.3 percent. Participant age ranged from 18 to 25 years ( $M=21.57$ ,  $SD=1.83$ ), with a sex ratio of 79.7 percent females and 20.3 percent males. The level of education of most participants was undergraduate (S1) 86.5 percent, the remaining comprised senior high school 11.4 percent and master degree 2.2 percent. The occupation proportion of participants encompassed students/college students of 70.8 percent, private employees of 14.9 percent, entrepreneurs of 4.6 percent, unemployment of 4.6 percent, others of 3.4 percent, and civil servants of 1.8 percent. The proportion of income showed that 93.6 percent of respondents earned below IDR 5 million, 6 percent between IDR 5 million and 10 million, and 0.4 percent above IDR 10 million.

The initial sample design was calculated by a priori power analysis using the G\*Power software (Faul et al., 2009). Sample calculation was performed using linear multiple regression fixed model R<sup>2</sup> deviation from zero (predictors=3, power statistic=.80, alpha=.05, and  $f^2=.25$ ) that obtained at least 48 respondents. The effect size was estimated once participants with relatively homogeneous characteristics were collected. However, this study was estimated to have a population and sample with heterogeneous characteristics in the age range of 18-25 years so that a larger number of samples was required.

Data collection was conducted from 26-29 October 2020. Data collection was administered online and distributed to target respondents through social media. Participants agreed upon informed consent notice to participate in this study. Data analysis was completed using SPSS 26 for windows by stepwise regression analysis techniques to test the hypothesis.

This study employed three instruments; unrealistic optimism bias questionnaire, public trust in the government questionnaire, and non-compliance behavior questionnaire. The unrealistic optimism bias questionnaire refers to the research conducted by Boutebal et al. (2020) (14 items;  $\alpha = .83$ ; sample item "I believe I am completely immune from coronavirus"). The questionnaire entails five alternatives (1="strongly disagree", 5="strongly agree"). Whereas, the questionnaire on public trust in the government was adopted from the research of Paek et al. (2008) which examines knowledge and perceptions about flu pandemics, trust in government, and support for government action in flu pandemics. Paek et al. (2008) endorsed questions proposed by McComas and Trumbo (2001). The questionnaire contains five questions related to the trust dimensions. This measuring tool provides four options (1="not sure at all", 4="very sure"), with a good reliability coefficient ( $\alpha = .89$ ; sample item "How much do you believe in the government's measures in managing the COVID-19?"). The final questionnaire related to non-compliance behavior was constructed based on the research of Nivette et al. (2021) providing recommendations for health protocols by the government in handling the COVID-19 (14 items;  $\alpha = .67$ ; example of the item "I obey social distancing regulation"). This questionnaire presents 2 alternatives (0 = "yes", 1 = "no").

Instrument validation was done using content validity and readability tests (cognitive interviewing). Content validity was measured by the content validity index (CVI) and translation validation conducted by lecturers of the Faculty of Psychology, Airlangga University, and doctoral students of the Faculty of Psychology, Airlangga University. CVI is used to measure content validity

by a rating of the relevance of an item upon expert judgment (Polit & Beck, 2006). The item assessment consists of relevance, importance, and clarity of items in accordance with the constructs raised. From the item review process, a Content Validity Index (CVI) was obtained. Calculation of CVI on the three variables showed good results (unrealistic optimism bias = 0.99; public trust in the government = 0.98; non-compliance behavior = 0.98).

In translation validation, validity is was calculated based on the results of forward translation related to two things, language and meaning comparisons. The author requested two raters who were qualified in psychology and able to understand and speak fluently in Indonesian and English. The result is that the three variables had good language and meaning comparisons. Furthermore, the readability test was carried out on individuals who fulfilled the criteria of research participants. The readability test was conducted to measure the understanding of the prospective participants towards the instructions and the questionnaire items. As a result, three people who filled out the readability test were able to understand the instructions and questionnaire items adequately.

To test the hypothesis, the author applied stepwise regression to examine which unrealistic optimism bias and public trust in the government variables have the highest contribution to non-compliance behavior during the COVID-19 pandemic. The author performed the analysis using SPSS version 26 software for windows. Because the data that the author obtained did not meet the normality test and heteroscedasticity test, the author proceeded with a stepwise regression analysis using the bootstrapping method. Bootstrapping is a statistical procedure by drawing repeated samples using data from existing sample studies as a "surrogate population" to approach the sampling distribution (Singh & Xie, 2008).

## RESULTS AND DISCUSSION

Data distribution for each variable is categorized based on three categories; low, moderate, and high.

Table 1.  
Classification of Data Distribution

Variable	Criteria	Category	Frequency	Percentage
Unrealistic Optimism Bias	$X < 33$	Low	393	53,1%
	$33 \leq X < 51$	Moderate	330	44,6%
	$51 < X$	High	17	2,3%
Trust in Government	$X < 10$	Low	303	40,9%
	$10 \leq X < 15$	Moderate	347	46,9%
	$15 < X$	High	90	12,2%
Non-compliance Behavior	$X < 5$	Low	637	86,1%
	$5 \leq X < 9$	Moderate	93	12,6%
	$9 < X$	High	10	1,4%

Prior to regression analysis, Pearson correlation analysis was performed (Table 2). The results of Pearson's correlational analysis show that only unrealistic optimism bias was significantly associated with non-compliance behavior. Therefore, the analysis was pursued to evaluate the relationship of the significant variables using stepwise regression analysis.

Table 2.  
 Correlation between Variables

Variable	M	SD	1	2	3
Unrealistic optimism bias (1)	32.8	7.76	—		
Public trust in government (2)	10.28	3.3	.218**	—	
Non-compliance behavior (3)	2.25	2.1	.286**	-.018	—

Note. \* p < .05, \*\* p < .01

Following the stepwise regression analysis (Table 3), both models were found to be suitable in explaining the data, both model 1 when only unrealistic optimism bias was added as a predictor ( $F(1,738)=65,818$ ;  $p<0.001$ ;  $R^2=.082$ ), as well as model 2 when the unrealistic optimism bias and public trust in the government were added as predictors ( $F(1, 737)=35,889$ ;  $p<0.001$ ;  $R^2=.089$ ). From model 1, it determines that the unrealistic optimism bias was able to explain 8.2 percent of the non-compliance behavior variance. Whereas in model 2, when the predictor of public trust was included, the simultaneous contribution of the unrealistic optimism bias and public trust was able to explain 8.9 percent of the non-compliance behavior variance.

Table 3.  
 Stepwise Regression

Model	B	Bias	Std. Error	Sig. (2-tailed)	BCa 95% Confidence Interval	
					Lower	Upper
1. (Constant)	-.298	.007	.392	.448	-1.129	.462
Unrealistic optimism bias	.078	.000	.013	.000	.053	.103
2. (Constant)	.093	.008	.419	.814	-.791	.918
Unrealistic optimism bias	.083	.000	.013	.000	.059	.109
Public Trust	-.054	.000	.023	.019	-.099	-.009

Note. a. Unless otherwise noted, bootstrap results are based on 2000 bootstrap samples

Unrealistic optimism bias ( $B=0.078$ ; 95% CI [0.053; 0.103];  $SE=0.013$ ;  $p<0.001$ ) directly explained why participants did not comply with applicable health protocols with not too significant proportions if the public trust predictor was added to the model. In model 2, it shows that public trust was able to explain public non-compliance during the pandemic ( $B=-0.054$ ; 95% CI [-0.099; -0.009],  $SE=0.023$ ;  $p<0.005$ ). In general, the two predictors of this study –unrealistic optimism bias and public trust in the government – were able to explain non-compliance behavior during the pandemic. The conclusion obtained from the stepwise regression test is that the unrealistic optimism bias variable is the predictor with the highest contribution to public non-compliance behavior during the COVID-19 pandemic.

This study aims to determine whether there is a relationship between the unrealistic optimism bias and public trust in the government on public non-compliance behavior during the COVID-19 pandemic. H1 in this study assumes that there is a relationship between unrealistic optimism bias and non-compliance behavior in society. This hypothesis is built upon the research of Boutebal et al. (2020) discovering that a low level of unrealistic optimism bias encourages a person to be able to objectively assess the risk of the coronavirus and the urge to carry out countermeasure instructions that include belief in the effectiveness of staying at home and avoiding social interactions that may

cause the spread of infection.

The H1 test results show that the hypothesis is confirmed, in which the higher the level of unrealistic optimism bias of a person, the higher the level of public non-compliance in carrying out health protocols during the COVID-19 pandemic will be. In other words, the more people believe that they are not prone to the COVID-19, the higher the non-compliance is. This finding corresponds to the study by Boutebal et al. (2020) in Algeria that the low unrealistic optimism bias would prompt someone to carry out preventive instructions to minimize the transmission. Another study by Kim and Niederdeppe (2013) regarding the unrealistic optimism bias also shows corresponding results that unrealistic optimistic people had significantly lower intentions to practice hand sanitation. In accordance with O'Brien et al. (1995), unrealistic optimism bias may reduce one's ability to demonstrate preventive health behavior. In addition, Wise et al. (2020) found that involvement in countermeasures was strongly predicted by a person's belief of being infected. Those who believe that they are likely to be infected during a pandemic imply how realistic they are, as well as are more likely to have a low optimism bias.

The H2 test in this study also confirmed the hypothesis. This hypothesis is based upon research by Wong and Jensen (2020) describing that a low public risk perception had a persistent impact on the trust paradox. In their research, public trust in government had a negative and significant correlation with non-compliance behavior, indicating that high trust in government resulted in underestimating the importance of health protocols. They assumed that the government had prepared everything for them. But then, compliance with health protocols requires the participation of the public in perceiving the risks that are not only prevented by only the government. Nonetheless, the results in this study appear to contradict the study by Wong & Jensen (2020) in Singapore. Further, the results validate what was probed by Han et al. (2021), in which they mention that higher trust in government is significantly associated with higher adoption of health measures. Therefore, a government that is considered capable of handling pandemic well and disseminating clear and open information and knowledge related to the COVID-19 is predicted to increase the level of public adoption in taking health actions. These results highlight the importance of public trust in the government in handling the COVID-19.

The results of Wong and Jensen (2020) research need to be observed when considering the demographic aspects of income and also the level of trust in the government which are more likely high compared to other high-income countries: 24% of people in Singapore are reported to have a "great deal of confidence" in their government compared to 4.2% in South Korea, 3% in Germany or 8.3% in the US (World Population Review, 2021). In contrast to Singapore, the results of this study indicate that the majority of participants had moderate and low levels of trust in the government. Referring to participant demographics, Anderson (2010) and Price (2012) affirm that people with higher income have a higher probability of trusting the government. Considering this assumption, at a macro level, however, Indonesia's median per capita income is below par with that of Singapore (World Population Review, 2021). It is also reinforced by demographic data from this research where the majority of respondents (93.6%) earned below IDR 5 million. This result is very in contrast to Singapore's median income.

## CONCLUSION

This study validates those who support the significant positive relationship of unrealistic optimism bias to non-compliance behavior; as well as a significant negative relationship of public trust in the government to non-compliance behavior. Simultaneously, unrealistic optimism bias

and public trust in the government are able to explain public non-compliance behavior, with the unrealistic optimism bias variable at the highest contribution to non-compliance behavior during the COVID-19 pandemic.

These findings allow those who want to see the insight of the importance of taking into account individual cognitive bias. Interventions to improve public compliance should carefully consider psychological factors related to cognitive bias, including optimism bias. Those who tend to have a strong optimism bias may exhibit change-resistant behavior regardless of the information given contradicts their bias. Thus, information and campaigns to comply with health protocols need to pay attention to psychological factors to reduce bias optimism so that it may achieve the objectives.

This research is limited to exploring the demographic aspect. For instance, the response to the income item only provided 3 income categories, in which the alternative for under IDR 5 million stands alone. Income under IDR 5 million should be re-categorized since it is still above the minimum wage for most people. Future research is expected to be able to categorize income ranges in more detail alternatives so that they can explain the pattern of preventive actions on health risks and following health protocols. A detailed description of the demographic aspect will allow a study of the relationship invariance on the variables studied using the demographic aspect as a reference.

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