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# Evaluation of the Moderating Roles of Marital Status in Curbing COVID-19 Infections in Nigeria

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## ABSTRACT

**BACKGROUND**: In the last few years, the COVID-19 pandemic has posed a threat to both humanity and the economy globally. Therefore, daily research is conducted towards devising means of minimizing the spread of the virus and its effects widely. However, the goal of eradicating the virus has not been achieved completely. Hence, our study aims to evaluate the intervening effect of marital status on the susceptibility, self-efficacy, severity, and cues to action in curbing the spread of COVID-19 infections. The study also examined the contributions of susceptibility, self-efficacy, and severity on cues to action in curbing the spread of Covid-19. **METHOD:** Quantitative approach was employed in this study for inferential study requirements and for quantifying the data. To generate the data from the respondents' opinions, an online survey questionnaire was employed. **RESULTS:** The findings established that susceptibility, self-efficacy, and severity contributed 32.9% of the variance on the cues to action in curbing the spread of Covid-19. In terms of the marital status intervening effects on the relationships between susceptibility, self-efficacy, severity, and cues to action in curbing the spread of Covid-19, the result demonstrates that marital status only had an intervening effect on susceptibility and cues to action for curbing the spread of COVID-19 infections. **CONCLUSION:** Our study, recommends the need to sensitize the unmarried people on the likelihood of being susceptible to the virus, and also on the need to intensify the precautionary measures for containing the virus. The findings also indicate that married people perceive the possibility of contracting the virus more than unmarried ones. Hence, married people are more likely to embrace preventive measures that could curb the spread of the virus. However, there is the need to strengthen the perceptions of susceptibility, efficacy, and severity, towards minimizing the spread of the virus as these factors yielded a moderate amount of variance in curbing the virus. Our study further proffers insights into moderating factors' impact on curtailing the spread of COVID-19 infections.

## Introduction

There is a conspicuous lack of study on whether the marital status has an intervening role on the health belief model (HBM) antecedents for curbing the spread of COVID-19 infection (Munster, et al., 2020, & Zhang, et al., 2020). The new coronavirus disease, known globally as COVID-19, emanated from Wuhan, China in 2019 (Munster, et al., 2020). At the time this study was conducted, the virus has spread to 215 countries. Hence, 19,292,059 cases had been confirmed worldwide (Worldometers Coronavirus, 7th of August, 2020). The virus subsequently penetrated Africa in early February 2020, with the first case in Egypt, and its second case in Algeria (WHO African Coronavirus, 25th of February, 2020).

In an attempt to reduce the cases in African countries, a study that investigated how prepared African countries were, for containing imported cases speculated that Egypt, Algeria, South Africa, Ethiopia, and Nigeria would be the highest risky African countries due to the levels of these countries' commercial engagements with China (Gilbert, et al., 2020). Therefore, It was recommended that international community assistance and crisis management strategies would be needed in all African countries towards managing the Covid-19 infections.

At the time this study was conducted, the virus has already infected 874,036 people in Africa (Africa Covid-19 Stats, 29th July 2020).

In Nigeria, the location of this study, the first case was identified in late February 2020 (Nigerian First Covid-19 Case, 2020). Since then, the Federal Government of Nigeria, health professionals, and the Nigeria Center for Disease Control (NCDC) have been advocating the need for the public to observe the precautionary measures towards eradicating the virus. The precautionary measures include constantly washing the hands with soap, limiting touching the face with hands, maintaining social and physical distancing, wearing of face mask, and use of hand sanitizers (Nkengasong, & Mankoula, 2020). At the earlier stage of the scourge of Covid-19, the situation appeared well controlled as a result of a low number of cases witnessed from late February to April 2020, when Nigeria recorded only 318 cases and 10 deaths (Adegboye, et al., 2020). Subsequently, in late April, the cases escalated to 1,728, and 51 deaths, which, was a significant margin to the previous record (Coronavirus African News Summary, 30th of April, 2020). Towards proffering more solutions for containing the virus, Kalu (2020) evaluated the level of knowledge, attitude, and practices the public

had, that could lead to minimizing the spread of the virus, the outcomes of the study demonstrated that they had enough knowledge and attitudes on what they can do to minimize it (Reuben et al., 2020). Notwithstanding the positive outcomes of the study, the cases kept increasing. The Nigerian Federal Government further imposed 4 weeks lockdown in three of the most infected states, to curb the spread of the virus. Nevertheless, the efforts did not reflect in the subsequent cases and the fatality rate. At the time this study was conducted, the daily updates on Covid-19 have not improved. Among over 200 million Nigerian populations, only 310,729 samples had been tested and 45,244 were confirmed cases (COVID-19 Nigerian, 6th August 2020).

To intensify the efforts toward curbing the virus, this study explicitly adopted the Health Belief Model (HBM) by Hochbaum (1958); and Rosenstock (1960), to ascertain if they could improve the situation. The model was employed because, it is one of the models used for exploring why people would probably consider and embrace behavioral changes while facing infectious diseases (Champion, & Skinner, 2008). The selected model's elements comprised susceptibility, self-efficacy, severity, and cues to action. Succinctly, these HBM elements were examined to determine their contributions to cues to action towards curbing the virus. Our study further evaluated the intervening effects of marital status on susceptibility, self-efficacy, severity, and cues to action in curbing the spread of COVID-19 infections since it seems there are lack of studies that have empirically evaluated if marital status could have an intervening effect on embracing health behavioral factors for curtailing the virus.

Therefore, our study aims to realize these specific objectives:

1) To examine the contributions of susceptibility, self-efficacy, and severity on cues to action in curbing the spread of COVID-19 infection.

2) To evaluate the marital status moderating effects on susceptibility, self-efficacy, severity, and cues to action in curbing the spread of COVID-19 infections.

### Research Questions
1) What are the contributions of susceptibility, self-efficacy, and severity on cues to action in curbing the spread of COVID-19 infection?

2) Does marital status have moderating effects on susceptibility, self-efficacy, severity, and cues to action in curbing the spread of COVID-19 infections?

## Literature Review

### *The contribution of susceptibility, self-efficacy, and severity on cues to action in curbing the spread of COVID-19 infection*

To answer the first research question, the study reviewed the previous studies on the impact of susceptibility, self-efficacy, severity, and cues to action in preventing the spread of infectious diseases. Susceptibility is defined as the chance of being vulnerable to transmittable diseases. While self-efficacy is the willingness to adopt precautionary measures that could reduce the chances of being infected by communicable diseases. Whilst severity is the harshness of contracting infectious diseases; and cues to action are getting involved in educative programs that will instigate actions (Groenewold, 2006 & Resource Centre for Adolescent Pregnancy Prevention, 2007).

Regarding the previous studies' findings on the contribution of these health behavioral factors to containing communicable diseases, it was found that perceiving the susceptibility, severity, and self-efficacy motivated people to engage in health examinations programs. Thus, the HBM factors can instigate people to accept health evaluation schemes (Huang et. al, 2016). Similarly, employing the HBM towards determining the factors that influence choices for undertaking Human Immunodeficiency Virus (HIV) tests in the USA, the outcome demonstrated that cues to action motivated those who accepted to go for HIV test (Ayosanmi et al. 2020). On the other hand, perceiving not being vulnerable to HIV deterred those that refused to go for the test. It was further hypothesized that the menace effect and efficacies did not directly impact accepting transmittable disease preventive messages, but were indirectly influenced by perceiving the menace, the efficacies, and the dreadfulness (Zhang et al. 2020). Therefore, this implies that other antecedents are needed for embracing precautionary measures while facing health risky situations. A subsequent study that evaluated the impact of the health belief in promoting the hepatitis B virus preventive measures in Ghana illustrated that susceptibilities, apparent self-efficacies, and perceived usefulness were significant factors that motivated the public in accepting the health behavioral changes in the scourge of hepatitis B virus (Adams, 2017). A further study on the usefulness of integrating HBM factors for minimizing the spread of COVID-19 demonstrated that perceiving being vulnerable to the virus-mediated the severities and self-efficacies toward accepting preventive action in curbing the virus (Anumudu, & Ibrahim, 2020). Therefore, the first objective of our study intends to examine if susceptibility, self-efficacy, and severity have direct contributions on cues to action in curbing COVID-19 infections.

### *The Moderating effects of Marital Status on the Susceptibility, Self-Efficacy, Severity, and Cues to Action in Preventing COVID-19 Infections*

To answer the second research question on whether the marital status has moderating effects on susceptibility, self-efficacy, severity, and cues to action in curbing the spread of COVID-19 infections, the previous studies' findings on the effects of marital status in reducing the spread of Covid-19 and other infectious diseases were reviewed. The reviews on the effects, marital status has in curtailing other infectious diseases were further considered in this study due to the apparent lack of studies that have evaluated the intervening effects of marital status specifically on susceptibility, self-efficacy, severity, and cues to action in controlling the spread of Covid-19 infections. With regards to this, a related study that was conducted in China established that married people are more presumable to apply health behavioral factors such as knowledge, perceived views, and other precautionary measures in curbing the spread of COVID-19 (Chen, et al, 2020). This is probably because they are more cautious to avoid infecting their partners. Another study that examined the effects of applying knowledge and risk perceptions in reducing the transmission of Lassa fever as one of the infectious diseases in Nigeria, established that marital status did not influence the curbing of Lassa fever (Usuwa et al., 2020). Similarly, a study conducted in Malaysia on diabetes mellitus as another chronic disease, indicated that marital status did not have an impact on motivating the patients towards observing self-care for treating type 2 diabetes mellitus (Yee et al., 2018). A subsequent study conducted in Nigeria concerning cervical cancer as another chronic disease contradicted the immediate finding by demonstrating that marital status significantly influenced patients' attitudes towards embracing cervical cancer awareness, beliefs, and preventive measures (Rimande-Joel, & Ekenedo, 2019). The past studies that were conducted in Kenya, Ghana, and Malawi, for determining demographic factors' effects on cues to action and self-efficiencies in adopting Focused Antenatal Care (FANC), as a different health scenario, illustrated that marital status influenced the patients' behavioral attitude (Muthingu, 2019, & Pell et al.2013). Succinctly, married pregnant women implemented Focused Antenatal Care more than the unmarried pregnant ones. This is probably, because of the supportive discussions they had with their spouses. Therefore, based on the effects of marital

status on embracing HBM behavioral changes in reducing the scourge of other chronic and infectious diseases, our study hypothesizes that:

1a: Marital status has a moderating effect on susceptibility and cues to action in curbing COVID-19.

1b: Marital status has a moderating effect on self-efficacy and cues to action in curbing COVID-19.

1c: Marital status has a moderating effect on severity and cues to action in curbing COVID-19.

### Related Theory of the Study

This research is guided by Health Belief Model (HBM), a model developed by Hochbaum (1958), and Rosenstock (1960). HMB is one of the common models used for piloting health promotion and disease avoidance programs, thus, it is used for describing and speculating individual adjustments in health behaviors and has been proven by previous studies as suitable for controlling dreadful infections (Becker, 1974). Thus, in this study, four of these models' elements, which include susceptibility, severity, self-efficacy, and cues to action, were adopted for ascertaining their impact in curtailing COVID-19 as previous scholars have proven them efficacious in similar situations (Champion, 1999; Wong, & Abubakar; 2013). Towards expanding this model, a subsequent study established that family income and support were other socio-demographic moderators that could influence health behavioral changes in preventing harsh sicknesses (Fitrianiet al., 2018). Similarly, Didarloo et al. (2017) demonstrated that benefits, self-efficacies, and severities were influential factors that predicted women's breast self-screening behaviors. However, self-efficacy was identified as the most prominent factor. A study further outlined that perceived threats, barriers, benefits, self-efficacies, and cues to action propelled people to practice social isolating and staying at home toward curbing COVID-19 (Sheppard, & Thomas, 2020).
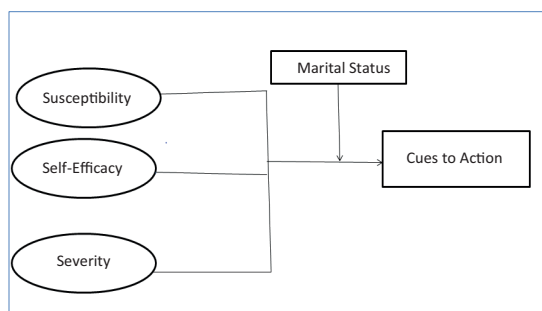


**Figure 1:** Conceptual Framework

Nevertheless, demographic factors, socioeconomic position, and awareness moderated the study's findings. Consequently, based on these outstanding health behavioral changes' predictors, our study's conceptual framework was developed and the following health changing behaviors, which comprised susceptibility, self-efficacy, severity, and cues to action constituted the framework for predicting precautionary behaviors in curbing COVID-19 in Nigeria. Furthermore, marital status was integrated into the framework; towards attesting if it has a moderating effect on the selected HBM factors in containing the spread of COVID-19 since previous studies seemed not to have ascertained that empirically.

### Research Design and Location

For the fact that this study aims to evaluate the intervening effects of marital status on the susceptibility, self-efficacy, severity, and cues to action in preventing the spread of COVID-19 Infections and the contributions of these factors on cues to action for implementing the preventive measures, a quantitative research approach was employed. It was employed to quantify the data and for the inferential study's requirement (Patten, & Newhart, 2017). Hence, a survey questionnaire was deemed a suitable means for quantifying the data (Queirós e al. 2017). The study's location is Nigeria. It is one of the West African countries and was made of three major tribes and multiple ethnicities (Akinlolu et al., 2015). About the population of the study, it comprised over 205, 649,180 estimated Nigerian population (Nigerian Population 2020).

### Sample Size and Sampling Technique

The sample size was determined from the Nigerian estimated population, through the sampling technique stipulated by (Krejcie, & Morgan, 1970). Thus, a sample size of 322 was determined. It was subsequently enlarged by 17%, which amounted to 66 extra respondents. This was done to enhance the study's significant levels (Wolf et al., 2013). The sample size of 388 was finally used. The questionnaires were dispersed to the major social media that consisted of WhatsApp, Facebook, Twitter, and E-mail. However, the accidental/opportunity sampling technique was employed in administering the questionnaires. The technique was applied due to the inability to physically meet the respondents (Basti, & Madadizadeh, 2021).

### Measurement of Variables

The HBM's constructs that were measured in this study comprised susceptibility, self-efficacy, severity, and cues to action. The questions that were used and measured these factors were structured on a Likert scale. Furthermore, in terms of the number of questions used for measuring the study's variables, 15 questions were adapted from (Mohamed et al.2019). 2 items were from (Soleymanian et al., 2014), and 3 items were from (Wang, et al. 2016). A reliability test was also conducted in both the pilot and actual studies and the Cronbach alpha implied that the 4 variables were reliable because their alpha values were ≥ .70 as suggested by (Tavakol, & Dennick, 2011).

### Data Analysis

The study's data was analyzed with two statistical software. The software consisted of Statistical Package for Social Sciences (SPSS) version 20 and Structural Equation Modeling (SEM-AMOS) version 20. SPSS was used for the descriptive part while (SEM-AMOS) was used for the inferential part of the study. Nevertheless, before analyzing the data, normality assumptions, and other essential requirements, such as outliers, were taken into consideration. Hence, the outcome of the normality test, showed that the data were normally distributed because the skewness and kurtosis values ranged from –.104 to –1.235, as established by (Byrne, 2010). Furthermore, the Confirmatory Factor Analysis (CFA), construct validity, and reliability was also ascertained as stipulated by (Hair et al., 2010).

**Table 1:** Summary of the CFA, Constructs' Reliability, and Convergent Validity from the SEM-AMOS

| Measurement Model | | | | |
|---|---|---|---|---|
| Section | Names | Factor Loading ≥ .50 | Construct Reliability (CR) ≥ .70 | Convergent Validity ≥ .50 |
| SB1 | **Susceptibility** | .70 | .78 | .55 |
| SB2 | | .72 | | |
| SB3 | | .80 | | |
| SC1 | **Self-efficacy** | .76 | .76 | .51 |
| SC2 | | .75 | | |
| SC3 | | .63 | | |
| SD1 | **Severity** | .78 | .86 | .67 |
| SD2 | | .87 | | |
| SD3 | | .81 | | |
| SE2 | **Cues to action** | .82 | .85 | .65 |
| SE3 | | .91 | | |
| SE4 | | .69 | | |

### SEM-AMOS Measurement Model

This was also ascertained in the study. The outcomes illustrated that the data fitted the model by satisfying the goodness of fit indices as indicated by (Hair et al., 2010).

### Results

This section presents the descriptive profiles of the respondents that participated in the study and the study's individual objective findings. The Table 2 illustrates that more than half of them are males. It equally shows that almost half of the respondents' age brackets are between 31-and 40 years. The table further displays that over one-quarter of them are from the Igbo ethnicity. Additionally, it indicates that more than half of them are married and over one-third of them have bachelors' degrees.

**Table 2:** Respondents' Profile (n=388)

| Profile | Frequency | (%) |
|---|---|---|
| **Gender** | | |
| Male | 222 | 57.2 |
| Female | 166 | 42.8 |
| **Age** | | |
| <20 | 10 | 2.6 |
| 20-30 | 95 | 24.5 |
| 31-40 | 176 | 45.4 |
| 41-50 | 81 | 20.9 |
| >51 | 26 | 6.6 |
| **Ethnicity** | | |
| Hausa | 89 | 22.9 |
| Igbo | 111 | 28.6 |
| Yoruba | 83 | 21.4 |
| Others | 105 | 27.1 |
| **Marital Status** | | |
| Married | 222 | 57.2 |
| Single | 166 | 42.8 |
| **Highest Academic Qualification** | | |
| Bachelors | 142 | 36.6 |
| Masters | 124 | 32.0 |
| PhD | 86 | 22.2 |
| Others | 36 | 9.2 |

**Objective 1:** Contributions of Susceptibility, Self-Efficacy, and Severity on Cues to Action.

The first research objective on the contributions of the three independent variables on cues to action was realized from the SEM-AMOS structural model as Fig. 2 below presents.
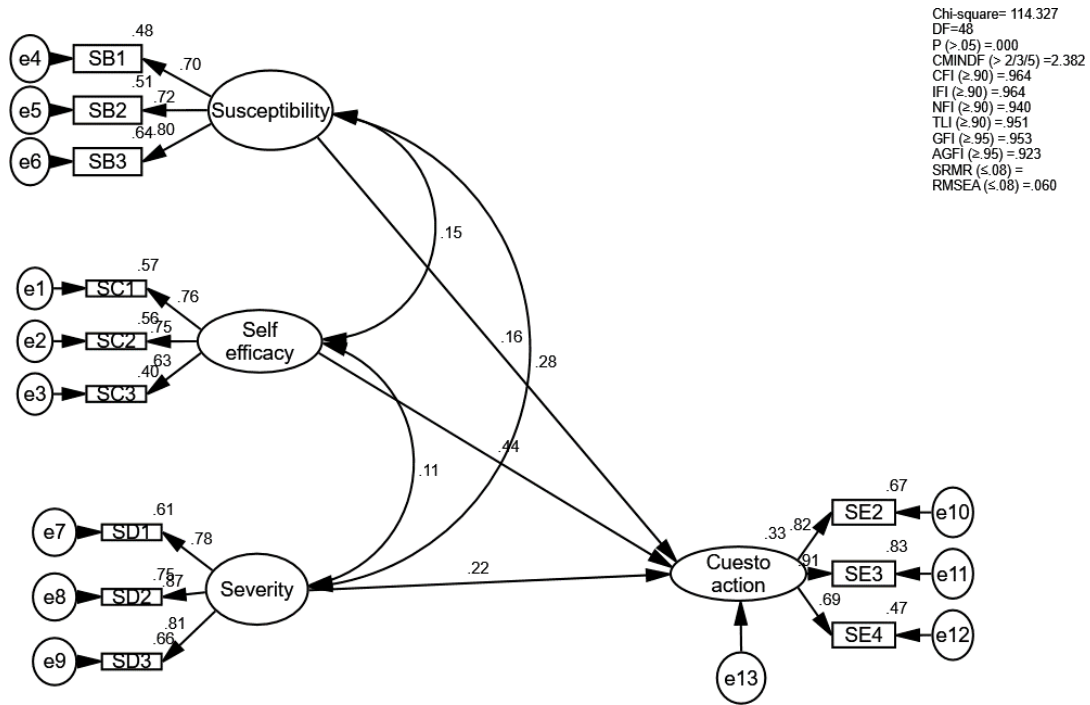
**Figure 2:** SEM-AMOS Structural Model

In line with the first objective, the outcome in Table 3 shows that susceptibility, self-efficacy, and severity were able to explain 32.9% of the variance in cues to action. Therefore, the contribution has a moderate effect size on predicting the effects of HBM's factors for curbing the spread of COVID-19.

**Table 3**: Contributions of Susceptibility, Self-Efficacy, Severity, and Cues to Action from the SEM-AMOS Structural Model

| Causal Path | b | Beta | Critical Ratio | P-value |
|---|---|---|---|---|
| Susceptibility –Cues to action | .151 | .156 | 2.68 | .007 |
| Self-efficacy – Cues to action | .451 | .438 | 6.98 | .000 |
| Severity-Cues to action | .189 | .225 | 4.04 | .000 |

$R^2$ = .329

**Objective 2:** Outcomes of marital status intervening effects on the susceptibility, self-efficacy, and severity on cues to action in curbing the spread of covid-19.

For achieving the three hypotheses as the second research objective contained, a multi-group analysis was run to evaluate the marital status intervention effects. Thus, the second objective findings are derived from Fig. 3.

Hence, regarding the second research objective, the first hypothesis states that:

1a: Marital status has a moderating effect on the relationship between susceptibility and cues to action in curbing the spread of COVID-19.

Table 4, therefore, establishes that marital status has a moderating effect on the relationship between susceptibility and cues to action, this was because the Beta (p-value) for the married ones was significant ($\beta$=.185, p<.05), while the Beta, (p-value) for the single ones was not significant ($\beta$=.089, p>.05). Therefore, the H1a was supported according to the moderation effects analysis rule stipulated by (Hair et al., 2010). This implies that married people are more likely to perceive the possibility of being vulnerable to COVID-19 than unmarried ones. Thus, we recommend the need for unmarried ones to envisage the possibility of being vulnerable to the virus. This could make them apply more caution towards reducing the chances of being infected by the virus

Furthermore, the second hypothesis in the second research objective hypothesizes that:

1b: Marital status has a moderating effect on the relationship between self-efficacy and cues to action in curbing the spread of COVID-19.

Table 4, also shows that marital status did not have a moderating effect on the relationship between self-efficacy and cues to action. This was because the Beta (p-value) for married and single respondents are respectively significant ($\beta$=.479, p<.05; $\beta$=.409, p<.05). Consequently, H1b was not supported as moderating effect analysis rule stated (Hair et al., 2010). Therefore, the outcome inferred that the respondents' marital status did not influence their self-capacity in embracing preventive measures for
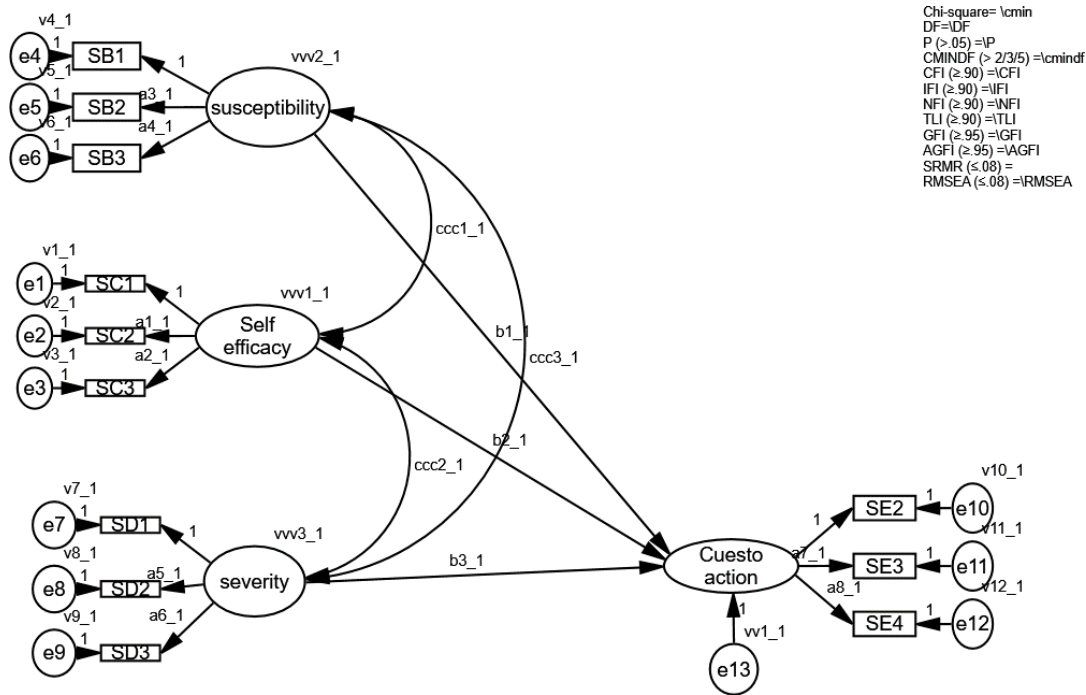
**Figure 3:** Multi-Groups Marital Status Intervention Model

strengthening the curb of COVID-19. Hence, there is the need for both married and unmarried ones to believe in their capabilities of minimizing the spread of the virus via complying with the health enlightening activities such as staying updated to daily guidelines as suggested by NCDC and World Health Organization towards reducing the virus.

The last hypothesis for the second research objective states that:

1c: Marital status has a moderating effect on the relationship between severity and cues to action, in curbing the spread of COVID-19.

Table 4 equally indicates that marital status did not have a moderating effect on the relationship between severity and cues to action. This was because the Beta (p-value) for the married and single respondents were individually significant (β=.220, p<.05; β=.234, p<.05). Therefore, H1c was not supported as specified by (Hair et al., 2010). Thus, the finding implies that the marital status did not influence their perceptions of how severe the COVID-19 could be if one is infected by it. Hence, the findings suggest the need for educating the public on how serious the virus could be if it is contracted. This necessitates the need for strengthening their efforts towards embracing any preventive measures that could lead to curbing the

**Table 4:** Results of Intervening Effect of Marital Status on Susceptibility, Self-efficacy, Severity, and Cues to Action

| Path | b | Beta | Critical Ratio | P-Value |
|---|---|---|---|---|
| Susceptibility −Cues to action | | | | |
| Married | .182 | .185 | 2.480 | .013 |
| Single | .081 | .089 | .960 | .337 |
| Self-efficacy- Cues to action | | | | |
| Married | .599 | .479 | 5.898 | .000 |
| Single | .325 | .409 | 4.080 | .000 |
| Severity-Cues to action | | | | |
| Married | .208 | .220 | 3.021 | .003 |
| Single | .164 | .234 | 2.709 | .007 |

virus. Furthermore, they could be enlightened on the benefits of complying with the health behavioral attitudes via organizing COVID-19 health awareness programs.

**Discussion**

In this study, we examined the contributions of susceptibility, self-efficacy, and severity on cues to action in preventing the spread of COVID-19. The findings showed that the three independent factors were able to explain 32.9% of the variance in the cues to action. Thus, they contributed a medium effect size according to the sizes

of the effect's classifications (Cohen, 1988). However, self-efficacy contributed more to cues to action. Therefore, our study supports the previous scholars' results that self-efficacy can push people into adopting the precautionary health behavioral changes more than other factors (Huang, 2016 & Didarloo, 2017). Hence, we recommend that Nigerians should enhance their self-efficacy severity, and susceptibility perceptions, especially the self-efficacy towards curtailing the spread of COVID-19 infections if they aim to curb the virus. This could be done by organizing various health literacy programs through NCDC since a study has established that health literacy propels people into embracing health behavioral changes (Putri, et al. 2020). This could be done by maximizing all forms of information Communication Technology (ICT) in disseminating COVID-19 related updates to reach all nooks and crannies, especially those living in remote areas (Niroula, 2021). We also evaluated marital status moderating effects on the relationships between susceptibility, self-efficacy, severity, and cues to action. The study's findings established that marital status only had a moderating effect on susceptibility and cues to action. In other words, it indicated that married people are more prone to accept the possibility of contracting the virus than unmarried ones. Consequently, it implies that married Nigerians seem more conscious of observing precautionary measures. However, the study also highlights that focus should be given to enlightening the unmarried ones on the possibilities of contracting the virus. Thus, this calls for the need to intensify precautionary measures. Furthermore, the findings demonstrated that marital status did not moderate the relationships between self-efficacy, severity, and cues to action respectively. Thus, it indicates that the marital status did not have more influence on self-efficacy and perceptions of how severe the disease might be if it is contracted. Therefore, we propose the need to improve self-abilities and serious perceptions of the effects of contracting the virus. This could be done via using influential social media platforms such as Whatsapp, Facebook, and Instagram, for enlightening the public on the severities of contracting the virus and the self-determination urge to embrace the health behavioral changes. Therefore, collaborations and cooperation are indispensable for reducing the spread of COVID-19 infections (Dominata et al., 2021).

## Conclusion

This study is one of the first studies that have evaluated the marital status moderating effect on the factors of the Health Belief Model (HMB) for curbing the spread

of COVID-19. Thus, the findings supported the scholars who found that married people are more presumably to embrace preventive measures for curbing contagious diseases than unmarried ones. This is probably because of the supportive discussions married people are receiving from their spouses. The study also appears to be one of the first studies to establish that marital status has a moderating effect on the susceptibility and cues to action in curbing Covid-19 infections. Consequently, it has expanded the Health Belief Model by integrating marital status as one of its moderating predictors by indicating that marital status plays a role in minimizing the spread of COVID-19 infection. This implies that married people are more conscious of the possibility of being vulnerable to the virus. Thus, they are more likely to make efforts toward reinforcing preventive measures. Perhaps, this could be because married people have more family members that the virus could affect if any of them contracts the virus. Additionally, the integration of the HBM antecedents in ascertaining their influences in curbing the COVID-19 infections was able to make a moderate impact by explaining a 32.9% variance in cues to action in containing the virus. Thus, this could serve as a sustainable model for subsequent related studies.

## Limitation and Recommendations for Future Study

Our study, has some limitations and recommendations for future scholars, one of the limitations was that it explicitly evaluated only four HBM variables and these were able to contribute a medium effect size on cues to action in curbing COVID-19 infections. We, therefore, recommend that prospective scholars should consider integrating other health behavioral and socio-cultural factors towards curtailing the virus in subsequent studies for better effect sizes. Qualitative research is also suggested globally, towards conceptualizing new factors that may help in containing the virus.

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## Declaration of Conflicting Interests

The authors declared no potential conflicts of interest for the research, authorship, and publication of this article.

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