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When and How Trust in Government Leads to Compliance with COVID-19 Precautionary Measures

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\section*{ABSTRACT}

Despite the risks of COVID-19, some people ignore the COVID-19 precautionary measures, endangering public health. We aimed to investigate how and in what conditions trust in government and health authorities encourage individuals to comply with COVID-19 precautionary measures. Based on a sample of 664 respondents, we found that an increase in the level of trust in government is associated with higher compliance with COVID-19 precautionary measures. We also found that problem awareness mediates the effect of trust in government on compliance with COVID-19 precautionary measures. In addition, we examined whether individualistic orientation moderates the mediating effect of problem awareness. We found that individualistic orientation mitigates the mediating effect of problem awareness in the relationship between trust in government and compliance behavior. The findings of this study have the potential to inform policy and practice by addressing the ways in which compliance with COVID-19 precautionary measures can be improved.

\section*{1. Introduction}

COVID-19 is one of the biggest global public health challenges of the century, with almost 1.8 million deaths and 83 million cases as of December 31, 2020 (WHO, 2021). To prevent the spread of the virus, the WHO has recommended several precautionary measures, such as social distancing, facemask wearing, and personal hygiene (WHO, 2020). Many countries around the world have introduced these precautionary measures to curb the spread of COVID-19. Research conducted on the efficacy of COVID-19 precautionary measures has indicated that compliance with these measures reduces the spread of the virus. For instance, Chu et al. (2020) found that maintaining interpersonal distance by at least one meter may reduce the spread of COVID-19 by 80%, and that wearing facemasks may reduce the spread by 85%. However, many people across the world continue to ignore such precautionary measures (Harris, 2020; Kowalski et al., 2020), demonstrating an unwillingness to comply with efforts to contain the spread of the virus.

Given the importance of compliance with COVID-19 guidelines, the fact that some people fail to follow them is a critical issue to address. Prior empirical work that sought to identify the causes of compliance and non-compliance with COVID-19 precautionary measures uncovered factors such as perceptions, efficacy, trust, and sociodemographic and health variables (Clark et al., 2020; Negera et al., 2020; Ozdemir et al., 2020; Roma et al., 2020; Rothgerber et al., 2020; Sobol et al., 2020; Zuro & Krupic, 2020). Despite these attempts, studies on the role of trust in government in compliance behavior are limited. This is striking given that government and health authorities are the primary sources of COVID-19-related information.

We extend prior studies on compliance behavior by contending that trust in government and health authorities plays a crucial role in compliance with COVID-19 precautionary measures. Our argument is that trust in government and health authorities enhances awareness of the COVID-19 pandemic by encouraging people to be more attentive to COVID-19-related information released by the government. Such heightened awareness also increases the likelihood of compliance with government-backed COVID-19 precautionary measures. As such, this study sought to explore and expand the discussion on the role played by trust in government in compliance behavior by addressing the following research gaps.

First, we investigated the effect of trust in government on compliance with COVID-19 precautionary measures, about which current research findings have been mixed. Some studies have found that trust in...
government encourages compliance behavior (Goldstein & Wiedemann, 2020; Murphy et al., 2020; Raude et al., 2020b). In contrast, Guglielmi et al. (2020) indicated that trust in governmental institutions might actually reduce an individual’s willingness to follow COVID-19 recommendations and accept the corresponding restrictions. In the same vein, Clark et al. (2020) found that trust in government is relatively unimportant in predicting COVID-19 compliance behavior. Accordingly, we addressed these inconsistencies and shed light on the importance of public trust by investigating the influence of trust in government and health authorities on compliance with COVID-19 precautionary measures.

Second, we explained the mechanism through which trust in government contributes to compliance with COVID-19 precautionary measures. We introduced problem awareness as a mediator to describe how people who trust the government would most likely comply with the government’s precautionary measures. Problem awareness is the extent to which one is aware of the adverse consequences of acting in a socially irresponsible manner (Steg & de Groot, 2010). Trust in government encourages people to listen to the government and health authorities and understand the severity of neglecting precautionary measures such as those developed in response to the COVID-19 pandemic, thereby increasing the likelihood of compliance with these measures.

Third, cultural orientation influences behavioral reactions to infectious diseases, epidemics, and lockdowns (Germani et al., 2020; Travaglino & Moon, 2020). We therefore introduced individualistic orientation as an important boundary condition that explains when trust in government contributes to compliance with COVID-19 precautionary measures and when it does not. Individualistic orientation is the extent to which a person considers her or his personal interest over societal needs (Kaasa, 2015; Shiu et al., 2015). This conception is related to individualism, which involves valuing uniqueness and wanting to become distinguished (Chirkov et al., 2003; Oyserman et al., 2002). We argue that trust in government does not always lead to compliance behavior but instead depends on the extent of one’s individualistic orientation.

Moreover, most studies on compliance behavior have been conducted in countries characterized by well-developed health systems and high-income economies (e.g., Raude et al. (2020b), Falcone et al. (2020), Margraf et al. (2020)). Our study expanded the discussion on the importance of trust in government to compliance behavior by focusing on countries with a less-developed health system and a lower-income economy. We organized the remainder of this paper as follows. We begin with a review of the relevant literature and the chosen theoretical background. Here, we draw from the health compliance literature to hypothesize how trust in government contributes to compliance with COVID-19 precautionary measures. Specifically, we contend that trust in government is positively associated with compliance with COVID-19 precautionary measures and that this effect is mediated by awareness of the severity of COVID-19. Besides, we argue that the individualistic orientation attenuates this positive relationship. We then discuss our research methodology and findings. Lastly, we conclude with a discussion of the theoretical, managerial, and policy implications of our study as well as potential future research directions.

2. Theory and hypotheses

2.1. Health compliance

Health compliance is the degree to which a person’s behavior coincides with medical advice (Haynes et al., 1979). Compliance has also been described as the extent to which an individual follows the recommendations provided by healthcare professionals (Roma et al., 2020). Health compliance can be reflected in everything from following medical or health advice to adopting recommended behaviors and lifestyles to avoiding or altering certain behaviors related to disease (Dunbar, 1980; Ehiri, 2000; Taddeo et al., 2008). It is important to bear in mind that compliance is not a one-time, static phenomenon; instead, it is a dynamic and continuous process that varies over time (Ehiri, 2000; McDill, 1978).

Compliance involves a change in behavior and/or lifestyle in response to government requirements (Forman, 2007; Kassin, 2015). These requirements include various health recommendations issued to the general public. Compliance with these recommendations is vital to managing public health, including controlling the spread of disease, especially in pandemics (Wright et al., 2020). Past research has leveraged various theoretical frameworks to understand individuals’ compliance behavior with respect to public health recommendations. Early studies held that compliance behavior is related to sociodemographic characteristics, such as age, sex, education, marital status, religion, socioeconomic status, and intelligence (Haynes, 1982). In addition to emphasizing sociodemographic variables, previous studies have used cognitive-behavioral theories, such as the health belief model, the theory of planned behavior, social cognitive theory, protection motivation theory, and self-efficacy to explain compliance behavior (Brouwers & Sorrentino, 1993; Camner et al., 1994; Farias & Pilati, 2020; Leppin & Aro, 2009; Sim et al., 2014; Sirur et al., 2009). Besides, other theories, such as rational choice theory and institutional theory, and knowledge, attitude, and personality traits have also been used extensively to study compliance behavior (Schnittpel-Brauns et al., 2015; van der Weerd et al., 2011; Ward & Raude, 2014).

Some recent studies have investigated various factors contributing to compliance with COVID-19 precautionary measures. These factors can be categorized as sociodemographic, sociocultural, psychosocial, and social-cognitive. Sociodemographic factors include age, gender, education, religion, socioeconomic status, and health status (Kabamba et al., 2020; Margraf et al., 2020; Qeadan et al., 2020; Sobol et al., 2020). The psychosocial factors that play a role in compliance include self-efficacy, social norms, moral obligations, perceptions, and negative emotions (Bourgeois et al., 2020; Bruijn et al., 2020; Kowalski et al., 2020; Makanova & Shepherd, 2020; Ozdemir et al., 2020; Roma et al., 2020). Personality traits, knowledge, attitude, and practice are other variables that play a role in compliance behavior (Kabamba et al., 2020; Narayana et al., 2020; Negera et al., 2020; Pan et al., 2020). Besides, people who trust and have confidence in science, media, researchers, government, and the healthcare system are more likely to comply with COVID-19 precautionary measures (Kowalski et al., 2020; Plohl & Musil, 2020; Soveri et al., 2020; Wright et al., 2020).

This section develops a research model in which the individualistic orientation moderates the effect of trust in government on compliance with COVID-19 precautionary measures via problem awareness. We first introduce trust in government and discuss its relationship with compliance with COVID-19 precautionary measures. Fig. 1 depicts the hypothesized research model.

2.2. Trust in government and compliance with COVID-19 precautionary measures

Trust is a complex construct with multiple dimensions, making it difficult to define and operationalize (Sanchez et al., 2012; Simpson, 2007). Trust has been widely portrayed as a psychological state involving the intention to accept vulnerability based on positive expectations of the intention or behavior (Rousseau et al., 1998). Trust links citizens to institutions that are intended to represent them (Nunkoo et al., 2012). Trust in government entails confidence that the actions of the government (e.g., execution of duties, public communication) will be right and fair (Brewer & Sigelman, 2002).

Trust in government is a strong predictor of an individual’s behavior and actions. This is the case, for example, in tax-paying behavior, attachment behavior, and compliance intentions (Birksyte, 2014; Nye et al., 1997). Empirical studies have indicated that public trust in the government plays an important role in health compliance behavior.
Siegrist and Zingg (2014) showed that trust in health authorities positively contributes to individuals’ willingness to adopt recommended health behaviors. Besides, Lee et al. (2016) suggested that distrust of the government and healthcare providers is a significant contributor to negative vaccine-related beliefs and behaviors. In their study of the H1N1 influenza pandemic, Rubian et al. (2009) indicated that individuals with greater trust in the government are more likely to follow public health recommendations. Similarly, Prati et al. (2011) found that compliance with recommended health behaviors is associated with trust in the health authorities. In another study conducted amid the Severe Acute Respiratory Syndrome (SARS) outbreak, Tang and Wong (2003) showed that trust in government is associated with greater compliance with health recommendations.

Studies conducted after the outbreak of the COVID-19 pandemic have indicated the important role of public trust in government in compliance with COVID-19 precautionary measures. Researchers have suggested that trust in government encourages compliance with COVID-19 precautionary measures (Goldstein & Wiedemann, 2020; Min et al., 2020; Murphy et al., 2020; Raude et al., 2020b). On the other hand, Clark et al. (2020) obtained mixed results, indicating that trust in government is relatively unimportant in predicting COVID-19 compliance behavior. Similarly, Travaglino and Moon (2020) found that the effect of trust in government on compliance, while significant in Italy and South Korea, was not significant in the US. Our study, therefore, extends research on the relative importance of trust in government to compliance behavior by investigating its effect on compliance with COVID-19 precautionary measures, namely social distancing, facemask wearing, and personal hygiene.

We argue that trust in government and health authorities is associated with compliance with COVID-19 precautionary measures. This is because such trust entails valuing and respecting government health advice. More specific to the context of our study, people tend to value COVID-19-related information if it is received from trusted sources (Fridman et al., 2020). In addition, individuals value the health recommendations and consider them to be fair when the information comes from trusted institutions (Han, Zheng, et al., 2020). This would increase awareness of the severity of the pandemic, which would in turn motivate people to comply with the COVID-19 precautionary guidelines.

It suffices to say that COVID-19 restrictions have brought about some discomforting experiences, such as being denied freedom of movement, gatherings, socializing, and being required to wear a facemask. Even in such cases, individuals who trust the government have been more likely to comply with these restrictions by compromising short-term desires for positive long-term outcomes (Humphries & Wilding, 2004). Thus, we hypothesize the following:

**Hypothesis 1:** Trust in government will positively affect compliance with COVID-19 precautionary measures.

This study investigated the mechanism through which trust in government contributes to compliance with COVID-19 precautionary measures. We argue that awareness of the COVID-19 crisis mediates the relationship between trust in government and compliance with COVID-19 precautionary measures. Problem awareness, which refers to the extent to which individuals are aware of the adverse consequences of acting in a socially irresponsible manner (Steig & de Groot, 2010), has been regarded as the antecedent of moral obligation and responsible behavior (Cyprynska & Nezlek, 2020; Schwartz, 1977).

People highly value information obtained from trusted sources and rely on these sources to help them understand the issue at hand and its consequences (Thaker et al., 2017). In the current crisis, the government and health authorities are the primary sources of COVID-19 prevention information (Sood & Sharma, 2020; Sun et al., 2020). It is these authorities that implement precautionary measures and sanction those who violate them. People listen to those they perceive as trustworthy (Tierney, 2004). Because of this, public trust in government information sources is expected to enhance understanding of the COVID-19 crisis and awareness of the penalties associated with violating the associated precautionary measures.

Awareness of the severity of COVID-19 is an essential determinant of individuals’ engagement in COVID-19 preventive behaviors (Park et al., 2021). The extant literature indicates that people who are aware of the threat posed by the pandemic and its severity are more likely to comply with health recommendations (Bish & Michie, 2010; Prati et al., 2011). This awareness helps prevent people from being infected by encouraging responsible compliance behaviors (Plohl & Musil, 2020; Roma et al., 2020). Understanding the severity of the COVID-19 crisis, in turn, encourages people to behave in a way that is consistent with the precautionary measures, which helps protect public health as well as avoid penalties. Thus, we hypothesize the following:

**Hypothesis 2:** Trust in government will positively affect compliance with COVID-19 precautionary measures through problem awareness.

Culture is one factor that plays a role in compliance behavior (Crespo-Fierro, 1997; Lewis et al., 2009). More precisely, research has shown that cultural orientations play an important role in pandemic response by predicting individual compliance with virus-related emergency measures (Biddistone et al., 2020; Travaglino & Moon, 2020). The importance of trust in compliance is likely to differ depending on the individual cultural orientation. The common way to characterize culture is in terms of individualistic versus collectivistic orientation. Individualistic orientation refers to the extent to which people prefer to act as individuals rather than as members of a cohesive group (Kaarss, 2015). People’s degree of individualism affects the way they act on what they know.

An individualistic person considers himself/herself to be independent and prioritizes his/her personal interests over societal needs (Shiu et al., 2015). Individualistic people tend to evaluate their actions based on how much benefit or harm the act may bring about. For example, an individualistic person’s readiness to follow COVID-19 precautionary measures would likely be influenced by the personal benefits and costs he or she can expect to accrue from acting on government health recommendations. Thus, even though individuals fully understand the problem, their compliance with a given behavior relies on individual cost and benefit considerations rather than on its effect on other people (Lo et al., 2010).

The implications of individualism for conformity with authorities...
and norms of conduct also make it relevant to compliance behavior. Individualists are independent and self-reliant, and as such they often resent conformity and hierarchy (Bhawuk, 2001). Individualistic people usually exhibit lower conformity with guidelines set by authorities and resent conformity and hierarchy (Bhawuk, 2001). Individualistic people usually exhibit lower conformity with guidelines set by authorities and resent conformity and hierarchy (Bhawuk, 2001). Individualistic people usually exhibit lower conformity with guidelines set by authorities and resent conformity and hierarchy (Bhawuk, 2001). Individualistic people usually exhibit lower conformity with guidelines set by authorities and resent conformity and hierarchy (Bhawuk, 2001).

Health compliance in a global pandemic like COVID-19 requires a collective effort (Choma et al., 2021). However, people’s tendency to advance individual interests over collective well-being weakens the positive influence of problem awareness on compliance behavior. Thus, we argue that the mediation effect of problem awareness is conditional on the level of individualistic orientation of people. To put it simply, we expect that the effect of trust in government on compliance with COVID-19 precautionary measures via problem awareness to be weaker for highly individualistic people. Thus, we hypothesize the following:

Hypothesis 3: Individualistic orientation moderates the mediating effect of problem awareness in the relationship between trust in government and compliance with COVID-19 precautionary measures such that the relationship is weaker when the individualistic orientation is high than when it is low.

3. Method

3.1. The empirical setting

This study used survey data to examine compliance with COVID-19 precautionary measures implemented across Ethiopia. Ethiopia is the second-most populous country in Africa, with over 110 million people (Mekonnen et al., 2021). It is also a low-income country with a Gross Domestic Product (GDP) per capita of USD 936.34 in 2020 (World Bank, 2020). According to Hofstede Insights (2018), Ethiopia is considered a low individualistic country with an individualism score of 20. Based on the latest World Bank public trust report, in 2017, Ethiopia ranked 41 out of 137 countries regarding public trust in government. From 2007 to 2017, public trust in politicians in Ethiopia improved, as demonstrated by the country’s ascent in the rankings, by 23.

Ethiopia’s burden of disease is dominated by acute upper respiratory tract infection, followed by acute febrile illness, pneumonia, diarrhoea, and malaria (MOH, 2020). Although the per capita health expenditure of Ethiopia increased from USD 16.78 per capita in 2010 to USD 24.23 per capita in 2018, the government budget for health decreased from 5.47% of GDP in 2010 to 3.3% in 2018 (WHO, 2019). In 2020, however, the government’s health budget increased to 3.9% because of the impact of the COVID-19 pandemic (Eregata et al., 2021; MOF, 2021). As of December 31, 2020, a total of 124,264 confirmed cases of COVID-19 and over 1,923 deaths have been reported in Ethiopia, making the country the third-most severely affected in Africa (MOH, 2021).

3.2. Participants and procedures

We recruited participants from the private sector and from public organizations across Ethiopia. Five thousand participants were recruited using a random sampling method through email lists obtained from participating institutions. An online questionnaire was sent to the participants during the first COVID-19 wave. Within 10 days, the survey was terminated, with a total of 1020 participants starting to fill out the survey and 692 completing it. Following Kline (2011) suggestion, 28 surveys were eliminated as outliers based on the recommended cases with a Z value greater than ±3. After removing outliers, 664 valid responses were used for further analysis. The participants consisted of 392 men and 272 women, with a median age of 34 (i.e., age range from 18 to 73 years). Fifty-two percent were undergraduate and below, 29% were graduate degree holders, and 18% were above graduate degree holders.

3.3. Measurement model

After a thorough review of the literature, we adopted measurement items from prior studies and adjusted them to fit our study context. Compliance with COVID-19 precautionary measures was measured based on Plohl and Musil (2020) and WHO precautionary measures. We used three items modified from McKnight et al. (2002) and Qiu et al. (2020) to measure trust in government. Individualistic orientation was measured using three items adopted from Kiffin-Petersen and Cordery (2003). In addition, problem awareness was measured with three items from Steg and de Groot (2010). All measures were based on multiple items and were scored on a Likert-type five-point scale. Four control variables were used in the study: (1) age of the respondent, (2) gender of the respondent, (3) educational status of the respondent (from below undergraduate to above graduate degree), and (4) health status (from very poor health to very good health).

We assessed the reliability and validity of each construct. The composite reliability values ranged from 0.66 to 0.89, indicating an acceptable level of reliability. TheAVE values were 0.4 and above, which indicated adequate convergent validity. The HTMT criterion was used to evaluate the study variables’ discriminant validity and produced a value below the acceptable level of 0.85 (Henseler et al., 2015). Overall, all of the constructs exhibited sufficient psychometric properties. The fit of the measurement model was found to be χ² = 105.87, df = 57, p < 0.01, CFI = 0.99; TLI = 0.98; RMSEA = 0.04 (90% CI 0.03–0.05); SRMR = 0.03, indicating that the data fit the model very well. Table 1 shows the measurement items and reliabilities for each construct.

| Table 1 Measurement items, factor loadings, reliability, and validity (N = 664). |
|-----------------|-------|-------|-------|
| **Items**       | **λ** | **CR**| **AVE**|
| Compliance to Covid-19 Precautionary Measures |       |       |       |
| To what extent does the following statement describe you on COVID-19 precautionary measures such as social distancing, facemask wearing, and personal hygiene |       |       |       |
| I comply with the COVID-19 precautionary measures | 0.65  | 0.88  | 0.65  |
| I act according to the COVID-19 precautionary measures | 0.86  |       |       |
| I use the correct precautionary measures to protect myself from COVID-19 | 0.79  |       |       |
| Problem Awareness |       |       |       |
| I believe that my violation of the COVID-19 precautionary measures will cause serious troubles to public health | 0.78  | 0.85  | 0.65  |
| I worry about problems caused by the violation of the COVID-19 precautionary measures | 0.85  |       |       |
| Trust in Government |       |       |       |
| I think the government is able to manage the COVID-19 pandemic properly | 0.61  | 0.79  | 0.56  |
| I think the government is transparent in providing information about the COVID-19 pandemic | 0.76  |       |       |
| I have confidence in the government officials to make the right decision when it comes the COVID-19 pandemic | 0.84  |       |       |
| Individualistic Orientation |       |       |       |
| It is natural to put your own interests ahead of others | 0.50  | 0.65  | 0.40  |
| Society works best when each person serves his or her own interests | 0.69  |       |       |
| People should think of themselves first, before they think of others | 0.66  |       |       |
| Age |       |       |       |
| Gender |       |       |       |
| How do you evaluate your health condition? (Very Poor - Very Good) |       |       |       |
| **Educational level** |       |       |       |
3.4. Common method bias

We applied procedural and statistical remedies to address the concern of common method bias. For example, we avoided ambiguous or unfamiliar terms, vague concepts, and double-barreled questions during the questionnaire design. We further conducted Harman’s one-factor test. Harman’s single-factor model was significantly worse than the measurement model (NFI = 0.46; CFI = 0.36; RMSEA = 0.21; SRMR = 0.13). We also employed the unmeasured latent method factor to check for the presence of common method bias. The fit indices of the model with the common latent factor ($\chi^2 = 64.25, df = 45, p < 0.05$) did not change the model significantly ($\Delta\chi^2 = 2.54, \Delta df = 1, p = 0.11$), showing little evidence for the presence of common method bias.

4. Results

Table 2 presents the descriptive statistics and bivariate correlations among the study variables. Structural equation modeling (SEM) was used to test the hypothesized relationships and model. The data were analyzed using Mplus version 8.1. Table 3 shows the results of the direct and indirect effect of trust in government on compliance with COVID-19 precautionary measures. Table 4 shows the moderated mediation effect results.

Direct Effect: Hypothesis 1 predicted that trust in government would influence compliance with COVID-19 precautionary measures. First, we tested the direct effect model of trust in government on compliance with COVID-19 precautionary measures without the mediator variable. Consistent with the first hypothesis, trust in government predicted compliance with COVID-19 precautionary measures positively and significantly ($\beta = 0.28, p < 0.01$), controlling for age, gender, education, and health status. The model fit statistics of the direct effect model were excellent ($\chi^2 = 86.38, df = 37, p < 0.01$, CFI = 0.98; TLI = 0.97; RMSEA = 0.04; SRMR = 0.04), and trust in government explained 9% of the variance in compliance with COVID-19 precautionary measures.

Mediation Effect: We conducted a mediation analysis to determine whether the link between trust in government and compliance with COVID-19 precautionary measures was mediated by problem awareness. We tested the significance of the mediation effect based on bias-corrected bootstrapped 95% confidence intervals using 5,000 bootstrap samples (Muthen & Muthen, 2017). The results showed that trust in government was positively associated with problem awareness ($\beta = 0.21, p < 0.01$). In turn, problem awareness was positively associated with compliance with COVID-19 precautionary measures ($\beta = 0.45, p < 0.01$). The mediation path from trust in government to compliance with COVID-19 precautionary measures through problem awareness was also significant ($\beta = 0.09, CI 0.95 = 0.04, 0.16$). Consistent with the second hypothesis, trust in government directly and indirectly through problem awareness contributed to compliance behavior. This means that problem awareness partially mediated the relationship between trust in government and compliance with COVID-19 precautionary measures.

### Table 2

| Variable                        | M    | SD   | 1    | 2    | 3    | 4    | 5    | 6    | 7    |
|---------------------------------|------|------|------|------|------|------|------|------|------|
| 1. Compliance                   | 4.38 | 0.67 | 0.49**|     |      |      |      |      |      |
| 2. Problem Awareness            | 4.45 | 0.73 | 0.18**|     |      |      |      |      |      |
| 3. Trust in Government          | 3.42 | 0.89 | 0.02  | 0.04 | 0.09*|      |      |      |      |
| 4. Individualistic Orientation  | 3.08 | 1.00 | 0.13**| 0.11**|      |      |      |      |      |
| 5. Age                          | 36.47| 9.67 | 0.36  | 0.36  | 0.12**|−0.11**|      |      |      |
| 6. Gender                       | −    | −    | 0.09* | 0.11**| 0.03 | −0.08| −0.03|      |      |
| 7. Health Status                | 4.49 | 0.70 | 0.10* | 0.03 | 0.01 | −0.04| −0.07| 0.02 |      |
| 8. Education                    | −    | −    | 0.09* | 0.01 | 0.00 | −0.05| 0.52**|−0.09*| 0.01|

Note. M and SD are used to represent mean and standard deviation, respectively. * indicates $p < 0.05$. ** indicates $p < 0.01$. 

### Table 3

| Predictors                        | Direct Model | Moderating Effect |
|-----------------------------------|--------------|-------------------|
|                                   | $\beta$ | $t$ | $\beta$ | $t$ |
| Trust in Government               | 0.28     | 4.91** | 0.13     | 3.24** |
| Problem Awareness                 | 0.44     | 6.15** |          |      |
| Individualistic Orientation       | 0.11     | 1.92*  |          |      |
| Indirect effect of Problem Awareness | 0.09   | 2.94** |          |      |
| Problem Awareness × Individualistic Orientation | −0.36 | −3.92** |          |      |
| Age                               | 0.07     | 1.60  | 0.02     | 0.43  |
| Education                         | 0.06     | 1.25  | 0.10     | 2.15*  |
| Gender                            | 0.09     | 2.84** | 0.04     | 1.31   |
| Health Status                     | 0.10     | 2.62* | 0.11     | 3.16** |

Note: $N = 664$. *$p < 0.05$. **$p < 0.01$. 

### Table 4

| Value of individualistic orientation | Compliance towards COVID-19 precautionary measures |
|--------------------------------------|-----------------------------------------------|
| −1 SD (Low)                          | 0.21 2.82**                                  |
| Mean                                 | 0.09 2.75**                                  |
| +1 SD (High)                         | −0.04 −0.90                                 |

Note: $N = 664$. Bootstrap sample size = 5,000. *$p < 0.05$. **$p < 0.01$. 

### Table 5

| Results of bootstrapping procedure to test conditional indirect effect at different level of individualistic orientation |
|---------------------------------------------------------------------------------------------------------------------|

5. General discussion

This study examined the contribution of public trust in government to compliance with COVID-19 precautionary measures. Besides, we explored the mediating role of problem awareness in the relationship between trust in government and compliance with COVID-19 precautionary measures.
precautionary measures and the moderating role of individualistic orientation in the relationship. The findings supported the proposed hypotheses. We found that trust in government has a significant direct effect and a significant indirect effect on compliance with COVID-19 precautionary measures. Problem awareness partially mediates the relationship between trust in government and compliance with COVID-19 precautionary measures. Furthermore, individualistic orientation lessened the indirect effect of trust in government on compliance with COVID-19 precautionary measures.

The findings provide empirical evidence useful for better understanding the puzzling relationship between trust in government and compliance with COVID-19 precautionary measures. We discuss the theoretical, practical, and policy contributions below.

5.1. Theoretical contribution

The world has encountered three pandemics since 1900. Every time, a medical intervention was implemented, only in due time. Therefore, government health authorities have heavily relied upon preventive measures by imposing guidelines and raising public awareness for the purpose of compliance. However, this has not been easy to achieve because compliance depends on several factors that authorities cannot control. As has been documented by researchers over the years, public compliance depends on the public’s level of trust in authorities. In the case of both the H1N1 (Rubin et al., 2009) and SARS (Tang & Wong, 2003) pandemics, researchers documented that individuals with higher trust in government are also those most likely to follow public health recommendations.

It is worth exploring the case of COVID-19, which shares a similar pattern of events. Recent findings in this regard are not free from ambiguity. For example, a study from Italy reported that a good appraisal of and trust in the regional system’s performance makes the public perceive that they are safe from the virus and decreases adherence to restrictions (Guglielmi et al., 2020). On the contrary, other studies have demonstrated how higher levels of trust impact the successful containment of the COVID-19 pandemic (Goldstein & Wiedemann, 2020; Murphy et al., 2020; Raude et al., 2020b). In addition to this two-sided debate, some reports have documented the link between trust and compliance to be non-existent. For example, a study by Clark et al. (2020) that used a large international sample demonstrated that trust in government is of relatively little importance in predicting compliance with government recommendations and health precautions (including facemask wearing, social distancing, handwashing, and staying at home). Our paper clarifies some of this ambiguity. We primarily found evidence that increased trust in government leads to higher compliance with COVID-19 precautionary measures, as was the case for H1N1 and SARS.

Previous crises, such as the Ebola epidemic in Liberia and the H1N1 epidemic in Mexico, showed that trust in government is crucial for motivating citizens to follow the government’s recommendations. Although a statistically significant link between trust in government and compliance with COVID-19 precautionary measures has the most appeal, recent studies have failed in offering sufficient reasons for why or how this is the case (Hafner-Fink & Uhan, 2020; Murphy et al., 2020). The emphasis was placed mainly on the question of when than on how trust leads to compliance. For example, Goldstein and Wiedemann (2020) brought moderators like political polarization into the link and showed that Republican-leaning counties comply less than Democratic-leaning counties (Goldstein & Wiedemann, 2020).

Second, the relative role of trust versus other predictors of compliance behavior has been emphasized. For example, Raude et al. (2020b) documented the prominent role of cognitive variables, which substantially explain the variance in self-reported adoption of preventive behaviors, unlike sociocultural and psychosocial explanations. Nevertheless, few other studies have highlighted this mechanism. For example, perceptions of being safe and supportive of the authority are presented as plausible reasons for why trust enables compliance behavior (Guglielmi et al., 2020). Our paper adds to this understanding of the mechanism by investigating problem awareness, which is the extent to which one is aware of the adverse consequences of being socially irresponsible (Steg & de Groot, 2010), as a bridge linking trust and compliance.

Trust in government gives people a chance to thoroughly explore the situation and become aware of the adverse consequences of being socially irresponsible. Furthermore, both classical and contemporary works have discerned that people who are aware of the risk of a pandemic and its severity are more likely to comply with health recommendations (Bish & Michie, 2010; Prati et al., 2011) or are accustomed to responsible compliance behavior (Plohl & Musil, 2020; Roma et al., 2020). It is not, however, likely that everyone will consider awareness in favor of compliance behavior. The most interesting aspect of our findings is that individuals with a low individualistic orientation exhibit more significant compliance behavior but, as the individualistic orientation increases, the role that trust plays in compliance behavior disappears. This finding is consistent with the research by Travaglio and Moon (2020), who reported an insignificant effect of trust in government in the US (i.e., high individualistic country) but a significant effect in South Korea (i.e., low individualistic country).

We add to the recent literature, which archived the substantial role of personality traits (Kabamba et al., 2020; Negera et al., 2020; Pan et al., 2020), psychological factors (Bourgeois et al., 2020; Kowalski et al., 2020; Makhanova & Shepherd, 2020; Ozdemir et al., 2020; Roma et al., 2020; Shanka & Kotecho, 2021) and cultural orientation (Germani et al., 2020) in compliance behavior. We showed that collectivist individuals (or people with less of an individualistic orientation) tend to use their understanding of risk, foresee with respect to the consequences of irresponsible behavior, more for the community’s good than for their own interest. Conforming with COVID-19 precautionary measures is one way to act in the community’s interest.

The relationship between compliance behavior and sociodemographic characteristics, such as age, gender, and education, has already been established (Kabamba et al., 2020; Margraf et al., 2020; Qeadan et al., 2020; Sobol et al., 2020). Compliance tends to increase with higher education and health status. It would, however, be interesting for future research to explore why this is the case. While it is evident that the perception of risk and pandemic severity is heightened in people with serious health conditions, the converse of this phenomenon is intriguing (Tran & Ravaud, 2020). As such, we believe this represents another worthy area for future research.

5.2. Managerial and policy implications

Our findings highlight the benefit of trust in government in promoting compliance with COVID-19 precautionary measures. This paper also highlights some managerial and policy recommendations regarding improving public trust in government and using public health communication strategies to enhance compliance.

The number of reported cases of COVID-19 has been rising recently, even in African countries characterized by low individualistic orientation (Shigute et al., 2020). The trend is the same across Asia and other parts of the world (Heck et al., 2021; Thiggarajan, 2021). Among other factors, this surge calls for authorities to concentrate much of their efforts on building public trust to intervene in the problem. Hence, improving public trust at all government levels is important to promoting compliance with public health recommendations. We also suggest that government efforts to improve compliance with COVID-19 precautionary measures should consider promoting collective identity among the general public.

Building public trust in government is a challenging task that requires significant effort and investment. One way a government can win public support and confidence is through a proactive and quick response to crises. For instance, some world leaders, such as New Zealand Prime
Minister Jacinda Ardern, have been praised for their bold and quick response to the COVID-19 pandemic, enhancing public compliance with preventive measures. In addition, public engagement in COVID-19 prevention and control activities allows reciprocity and cooperation, strengthening the legitimacy of decisions and the confidence of the public in government. This would reduce the need for more intrusive government control and thereby decrease the likelihood of disobedience, backlash, and protest against COVID-19 precautionary measures. Moreover, the government can apply various solutions, including increasing government transparency, improving cooperation with religious and community leaders, and showing acts of kindness, such as supporting senior citizens suffering due to the COVID-19 pandemic (Gallatsatos et al., 2020; Shrivastava & Shrivastava, 2020). Authorities should practice leading by example by wearing facemasks and demonstrating appropriate hand hygiene in public to build trust in the government.

Health authorities need to know that adaptive communication strategies, which engage the public, are essential in dealing with the COVID-19 pandemic. These health communication strategies should aim to raise public awareness of COVID-19 risks and encourage compliance with precautionary measures. Two-way communication between the government and citizens can act as a bridge to ensure public engagement and disseminate information (Liao et al., 2020). It is also the best way to fight infodemics and conspiracy theories that reduce compliance with government precautionary measures (Freeman et al., 2020). Government health communication messages should focus on developing and maintaining trust among the public by providing transparent, coherent, clear, timely, and accurate information that reduces people’s uncertainty and enhances compliance. South Korea and New Zealand are good examples of how transparent pandemic communication improves public trust and health compliance behavior (Han, Tan, et al., 2020).

5.3. Limitation and future research directions

Our paper is not without limitations. First, our sample was mainly from Ethiopia, and the research participants were more educated than average citizens. Some characteristics that define the region, such as a high diversity index, a low level of baseline trust, and moderate risk avoidance intentions, might limit the generalizability of our findings to the global scale. However, we sought to create as much variability in the data by recruiting a large sample of respondents. Future research is needed to extend our findings to a broader population and other cultures to provide generalizations.

The second limitation is that the data collection was limited to online respondents due to the social distancing requirement. This likely excluded certain segments of the population that lack internet access, smartphones, or computers. Although the online sample may be a limitation to this study, we do not anticipate a substantial difference between participants recruited online and the general population.

Another limitation of this paper is the use of self-reported data. Participants may have been unable to accurately and honestly report the extent to which they engaged in compliance and health precaution behavior. In addition, using self-reported data might be associated with potential recall errors. We encourage future work based on objective measures of compliance and health precautionary measures to validate the present findings and address common method bias.

Fourth, in contrast to our findings, studies such as those conducted by Qeadan et al. (2020) and Sheht and Wright (2020) showed a positive relationship between health status and COVID-19 precautionary measures. In addition, age and gender, in contrast to our results, were related to compliance with COVID-19 precautionary measures (Kabamba et al., 2020; Qeadan et al., 2020; Sobol et al., 2020). These mixed findings provide a fertile area for future research. Future work should explore the inconsistencies in these sociodemographic variables in predicting compliance with COVID-19 precautionary measures.

Finally, we adopted a cross-sectional design to collect the data and test the causal relationship between trust in government and compliance with COVID-19 precautionary measures. Prior research has stated that it is difficult to establish a causal relationship between variables in cross-sectional designs. While our study provides some useful observations, it would be beneficial to collect longitudinal data over a longer period. Nevertheless, future researchers are encouraged to adopt longitudinal and experimental designs to address causality issues.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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