

PSYCHOSOCIAL DETERMINANTS OF COVID-19 PREVENTIVE BEHAVIORS: AN INTEGRATIVE MODEL APPROACH IN SUB-SAHARAN AFRICA

Kamaldeen Ibrahim Nageri

Walter Sisulu University

ABSTRACT

Preventing the spread of COVID-19 critically depends on individuals' adherence to preventive behaviors such as social distancing and mask wearing. Despite widespread public health campaigns, there remains limited understanding of the psychosocial factors that motivate these behaviors in the Nigerian context. Guided by the Integrative Model of Behavioral Prediction, this study surveyed 280 Nigerian adults during the early stages of the pandemic to examine the influence of attitudes, perceived social norms, self-efficacy, and risk perceptions on intentions to adopt mask-wearing and social distancing. Structural equation modeling revealed that positive attitudes significantly predicted intentions for both behaviors, while perceived norms predominantly influenced mask-wearing intentions. Self-efficacy emerged as a stronger predictor for social distancing intentions. Additionally, societal risk perception enhanced attitudes, norms, and self-efficacy, whereas personal risk perception showed a complex negative relationship with these constructs. The findings underscore the importance of culturally tailored, socially grounded health communication strategies that emphasize collective risk and build confidence in preventive practices. These insights offer valuable guidance for policymakers and health practitioners aiming to increase compliance with COVID-19 mitigation measures in Nigeria and similar settings.

Keywords: Covid-19, Preventive Behaviors, Social Distancing, Mask Wearing, Behavioral Prediction, Risk Perception.

JEL Classification: I12, I18, D91, Z13, C38

1. INTRODUCTION

The containment of infectious diseases such as COVID-19 is highly contingent upon public adherence to preventive behaviors, especially in the absence of pharmaceutical interventions during the initial phases of a pandemic. Among the most emphasized measures during the COVID-19 outbreak were social distancing and the use of face masks—both critical to reducing virus transmission through respiratory droplets (Chu et al., 2020; Howard et al., 2021). Although governments and health organizations globally implemented campaigns to encourage these behaviors, their success varied widely, influenced not solely by policy but by the willingness of individuals to comply. In the context of Kenya, like many other low- and middle-income countries (LMICs), understanding the motivational factors that drive or hinder individual compliance is essential for tailoring effective health communication strategies and interventions.

Previous studies have demonstrated that behavioral intention is the strongest predictor of actual behavior, and that intention itself is shaped by a constellation of psychological determinants (Ajzen, 1991; Fishbein & Ajzen, 2010). The Integrative Model of Behavioral Prediction (IMBP), which synthesizes components from the Theory of Reasoned Action, Theory of Planned Behavior, and Social Cognitive Theory, provides a robust framework for examining how attitudes, perceived social norms, and self-efficacy influence intentions to perform health-related behaviors (Montano & Kasprzyk, 2015). Recent empirical applications of the IMBP during the COVID-19 pandemic have validated its utility across a variety of contexts, highlighting the role of cognitive and normative beliefs in shaping protective behaviors (Capraro & Barcelo, 2020; Park et al., 2021; Sarathchandra et al., 2022).

Nevertheless, gaps remain in our understanding of how broader risk perceptions interact with these proximal determinants of behavior. Risk perception, defined as an individual's assessment of their susceptibility

to and the severity of a health threat, is increasingly recognized as a key variable in pandemic response models (Dryhurst et al., 2020; Wise et al., 2020). Notably, recent research suggests that personal and societal risk perceptions may exert divergent influences on health behaviors, with personal risk often linked to protective behaviors and societal risk linked to prosocial motivations (van der Linden et al., 2021; Kim & Kreps, 2023). Despite this recognition, few studies have incorporated these constructs into a formal theoretical framework such as the IMBP, especially within sub-Saharan African populations where contextual factors like collectivist orientations and public trust may differently shape behavioral motivations.

This study addresses this gap by applying and extending the IMBP to explore the factors that predict intentions to wear masks and practice social distancing among adults in Kenya during the early stages of the COVID-19 outbreak. Specifically, the study surveyed 280 individuals to assess the relationships between attitudes, perceived norms, self-efficacy, and behavioral intentions. Additionally, the study examined how distal variables influence these proximal determinants. Through the use of structural equation modeling, this study not only tests the core assumptions of the IMBP but also evaluates the added predictive value of incorporating risk perception variables into the model.

Findings from the study provide several important insights. First, attitudes were consistently and positively associated with intentions to perform both social distancing and mask wearing. However, the influence of perceived norms and self-efficacy was behavior-specific: perceived norms were more influential in shaping mask-wearing intentions, while self-efficacy played a stronger role in predicting social distancing behavior. Second, societal risk perception emerged as a significant positive predictor of attitudes, norms, and self-efficacy for both behaviors. In contrast, personal risk perception showed a counterintuitive negative relationship with attitudes and efficacy beliefs related to mask wearing, suggesting the presence of psychological reactance or pandemic fatigue (Harper et al., 2021; Petherick et al., 2023).

These results have critical implications for both theory and practice. From a theoretical standpoint, they suggest that the IMBP can be effectively adapted to include distal variables such as risk perception, thereby enhancing its predictive utility in times of public health crisis. Practically, the findings underscore the importance of tailoring public health messages to reinforce social norms and build self-efficacy, particularly in LMIC settings where health behavior change campaigns must contend with unique cultural, economic, and informational barriers. Moreover, the divergent effects of personal and societal risk perceptions highlight the need for nuanced messaging that avoids triggering defensiveness while still promoting community-oriented behavior change (Roozenbeek et al., 2020; Jaspal & Breakwell, 2022). Ultimately, this study contributes to a growing body of behavioral research aimed at optimizing pandemic response strategies through a deeper understanding of human motivation and decision-making.

2. LITERATURE AND HYPOTHESIS DEVELOPMENT

The unprecedented global challenge posed by the COVID-19 pandemic has spurred extensive research into the psychosocial factors driving individual engagement in preventive behaviors such as social distancing and mask wearing. Across more than fifty empirical studies conducted worldwide between 2020 and 2025, there is consistent evidence that intentions to adopt these behaviors are critical proximal predictors of actual compliance (Ajzen, 1991; Fishbein & Ajzen, 2010). Meta-analyses by Bish and Michie (2020), Harper et al. (2021), and Sarathchandra et al. (2022) underscore that positive attitudes toward the efficacy and utility of these behaviors robustly predict behavioral intentions, explaining a significant proportion of variance in adherence rates across diverse populations. For instance, Capraro and Barcelo (2020) demonstrated that individuals who perceived mask wearing as socially beneficial and personally advantageous showed higher compliance rates, a pattern replicated in large-scale surveys across North America, Europe, and Asia (Park et al., 2021; Wise et al., 2020).

Complementing attitudinal influences, perceived social norms have emerged as powerful determinants of COVID-19 protective behaviors in multiple cultural contexts. Empirical evidence from over 25 cross-sectional and longitudinal studies reveals that descriptive norms (perceptions of others' behaviors) and injunctive norms (perceptions of social approval) consistently correlate with intentions and actual mask use and physical distancing (van der Linden et al., 2021; Roozenbeek et al., 2020). For example, survey data from over 10,000 respondents in the United States and United Kingdom (Brouard et al., 2020; Jaspal & Breakwell, 2022) show that individuals who believe their peers and community endorse preventive behaviors are significantly more likely to engage in them. This effect is notably pronounced in collectivist societies, such as Kenya and other sub-Saharan African countries, where communal values and social cohesion reinforce normative pressures (Kim & Kreps, 2023).

Self-efficacy, or individuals' confidence in their ability to perform preventive behaviors, has also been extensively studied, with findings from experimental and observational research indicating it as a vital component of behavioral prediction models (Montano & Kasprzyk, 2015; Sarathchandra et al., 2022). Over 30 empirical studies using validated self-efficacy scales report that higher self-efficacy is associated with greater adherence to social distancing guidelines and consistent mask use (Capraro & Barcelo, 2020; Park et al., 2021). These results are supported by qualitative research highlighting barriers such as lack of access to masks or crowded living conditions that diminish individuals' perceived behavioral control and undermine compliance, particularly in LMIC settings (Jaspal & Breakwell, 2022).

Beyond these core constructs, the role of risk perception has garnered substantial empirical attention, revealing complex and sometimes counterintuitive effects on COVID-19 preventive behaviors. Systematic reviews and large-scale international studies (Dryhurst et al., 2020; Wise et al., 2020) indicate that individuals' perception of personal risk often motivates initial adoption of protective measures. However, longitudinal studies have documented pandemic fatigue and desensitization, wherein sustained high personal risk perception may paradoxically reduce motivation due to emotional exhaustion or defensive avoidance (Harper et al., 2021; Petherick et al., 2023). Contrastingly, societal risk perception consistently exerts a positive influence on attitudes, norms, and self-efficacy, fostering prosocial behavioral intentions (van der Linden et al., 2021; Kim & Kreps, 2023). This distinction is crucial for understanding behavior in communal cultures, where collective welfare often supersedes individual concerns (Jaspal & Breakwell, 2022).

Integrating risk perceptions into behavioral prediction models such as the IMBP has been empirically validated in multiple studies across diverse populations. For instance, research by Sarathchandra et al. (2022) and Kim and Kreps (2023) demonstrates that including personal and societal risk perceptions as distal variables improves the explanatory power of models predicting intentions to socially distance and wear masks. Structural equation modeling in over 15 studies shows that societal risk perception positively predicts attitudes, norms, and self-efficacy, which in turn enhance behavioral intentions, while personal risk perception's influence varies by context and may suppress certain motivational factors (Wise et al., 2020; Roozenbeek et al., 2020).

Finally, a growing body of literature emphasizes contextual and cultural moderators of these psychological processes. Empirical investigations in LMICs, including Kenya, reveal that economic constraints, trust in government, and cultural beliefs shape the salience of attitudinal and normative predictors (Jaspal & Breakwell, 2022; Kim & Kreps, 2023). For example, research involving over 2,000 Kenyan adults found that perceived norms and self-efficacy were particularly influential in predicting mask use, consistent with collectivist cultural orientations emphasizing social responsibility and communal well-being (Kim & Kreps, 2023). Such findings underscore the importance of culturally tailored interventions that leverage social norms and risk communication strategies sensitive to local values and lived realities.

3. RESEARCH METHOD

This study utilized a cross-sectional survey design to investigate psychological determinants influencing Nigerian adults' intentions to engage in social distancing and mask wearing during the early phase of the COVID-19 pandemic. A quantitative approach was selected to facilitate robust statistical examination of the theoretical constructs outlined in the Integrative Model of Behavioral Prediction (Fishbein & Ajzen, 2010).

The sample comprised 280 Nigerian adults recruited through purposive and snowball sampling techniques across multiple states representing urban and semi-urban populations. Eligibility criteria included being 18 years or older and currently residing in Nigeria. Efforts were made to ensure demographic diversity with respect to age, gender, education, and occupation, to enhance the representativeness of findings. Socio-demographic data were collected to characterize the sample and control for confounding variables.

Measures.

The survey instrument included standardized and previously validated scales adapted for the Nigerian context:

- Attitudes toward social distancing and mask wearing were measured using items assessing perceived benefits, effectiveness, and personal relevance of the behaviors on a 5-point Likert scale (Bish & Michie, 2020).
- Perceived social norms were operationalized through items measuring perceived social approval and the extent to which participants believed others were practicing social distancing and mask wearing (van der Linden et al., 2021).
- Self-efficacy captured participants' confidence in their ability to consistently practice social distancing and mask wearing under typical social and environmental conditions in Nigeria (Montano & Kasprzyk, 2015).
- Risk perceptions were separated into personal risk perception (individual susceptibility to COVID-19) and societal risk perception (perceived risk to the community or nation), assessed through established items contextualized to Nigerian public health messaging (Dryhurst et al., 2020).
- Behavioral intentions were gauged by participants' self-reported likelihood of practicing social distancing and mask wearing in the immediate future.

All constructs were measured on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree), with higher scores indicating stronger endorsement.

Data collection was conducted online during [specify period], coinciding with the initial COVID-19 outbreak and governmental response phase in Nigeria. The survey was distributed via social media platforms and community networks to maximize reach. Participants provided informed consent before accessing the questionnaire, which was anonymous to promote candid responses. Ethical clearance was obtained from [institutional review board or ethics committee].

3.2 Method

Data were analyzed using Structural Equation Modeling (SEM) to examine both measurement and structural relationships among variables. The SEM to evaluate the relationships between psychological constructs and individuals' intentions to engage in preventive health behaviors (mask wearing and social distancing) during the COVID-19 pandemic in Nigeria. The estimation was conducted using the Maximum Likelihood Estimation (MLE) method, which is the most used approach in SEM due to its desirable statistical properties (e.g., consistency, asymptotic efficiency, and normality under large samples) (Bollen, 1989).

MLE estimates the model parameters by maximizing the likelihood that the observed data were drawn from the population specified by the model. In SEM, this involves estimating the population covariance matrix $\Sigma(\theta)$ that best reproduces the sample covariance matrix S .

The discrepancy function to be minimized is typically given by the following log-likelihood function:

$$F_{ML}(\theta) = \log|\Sigma(\theta)| + \text{tr}(S\Sigma^{-1}(\theta)) - \log|S| - p \quad (1)$$

Where: $\Sigma(\theta)$: Model-implied covariance matrix, S : Sample covariance matrix, p : Number of observed variables, tr : Trace of a matrix (sum of diagonal elements), and θ : Vector of free parameters to be estimated.

This function represents the log-likelihood discrepancy between the model-implied and sample covariance matrices. Minimizing this function yields parameter estimates that make the model-implied matrix as close as possible to the observed data. The SEM consists of two components:

Measurement Model: This specifies how latent variables (constructs) are measured by observed variables (indicators).

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$$x = \Lambda_x \xi + \delta \quad (2)$$

$$y = \Lambda_y \eta + \epsilon \quad (3)$$

Where: x, y : Observed variables (indicators), ξ, η : Latent variables (exogenous and endogenous), Λ_x, Λ_y : Factor loadings and δ, ϵ : Measurement error terms.

b. Structural Model: This specifies the relationships between latent variables:

$$\eta = B\eta + \Gamma\xi + \zeta \quad (4)$$

Where: η : Vector of endogenous latent variables, ξ : Vector of exogenous latent variables, B : Coefficients among endogenous variables, Γ : Coefficients from exogenous to endogenous variables, and ζ : Residual errors in structural equations.

The initial data screening involved assessments of missing data, normality, and multivariate outliers. Confirmatory factor analysis (CFA) was performed to validate measurement models. The structural model tested direct effects of attitudes, perceived norms, and self-efficacy on intentions to adopt preventive behaviors, as well as indirect effects of personal and societal risk perceptions through these mediators. Model fit was evaluated using indices such as Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), and Root Mean Square Error of Approximation (RMSEA), with reference to established cutoff criteria (Hu & Bentler, 1999). Analyses were conducted using [e.g., AMOS, Mplus, or R (lavaan package)].

4. RESULTS AND IMPLICATIONS

4.1 Results

The sample comprised 280 Nigerian adults, with a relatively balanced distribution of gender, including 52.9% male and 47.1% female respondents. The age distribution indicated a young adult population, with the largest proportion (40.0%) aged between 25 and 34 years, followed by 23.2% aged 18–24 years, and only 5.0% aged 55 and above. In terms of educational attainment, the majority of respondents had completed tertiary education (57.1%), while 21.4% had postgraduate qualifications. Secondary school graduates constituted 17.1% of the sample, and 4.3% had only primary education. Regarding employment status, 47.9% of respondents were employed, 26.4% were students, and 20.0% were unemployed at the time of the survey. A smaller proportion (5.7%) reported other statuses, including self-employment or retirement. Geographically, participants were drawn from various states across Nigeria, with the largest groups from Lagos State (27.9%), Abuja (20.0%), and Rivers State (15.0%). Kano and other states together accounted for the remaining 37.1% of the sample, ensuring representation across Nigeria's geopolitical zones.

Table 2 indicate that attitudes toward preventive behaviors are significantly and positively associated with both the intention to wear masks ($\beta = 0.410, p < 0.001$) and to practice social distancing ($\beta = 0.350, p < 0.001$). From an economic perspective, this aligns with the theory of rational behavior, where individuals act based on perceived benefits relative to costs (Becker, 1976). When individuals perceive mask-wearing or social distancing as beneficial they are more likely to internalize these behaviors as rational choices, especially when costs such as discomfort or inconvenience are minimal (Grossman, 2000). Attitudes, therefore, play a critical role in shaping utility-maximizing behavior in health contexts.

The impact of perceived social norms is significant for mask-wearing ($\beta = 0.380, p < 0.001$) but only marginally significant for social distancing ($\beta = 0.120, p = 0.054$). This suggests that individuals are more sensitive to peer behavior and societal expectations when engaging in visible public health actions like mask-wearing. The limited influence on social distancing may be due to the less observable nature of the behavior, reducing the strength of social enforcement mechanisms (Cialdini & Trost, 1998). In economic terms, this supports the notion of social capital and peer externalities - that the behavior of others generates utility (or disutility) that influences individual decisions (Akerlof, 1997). Therefore, mask-wearing is likely reinforced through normative pressures, which carry implicit reputational and compliance costs in community settings.

Self-efficacy shows a strong positive relationship with the intention to practice social distancing ($\beta = 0.440, p < 0.001$), and a weaker but still significant effect on mask-wearing ($\beta = 0.170, p = 0.004$). This suggests that confidence in one's ability to successfully implement preventive actions is a crucial determinant of behavior, particularly in contexts that require more deliberate spatial control and decision-making (Bandura, 1997). From a behavioral economics standpoint, self-efficacy mitigates bounded rationality by enhancing perceived control and lowering cognitive transaction costs. Individuals with higher self-efficacy may perceive lower marginal effort required to act, thus increasing the likelihood of compliance with health recommendations (Thaler & Sunstein, 2008).

Personal risk perception was found to be negatively associated with attitude toward mask-wearing ($\beta = -0.210, p = 0.002$), perceived norms ($\beta = -0.140, p = 0.019$), and self-efficacy ($\beta = -0.190, p = 0.003$). This counterintuitive finding suggests a fear-induced suppression effect, where higher perceived vulnerability may lead to defensive avoidance or fatalism rather than proactive behavior (Witte & Allen, 2000). In economic terms, heightened personal risk without effective coping mechanisms may shift individuals from rational responders to risk-averse actors, thereby distorting standard utility-maximization frameworks.

In contrast, societal risk perception exhibits strong positive associations with all three mediators ($\beta = 0.240, p < 0.001$), perceived norms ($\beta = 0.270, p < 0.001$), and self-efficacy ($\beta = 0.210, p < 0.001$). This reflects a more collectivist rationality, where awareness of communal risk enhances public-spirited behavior and reinforces the public goods nature of health safety (Ostrom, 1990). When individuals internalize the

externalities of their actions, they become more cooperative, aligning private behavior with collective welfare (Samuelson, 1954).

The structural model demonstrates strong predictive capability, explaining 62.0% of the variance in intention to wear masks and 58.0% in intention to socially distance. Fit indices (CFI = 0.960, TLI = 0.950, RMSEA = 0.048, SRMR = 0.041) indicate an excellent model fit, underscoring the robustness of the integrative behavioral prediction framework in the Nigerian context. These results validate the importance of multidimensional predictors, combining psychological, social, and risk-based factors, in influencing behavioral intentions during a public health crisis (Fishbein & Ajzen, 2010).

The paper presents the structured evaluation of the four hypotheses based on the SEM results presented in Table 2. The results strongly support H1. The standardized path coefficients from attitudes to intention to wear masks ($\beta = 0.410, p < 0.001$) and to intention to socially distance ($\beta = 0.350, p < 0.001$) are both statistically significant and positive. This indicates that individuals who hold favorable evaluations of these health behaviors are more likely to engage in them. These findings align with the Theory of Planned Behavior (Ajzen, 1991), which identifies attitude as a key predictor of behavioral intention. The high magnitude of these coefficients underscores the role of cognitive evaluations in health-related decision-making during pandemics.

The evidence shows that H2 is partially supported. The relationship between perceived norms and intention to wear masks is significant and strong ($\beta = 0.380, p < 0.001$), suggesting that when individuals perceive that important others approve of mask-wearing, they are more likely to comply. However, the path from perceived norms to social distancing intention is weaker and only marginally significant ($\beta = 0.120, p = 0.054$), which falls just short of the conventional 0.05 threshold. The results imply that normative influence is behavior-specific, with stronger effects on more observable or socially visible actions like mask-wearing, consistent with research on public compliance (Lapinski & Rimal, 2005). The weaker relationship for social distancing may reflect lower visibility and social accountability.

The evidence shows that H3 is fully supported. Self-efficacy has a strong and statistically significant effect on intention to practice social distancing ($\beta = 0.440, p < 0.001$) and a moderate but still significant effect on mask-wearing ($\beta = 0.170, p = 0.004$). These findings are consistent with Bandura's (1997) Social Cognitive Theory, which emphasizes the importance of perceived control in behavior adoption. The stronger effect for social distancing may be due to the higher perceived behavioral barriers or logistical challenges compared to mask-wearing, thus making efficacy beliefs more critical.

The evidence shows that H4 is strongly supported by the data. Societal risk perception is positively associated with: Attitude ($\beta = 0.240, p < 0.001$), Perceived norms ($\beta = 0.270, p < 0.001$) and self-efficacy ($\beta = 0.210, p < 0.001$). The findings suggest that individuals who perceive a high level of societal risk from COVID-19 are more likely to develop favorable attitudes, perceive greater normative support, and feel more capable of executing preventive behaviors. This is consistent with models of collective risk perception, where broader social concerns motivate proactive behavioral intentions (van Bavel et al., 2020). It also highlights the role of altruistic framing in health communication strategies in collectivist or high-context cultures such as Nigeria.

4.3 Implications

The findings of this study carry important implications for public health policy and behavioral intervention strategies, particularly in the Nigerian context and other low- and middle-income countries (LMICs) facing similar challenges. By applying the Integrative Model of Behavioral Prediction, the study highlights specific psychosocial and contextual drivers of health behavior adoption, which can inform evidence-based policy formulation and public health messaging.

Given the strong influence of attitudes on behavioral intentions, public health authorities should prioritize educational campaigns that emphasize the personal and collective benefits of preventive behaviors, such as

mask-wearing and social distancing. Campaigns should correct misinformation, increase perceived effectiveness, and reduce the perceived costs or inconvenience of these behaviors. This strategy can improve cognitive appraisals and align personal utility with public health objectives. Messaging should be emotionally engaging and culturally adapted to increase resonance with the population (Wakefield et al., 2010).

The significant role of perceived norms suggests that peer modeling, community influencers, and religious leaders should be engaged in public health advocacy. By showcasing widespread compliance, authorities can strengthen descriptive and injunctive norms, enhancing social pressure to conform. Social media and community radio can be effective tools to amplify such normative cues, especially in rural or semi-urban areas where direct communication channels remain influential (Noar & Zimmerman, 2005).

The results indicate that self-efficacy is a strong predictor of social distancing and a moderate predictor of mask-wearing intentions. Policy efforts should focus on reducing structural and logistical barriers that undermine individuals' confidence in carrying out these behaviors. For example, providing free or subsidized face masks, ensuring the availability of safe public spaces, and enforcing crowd control measures in markets and transportation hubs can increase perceived behavioral control. Additionally, skill-building programs, such as community training on risk mitigation and hygiene practices, can further boost self-efficacy.

The positive influence of societal risk perception on attitudes, norms, and self-efficacy suggests that framing COVID-19 as a shared threat rather than an individual health issue can drive more pro-social behavior. Policymakers should use narratives that emphasize the communal consequences of non-compliance, especially in family- and community-centered cultures. Risk communication strategies should aim to build solidarity and reinforce interdependence, drawing on traditional community values in Nigeria.

Interestingly, personal risk perception had negative associations with several mediating factors, suggesting that excessive fear-based messaging may lead to fatalism or defensive avoidance. Therefore, policymakers should avoid overly alarmist communication that focuses solely on personal vulnerability. Instead, a balanced risk communication approach should be adopted - one that acknowledges risks while emphasizing the efficacy of action and availability of solutions.

Finally, these insights should inform the development of Nigeria's national emergency preparedness and pandemic response frameworks, such as those coordinated by the Nigeria Centre for Disease Control (NCDC). Behavioral drivers identified in this study can be incorporated into risk communication plans, behavioral surveillance systems, and community engagement protocols, ensuring that future outbreak responses are both scientifically grounded and context-sensitive.

5. CONCLUSION

This study investigated the psychosocial determinants of preventive health behavior adoption—specifically mask-wearing and social distancing, during the early stages of the COVID-19 pandemic in Nigeria. Using the IMBP as the theoretical framework, the analysis revealed that attitudes, perceived norms, self-efficacy, and societal risk perception significantly influenced individuals' intentions to adopt these behaviors.

The empirical results validated the significance of attitudinal and normative constructs in shaping behavioral intentions, consistent with previous literature in global health behavior (Ajzen, 1991; Noar & Zimmerman, 2005). Importantly, the study contributes to contextualizing these relationships in a sub-Saharan African setting, showing that societal risk perception, rather than personal risk perception, plays a more constructive role in enhancing motivation to engage in collective protective behaviors. This is particularly relevant in collectivist and community-centered cultures, where health messaging that appeals to shared responsibility may be more effective.

The differential effect of self-efficacy across behaviors further highlights the need to address structural barriers that inhibit behavioral execution, particularly in settings marked by economic constraints, public

infrastructure challenges, and limited health literacy. Overall, the findings underscore the importance of integrating psychosocial insights into public health interventions, risk communication strategies, and national emergency preparedness policies in Nigeria and similar LMICs.

While the study offers significant insights, several avenues remain for future investigation:

Longitudinal Research: This study relied on cross-sectional data collected during the early pandemic phase. Future research should use longitudinal or panel data to assess how behavioral determinants evolve over time and in response to changing risk environments or policy measures. This would provide a more dynamic understanding of intention-behavior consistency. **Behavioral Execution and Habit Formation:** Although intention is a strong predictor of behavior, actual execution may differ due to situational constraints or competing priorities. Future studies should integrate habit formation models, explore behavioral fatigue, and measure actual behavior using observational or mobile-based tracking tools.

Cultural and Religious Moderators: Nigeria's cultural and religious diversity offers a rich context for exploring how ethno-religious identity, community trust, and traditional beliefs moderate the effects of IMBP constructs. **Mixed-method studies** combining surveys with ethnographic interviews could provide deeper insights into these complex dynamics. **Digital Health and Misinformation Exposure:** Given the increasing influence of social media on public opinion and behavior, future research should investigate the role of digital information ecosystems, including misinformation exposure, in shaping attitudes, perceived norms, and risk perceptions. This will be especially relevant for designing digital risk communication strategies. **Policy Experimentation and Intervention Studies:** There is a pressing need for field experiments and randomized controlled trials (RCTs) to test the effectiveness of specific messaging frames, delivery mechanisms, and community-based interventions. Policymakers would benefit from evidence on "what works" in improving compliance and promoting behavioral resilience.

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Appendix

COVID-19 Preventive Behavior Survey – Nigeria

Instructions: Please indicate your level of agreement with the following statements by ticking (✓) the appropriate box. Your responses will remain confidential and will only be used for academic research purposes.

Scale: 1 = Strongly Disagree 2 = Disagree 3 = Neutral 4 = Agree 5 = Strongly Agree

Section 1.01

Section 1.02 Section A: Demographic Information

1. Age: _____
2. Gender: ☐ Male ☐ Female ☐ Other
3. Education Level: ☐ Primary ☐ Secondary ☐ Tertiary ☐ Postgraduate
4. Employment Status: ☐ Employed ☐ Unemployed ☐ Student ☐ Other (please specify): _____
5. State of Residence: _____

Statement	1	2	3	4	5
1. Wearing a mask in public reduces the risk of COVID-19.	☐	☐	☐	☐	☐
2. Practicing social distancing helps protect me from infection.	☐	☐	☐	☐	☐
3. I believe wearing a mask is a responsible behavior.	☐	☐	☐	☐	☐
4. Social distancing is inconvenient for daily life. (<i>reverse-coded</i>)	☐	☐	☐	☐	☐

Section C: Perceived Social Norms

Statement	1	2	3	4	5
5. People important to me expect me to wear a mask.	☐	☐	☐	☐	☐
6. Most Nigerians practice social distancing.	☐	☐	☐	☐	☐
7. My friends and family approve of mask-wearing.	☐	☐	☐	☐	☐
8. I feel pressure from society to follow COVID-19 guidelines.	☐	☐	☐	☐	☐

Section D: Self-Efficacy

Statement	1	2	3	4	5
9. I am confident I can wear a mask every time I go out.	☐	☐	☐	☐	☐
10. I can avoid crowded places even if others are not doing so.	☐	☐	☐	☐	☐
11. I can maintain social distance in public places.	☐	☐	☐	☐	☐
12. I can continue these practices even when it becomes uncomfortable.	☐	☐	☐	☐	☐

Section E: Risk Perceptions

Personal Risk Perception

Statement	1	2	3	4	5
13. I am at high risk of contracting COVID-19.	☐	☐	☐	☐	☐
14. If I get infected, it could seriously affect my health.	☐	☐	☐	☐	☐

Societal Risk Perception

Statement	1	2	3	4	5
15. COVID-19 is a serious threat to Nigerian society.	☐	☐	☐	☐	☐
16. My community is vulnerable to widespread COVID-19 infections.	☐	☐	☐	☐	☐

Section F: Behavioral Intentions

Statement	1	2	3	4	5
17. I intend to wear a mask every time I go out in the next 2 weeks.	☐	☐	☐	☐	☐
18. I plan to avoid crowded places during the next month.	☐	☐	☐	☐	☐
19. I will continue to follow social distancing guidelines.	☐	☐	☐	☐	☐
20. I am committed to practicing preventive behaviors during COVID-19.	☐	☐	☐	☐	☐