

Moderating the effect of age and sex on the relationship between personality and adherence to containment measures

Gisele Magarotto Machado, Laís Santos-Vitti, Felipe Valentini, Lucas de Francisco Carvalho

Abstract:

We aimed to investigate the moderation effect of sex and age on the relationship between personality and adherence to COVID-19 containment measures. Participants were 4,538 Brazilian adults, ranging from 18 to 79 years old ($M= 31.07$, $DP= 11.37$), which responded to the BFI-2-S and questions regarding adherence to COVID-19 containment measures. We performed an SEM model to investigate the relationship between variables. Overall, our results indicated that agreeableness, neuroticism, extroversion, openness, and sex are significant predictors of adherence to containment measures. We also identified a positive moderation effect of age in the relationship between neuroticism and commitment to containment measures. Levels of personality traits and sex can influence the tendency to comply with containment measures. Age does not directly impact adherence to containment measures; however, it can strengthen the relationship between neuroticism and commitment. Individual differences can affect the adherence to the containment measures directly and indirectly.

coronavirus; OMS guidelines; public health; individual differences

INTRODUCTION

The COVID-19 pandemic has been one of the biggest international public health crises [1], resulting in more than six million deaths worldwide. To reduce the contagion of COVID-19, containment measures were established, such as the mandatory use of masks, hand hygiene, and social distancing [2] in many countries. Although there is evidence of the efficacy of the containment measures [3], not everyone adheres to them.

Previous studies have indicated that individual differences, such as personality traits, are related to adherence to containment measures [4–6]. Higher levels of agreeableness [6,7] and conscientiousness [8,9] were associated with greater adherence to containment measures, whereas higher levels of extroversion were related to more difficulties in adhering to them [9].

Sex and age were also considered critical individual differences in adherence to containment measures. Previous studies indicated that women are more likely to wear masks, handwash, stay at home, and take COVID-19 seriously than men [10,11]. The likelihood of complying with containment measures also increases with age [11,12].

Age and sex are also associated with personality traits [13], and the interactions predict out-

Gisele Magarotto Machado· Laís Santos-Vitti· Felipe Valentini· Lucas de Francisco Carvalho: Universidade São Francisco, Brazil
Correspondence address: gimagarotto@hotmail.com

comes. For instance, extroversion tends to be positively associated with performance for children but negatively for adolescents [14]. Therefore, sex and age can hypothetically influence the association between personality and adherence to containment measures. Aschwanden et al. [8] investigated the moderation effect of age in containment measures; however, they did not find significant associations. We could not find studies verifying age and sex's influence on the relationship between personality and adherence to restraint measures. This study aimed to investigate the moderation effect of sex and age on the relationship between personality traits and commitment to COVID-19 containment measures.

METHODS

Participants

The participants included 4,538 Brazilian adults between 18 and 79 years old ($M = 31.07$, $DP = 11.37$) from the community sample. Most were female (57.5%), single (54%), Caucasian (47.2%), and reported completed high school (35.8%).

Measures

The Big Five Inventory – 2 Short [BFI-2-S; Soto and John, 2017] was used to measure personality traits based on the Five Factor Model. It comprises 30 items that should be answered on a 5-point Likert scale (1 = *totally disagree*, 5 = *totally agree*). We grouped items into five scores: extroversion, agreeableness, conscientiousness, neuroticism, and openness to experience. To evaluate adherence to containment measures (hygiene, face-mask, and social distancing), we used the Questionnaire about engagement behaviors to COVID-19 containment measures [three dichotomous items; Miguel et al., 2021]. Totaling the answers to the questionnaire, we formed the scores: 0 = people who think that the measures are not important; 1 = people who think that one measure is important; 2 = people who think that two measures are important; 3 = people who think that all measures are important.

Procedure and data analysis

A Brazilian ethics committee approved our study, demonstrating it complied with provisions from the Declaration of Helsinki (16). Participants signed an informed consent form before participating.

We conducted an open survey online through Google Forms from March 21 (2020) to May 09 (2021). We shared the survey link on Facebook. We followed the Checklist for Reporting Results of Internet E-surveys [CHERRIES; Eysenbach, 2004], which presents standards for conducting and reporting web-based surveys. We gave no incentives to the participants.

We verified the personality dimensions' influence on compliance with containment measures using structural equation modeling (SEM). We used the latent interactions model from the orthogonalization proposed by Little et al. [18] for the moderation analysis of the variables sex and age. We utilized the R software and SemTools package (19) to conduct the orthogonalization of the latent interaction variables. The variables generated in the orthogonalization procedure were used to compose interaction factors in moderation. SEM and moderation analysis was performed using the lavaan package [20] in the R software.

RESULTS

Direct associations, tested via SEM, indicated that Extraversion, Agreeableness, Neuroticism, and Openness were significant predictors of adherence to the containment measures. Extraversion had negative associations ($\beta = -.10$; $p = .001$), while the other significant variables had positive associations (Agreeableness – $\beta = .30$; $p < .001$; Neuroticism – $\beta = .18$; $p < .001$; Openness – $\beta = .07$; $p < .006$). Conscientiousness did not significantly predict adherence to containment measures ($\beta = -.03$; $p = .190$).

We only conducted the moderation analysis with the regression model's significant variables. Figure 1A presents the moderation results, with age and sex as the moderating variables in the relationship between the personality dimensions (BFI-2) and adherence to the containment measures.

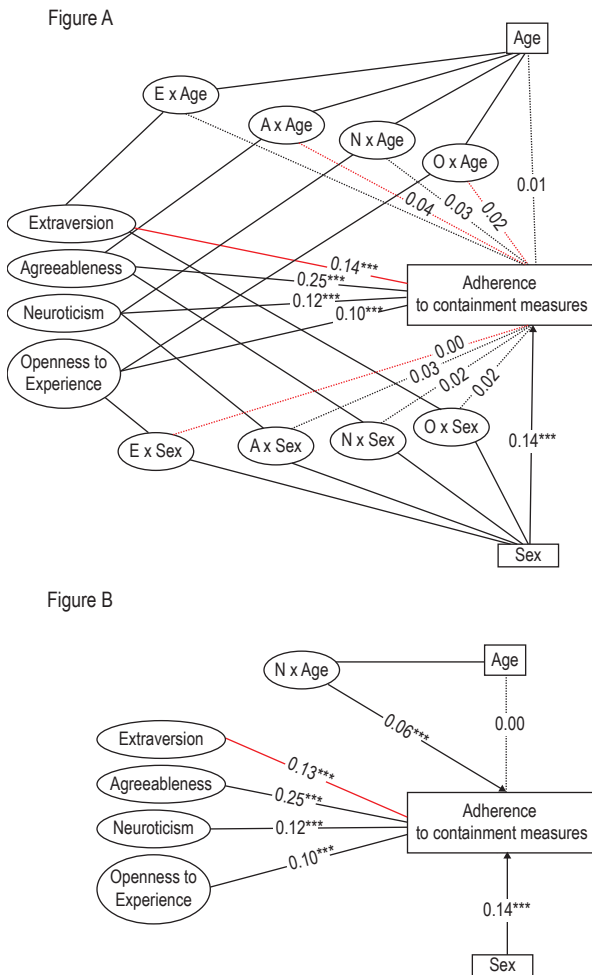


Figure 1. A – Model with age and sex as moderators of the relationship between personality dimensions and adherence to containment measures.

B – Model with age as a moderator of the relationship between Neuroticism and adherence to containment measures. Note. Standardized regression values (β). ***p<.001. Dashed lines represent non-significant relationships. Red lines represent negative relationships. The variables “E x Age”, “A x Age”, “N x Age”, and “O x Age” described the interaction between the dimensions of personality and age. The variables “E x Sex”, “A x Sex”, “N x Sex”, and “O x Sex” represented the interaction between the dimensions of personality and gender.

Although the interaction variables were not significant for predicting adherence to containment measures, the interaction variable between Neuroticism and age presented the lowest *p*-value (*p*=.222). Taking into account that the level of significance of a variable can be affected by the other variables included in the model, we performed a new analysis excluding all interaction variables with non-significant values, except for

the variable “N x Age”. Figure 1B shows the results. A positive and significant relationship was observed between “N x Age” and adherence to containment measures, indicating that age moderates the relationship between Neuroticism and adherence to containment measures.

DISCUSSION

Compliance with control measures is crucial to reduce COVID-19 transmission and impact, and can be affected by individual differences such as personality, age, and sex. We focused on investigating the moderator effect of sex and age in the relationship between personality factors and adherence to COVID-19 containment measures. Our findings suggested that personality traits, except conscientiousness, are related to containment measures, and that age moderates the relation between neuroticism and adherence to containment measures.

We observed a direct relation consistent with previous findings [6–9] between agreeableness, neuroticism, extroversion, openness, and compliance with containment measures. In contrast, we expected conscientiousness to be significantly related to more compliance [8,9], which was not observed in our results. One possible rationale for this outcome would be the influence of the other variables inserted in the regression model.

The moderation model’s results suggested that the relationship between neuroticism and adherence becomes stronger for older ages. By itself, age is an essential predictor of commitment since older people are more prone to comply with OMS measures to slow the virus spread [10–12]. Our study’s significant positive moderation effect advocates that age potentiates the neuroticism effect in adherence to control measures. In other words, neuroticism seems more related to commitment for older people than younger people. This finding can be related to higher fear of COVID-19 and more death risk faced by older people [20]. Even though sex was not a significant variable to moderate the relationship between personality domains and commitment to control measures, it was a significant predictor of adherence, demonstrating that women tend to comply more with OMS meas-

ures to contain COVID-19 spread, as evinced in previous studies [4,21].

We must ponder the findings of this study in light of its main methodological limitations. First, we recruited the sample by convenience, which may not represent the variability of the Brazilian population. Second, we did not rely on a multimethod design for data collection, which may bias our outcomes. Despite these restrictions, our study stresses the impact of personality traits, age, and sex on compliance with containment measures. Notably, the study highlights the moderation effect of age in the relation between neuroticism and compliance, suggesting a stronger association between those variables for older adults.

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Disclosure

The authors do not have any conflict of interest to disclose.

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