International Journal of Sub-Saharan African Research (IJSSAR)
Vol. 4, Issue 2, pp. 199-212, June 2026, ISSN: 3043-4467 (Online), 3043-4459 (Print)
https://doi.org/10.5281/zenodo.20666798

Theory of Planned Behaviour (TPB) Constructs and Moral Attitude as Predictors of Intentions to Adopt COVID-19 Safety Protocols among Undergraduates of Kwara State University, Malete, Nigeria

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ABSTRACT

Background: The COVID-19 pandemic posed unprecedented public health challenges worldwide, prompting governments and health authorities to promote preventive measures such as mask wearing, hand hygiene, physical distancing, and vaccination. Despite widespread public health campaigns, compliance with these preventive protocols remained inconsistent, particularly among young adults in developing countries such as Nigeria. This has raised concerns about the behavioural factors influencing individuals' intentions to adopt COVID-19 safety measures. Although the Theory of Planned Behaviour (TPB) has been widely used to explain health-related behaviours, limited empirical evidence exists on the predictive role of its constructs, alongside moral attitude, in shaping COVID-19 preventive behavioural intentions among Nigerian university students.

Objective: This study examined the extent to which the constructs of the Theory of Planned Behaviour and moral attitude predict intentions to adopt COVID-19 safety protocols among undergraduates of Kwara State University, Malete, Nigeria.

Method: The study adopted a descriptive survey design. Data were collected through a structured questionnaire administered to 400 undergraduate students selected from a population of approximately 16,000. Inferential statistical techniques were employed to test the predictive effects of health attitude, subjective norms, perceived behavioural control, and moral attitude on intentions to adopt COVID-19 preventive measures.

Results: The findings revealed that moral attitude was a stronger predictor of behavioural intention than health attitude, subjective norms, and perceived behavioural control. The results suggest that individuals' internalised sense of moral responsibility exerts a greater influence on their intentions to adopt COVID-19 preventive measures than the traditional constructs of the Theory of Planned Behaviour.

Conclusion: The study concludes that the traditional constructs of the Theory of Planned Behaviour were not significant predictors of intentions to adopt COVID-19 safety protocols in the study context. Instead, moral attitude emerged as the most significant determinant of behavioural intention, highlighting the importance of moral considerations in promoting preventive health behaviours.

Unique Contribution: The study extends the Theory of Planned Behaviour by demonstrating the explanatory value of moral attitude in predicting preventive health intentions within a public health emergency. It also contributes to health communication scholarship by providing empirical evidence that moral framing offers additional explanatory power beyond the traditional TPB constructs in influencing health-related behavioural intentions among university students.

Key Recommendation: The study recommends that future public health communication campaigns on infectious disease prevention incorporate moral framing by presenting compliance with preventive measures as a civic and moral responsibility. Such messages should be culturally and religiously sensitive to enhance their relevance, acceptance, and persuasive effectiveness among target audiences.

Keywords: Theory of Planned Behaviour, moral attitude, COVID-19, preventive behaviour, behavioural intention, health communication

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INTRODUCTION

Infectious diseases have continued to constitute major public health concerns in the global south, requiring effective behavioural change strategies. The region has experienced health threats through the emergence and re-emergence of diseases such as Ebola, Lassa fever and other respiratory infections, including COVID-19, which exposed social, economic and behavioural challenges (Eneh et al., 2025). These health threats underscore the need for a sustained preventive health communication programme to improve health behaviours at both group and individual levels, hence the need for research efforts in the global south contexts (Çeleğen & Sarıöz, 2025; Egbo & Nwafor, 2024).

Studies that variously explored the psychological drivers to preventive behaviour have shown the uptake of and adherence to preventive health behaviours for infectious diseases were likely to be dependent on an individual's drive, intention and other decision-making factors (Trifiletti et al., 2022; Alie et al., 2024). However, in contexts where easing restrictions leads to behavioural fatigue, a decline in compliance, and public trust issues, an individual's moral attitude or moral obligations remain important factors in driving behavioural change during a health crisis with heightened health risks **(**Yang & Ren, 2020**).**

The World Health Organisation declared COVID-19 as a global pandemic in March 2020, following the disease's spread through countries of the world, including Africa, causing significant morbidity and mortality (WHO, 2020). It also demonstrated the disruptive potential of communicable diseases to social systems, requiring widespread adaptation to behaviours. The threat posed by the virus spurred massive behavioural change campaigns across various media platforms.

Mitigation strategies such as masking, hand hygiene, physical distance and restricted movement to public spaces were central to the drive towards disease mitigation and prevention at a time when vaccines or medical treatments were not yet available. However, past observations and reports revealed that many Nigerians were constantly violating preventive health protocols because of the denial of the reality of the disease (Daily Trust, June 2020). Other studies also linked the low compliance in Nigeria to political corruption and political distrust (e.g., Ezeibe *et al.*, 2020; Akingbade, 2022; Nwafor et al., 2022). Related research in the post-pandemic period, have continued to examine the linkage between variables such as public knowledge, attitudes, perception of risks and compliance with health preventive behaviours (Janmaimool *et al.* 2024; Yang *et al*. 2023; Liu *et al.* 2022).

It is important, therefore, to understand factors that might influence people's willingness, motivation and intention to adopt safe behaviours. Some studies have applied TPB to investigate people's decision-making effort and intention to behave in certain ways, especially in the areas of health and consumption, nutrition, organisational and safety behaviour (for example, Sen et al., 2019; Sommer, 2011; Rafi'ah & Widajati, 2018, among others). However, not many of the studies have been applied in the Nigerian context.

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The objective of this study is to examine the role of the TPB constructs (health attitude, subjective norms and perceived behavioural control) and moral attitude on the intention of KWASU undergraduates to adopt safe strategies during a pandemic, using the COVID-19 empirical context.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

TPB, developed by Icek Ajzen, has been extensively used to predict behaviour. It refer to measures of attitudes and social normative perceptions that lead to an intention to act (Montano & Kasprezyk, 2008). According to the theory, peoples' behaviours can be influenced by three key variables that include: attitude, subjective norm and perceived behavioural control (Ajzen, 1991).

Health Attitude towards disease prevention

Central to TPB is the formation of an attitude toward a behaviour. Yadav and Pathak (2016) describe attitude as a person's belief about an intended action. Bagher *et al*. (2018) observe that the relationship between attitude and behaviour is significant and even more intense if it is health-related. In the context of COVID-19 preventive behaviour, a person performing or not performing a recommended behaviour, such as wearing a nose mask, is related to the person's evaluation of the outcome of such behaviour. Pennay and Bateman (2007); Nwafor (2020) made the point that people's attitudes towards health promotion and disease prevention are dependent on their beliefs about its severity, risk and likely exposure to the virus. Rafi'ah and Widajati (2018) found no correlation between attitude and intention to adopt safety behaviour at the workplace. They opined that there are other factors that influence attitude, such as personal experience, culture, mass media and emotional factors (Rafi'ah & Widajati, 2018). Supporting their views, Sommer (2011) showed that the contextual factors affecting one's attitude are feelings, experience and knowledge, all of which lead to a person's behaviour. On the contrary, Ajilore *et al.* (2017) found that knowledge and attitudes were strong predictors of students' adherence to PSA advice on Ebola Disease. We therefore hypothesise thus:

H1: Health attitudes of individuals have a significant influence on intention to adopt safe measures against COVID-19

Subjective Norm (SN)

Subjective norms (SN) relates to an individual's perception of the agreement of others with an action. According to Ajzen (2015), normative beliefs are established based on actions observed from others. SN is simply an individual's reaction to social pressure towards a behaviour. Thus, approval or disapproval of a behaviour by significant others may influence people's inclination to behave or not to behave. In other words, individuals may be inspired to act if they know that others are doing the same. Studies have found weak significant relationship between subjective norms and behavioural intentions (Rafi'ah and Widajati, 2018; Sommer, 2011). However, when applied to behaviours in organisations, some studies established a strong connection between subjective norm and compliance in organisations (Ho et al., 2017; Grimes & Marquardson, 2019). In a health-related context, subjective norms and pandemic fatigue were shown to have a considerable influence on COVID-19 vaccine acceptance among HIV patients in Ethiopia (Alie *et al*., 2024).

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H2: Subjective norms significantly influence students' intention to comply with COVID-19 preventive measures

Perceived Behavioural Controls (PBC)

Behavioural controls and behavioural intentions are the determinants of behaviour within the TPB. Perceived behavioural control is a person's personal belief in their ability to perform a behaviour and that it is within their control. According to Conner and Norman (2001), these beliefs relate to a person's access to the opportunities and resources available to aid the performance of such behaviour. (Conner & Norman, 2001). It is likened to self-efficacy in other behavioural theories. Past research indicates that PBC can be determined by past behaviour, likely support and potential hindrances (Thompson, 2012). For example, in the context in which this construct is examined, one might say (I am capable of providing a face mask and alcohol-based sanitiser)

H3: ***Perceived behavioural control significantly influences the students' decision to adopt the COVID-19 safety strategy.***

Perception of moral attitudes towards health

Beyond cognitive beliefs about risks, researchers have continued to recommend the inclusion of additional factors or constructs to increase the predictive power of TPB. These factors include moral norms (Armitage & Conner, 2020), past behaviour (Rhodes & Courneya, 2003; Sommer, 2011), and risk perception (Ho et al., 2017), among others. Olsen et al. (2010) included moral attitude to measure its influence on consumers' intention to consume ready meals. However, the theory has earlier been criticised for inadequate consideration of the influence of moral attitudes on behaviour (Oslen *et al.*, 2010). These scholars suggest that there is a need to consider the individual's feeling of moral responsibility to perform a behaviour in certain contexts. The study emphasised the potential parallel influence of moral attitude on behavioural intention with the traditional TPB constructs (Oslen *et al.*, 2010). In the context of COVID-19 preventive behaviour, the question of what feels right to do might arise. Thus, the hypothesis that:

H4: There is a relationship between ***the moral attitude of individuals and perceived behavioural control towards Covid 19 prevention***

As enforcement of behaviour by authorities is absent, compliance is largely dependent on people's perception as to whether adopting or not adopting the preferred behaviour is right or wrong. Since the use of face masks, regular hand washing and the use of sanitiser and maintaining physical distance are positively evaluated to help flatten the curve of COVID-19, investigating the positive personal feeling of doing the right thing, whether or not one is aware of their health status at one point in time, may be necessary. We therefore hypothesise thus:

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H5: Moral attitude of individuals positively influences intention to adopt COVID-19 safety measures

Behavioural intentions

Behavioural intentions as a construct are conceptualised as an individual's decision to engage in actual behaviour (Conner & Norman, 2001). This signals a person's willingness to work hard and put effort into acting as limiting factors (Prasetyo et al., 2020). This study, therefore, looked to investigate the extent to which each of these factors within the TPB influences intention to behave safely during the COVID-19 pandemic.

METHOD

The study employed the cross-sectional survey design. It involved students from Kwara State University, Malete. Data for this study were collected when COVID-19 restrictions were lowered in Nigeria, and people returned to their normal activities. At this time, other countries were seriously battling the impacts of the pandemic.

Responses were obtained from 400 students of Kwara State University out of a population of 16, 000. Statistical sampling theory suggests that once a sample reaches 384, it can be generalised to the entire population at a 95% confidence level with ±5% interval. The study adopted a non-probability sampling technique, specifically the voluntary sampling in which willing students voluntarily responded to the questionnaire within a specified period. The reliability of the instrument was assessed through Cronbach's alpha. After the initial test, items with poor correlations were deleted, resulting in improved reliability results for personal attitude scale (α = .737) and behavioural control (α = .643), while subjective norm (α =.714) and moral attitude (α = .763) remained acceptable. The overall scale yielded α = .820, indicating a consistent and reliable scale.

The questionnaire included the TPB constructs: attitude, subjective norms, perceived behavioural control, intention to behave, plus measures of moral attitude to evaluate these influences on intentions to adopt COVID-19 preventive measures. The questionnaire consisted of five sections: demographic information (gender and age), attitude, subjective norm, perceived behavioural control, moral attitude, and intention to adopt behaviour. The demographic data were analysed descriptively, while the hypotheses were tested using inferential statistical tools. The five constructs under study were measured using a five-point Likert scale of strongly disagree to strongly agree as adapted from previous measures (Ajzen, 2015; Arvola et al., 2008; Prasetyo et al., 2020). Specifically, the health attitude variable was measured using four items (An example: "I *believe I can expose myself and infect others to...").* SN was measured by four items ("*people I value, such as… expect me to use nose masks and adhere to other safety measure", "I want to do what people want me to do"*). Similarly, PBC items include: "*adopting or not adopting the Covid-19 preventive measures depends entirely on me; I have complete control over…"; "I am capable of..."* Furthermore, moral attitude was further measured with the items: "*I feel I have obligations towards others and society…"* On the other hand, the dependent variable of intention to adopt measures was assessed by a single-item: '*I will adopt the necessary strategies for the prevention of COVID-19".*

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The result was analysed using SPSS version 25 and hypotheses were tested using inferential statistical tools and presented in tables.

RESULTS

Demographic variables of this study were gender and age. The female undergraduates constituted the majority of the participants in the study (268 representing 67%), while their male counterparts constituted 132, representing 33%. This outnumbering of the female gender is in tandem with the current gender distribution in most Nigerian universities today. Three hundred and eighty respondents, representing 95%, belonged to the age bracket of 16 – 25 years.

Hypothesis Testing

In the first instance, we hypothesised that personal health attitudes of individuals significantly influence the students' intention to adopt COVID-19 preventive behaviour. We used a simple linear regression technique where the response variable is intention to adopt COVID-19 safety measures, and the personal health attitudes are the predictor variables. Thus:

$$Intention = f(health\ attitude)$$

$$Intention = \beta_0 + \beta_1 * HealthAttitude$$

Table 1: Influence of Personal Health Attitude on Intention to adopt Covid-19 prevention

Coefficients:	Estimate	Std. Error	t value	Sig.
(Constant)	3.706	.342	10.822	0.000
Personal Health Attitudes	.032	.022	1.443	.150

r = 0.072, F-statistic: 2.084 on 1 and 398 *degrees of freedom*, Sig-value: 0.150

Dependent Variable: Intention

Table 1 above shows that the personal health attitude of the respondents does not significantly influence their intention to adopt COVID-19 measures at the value of 0.150. Therefore, since the sig-value is > 0.05, we therefore, reject the hypothesis that the personal health attitude significantly influences the intention to adopt the Covid-19 measures.

Table 2: Influence of subjective norm on the intention to adopt Covid-19 prevention

Coefficients:	Estimate	Std. Error	t value	Sig. value
(Constant)	3.921	.248	15.779	<0.01
Subjective Norms	.018	.016	1.124	.261

r = .056 , F-statistic: 1.264 on 1 and 398 *degree-of-freedom*, Sig-value: .261

Also, the influence of subjective norm on intention to adopt safety measures was also shown not to be statistically significant at .261, which rejects hypothesis 2 of the study.

We also hypothesised that perceived behavioural control significantly predicts the students' adoption of COVID-19 safety measures. The result ($\beta = 0.005$, $t = 0.301$, $p = 0.763$), however, showed that PBC does not significantly predict behavioural intention. The positive effect is negligible and statistically insignificant. Similarly, the overall model explains that PBC does not significantly explain differences in behavioural intentions.

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Table 3: Influence of Perceived Behavioural control on the intention to adopt Covid-19 prevention

Coefficients:	Estimate	Std. Error	t value	Sig. value
(Constant)	4.110	.280	14.691	<0.01
PBC	.005	.018	.301	.763

r = .056, F-statistic: .091 on 1 and 398 *degree-of-freedom,* Sig-value: .763

Personal feelings of moral obligation and responsibility (moral attitude) were also assumed to be significantly related to the perceived behavioural control of individuals (hypothesis 4) and might significantly influence intention to adopt COVID-19 measures (hypothesis 5). Using Pearson Correlation, the result showed that there is a positive and moderately significant relationship between moral attitude and perceived behavioural control (r = 0.327, p = <0.01).

The result for Table 5 (β = 0.117, t = 5.277, p = <0.01) showed that moral attitude has a significant positive influence on the students' intention to adopt COVID-19 safety protocols at a significant value of <0.01. Based on these results, H4 and H5 are thus accepted.

Table 4: Relationship between PBC and Moral Attitude

		PBC	Moral Attitude
PBC	Pearson Correlation	1	.327**
	Sig. (2-tailed)		.000
Moral Attitude	Pearson Correlation	.327**	1
	Sig. (2-tailed)	.000	
	N	400	400

Table 5: Moral attitude of individuals significantly influences intention to adopt COVID-19 safety measures

Coefficients:	Estimate	Std. Error	t value	Sig. value
(Constant)	2.671	.294	9.093	<0.01
Moral Attitude	.117	.022	5.277	<0.01

r = .256 , F-statistic: 27.852 on 1 and 398 *degree-of-freedom,* Sig-value: <0.01

In order to further understand the level of the prediction of the independent variables on the dependent variable, a multiple regression was run. The model summary in Table 6 below shows an R value of 0.268, indicating a low level of prediction. The R^2 value (coefficient of determination) is .072 which indicates that our independent variables explain merely 7.2% of the variability of our dependent variable (intention to adopt safety measures).

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Table 6: Multiple Regression Model Summary

Model	R	R Square	Adjusted R Square	Estimate
1	.268	.072	.062	1.137

Predictors: (Constant), MoralAtt, PBC, PersonalAttitude, SN

From the coefficient table below, it can be said that the moral attitude, out of all the variables examined, positively and significantly contributes to the prediction (β = 0.117; t = 5.277; p < 0.01). Hence, as students perceive preventive behaviour as a moral obligation, chances are that they will aim for such behaviour. As already indicated in the study, other TPB constructs: subjective norm, personal attitude and perceived behavioural control do not significantly influence behavioural intentions, suggesting that in this study context, behavioural intentions is driven more by internalised moral obligation rather than TPB constructs.

Table 7: coefficients table showing the predictive power of TPB and moral attitude on intention to behave

Coefficients:	Estimate	Std. Error	t value	Sig. value
(Constant)	3.058	.417	7.330	<0.01
Subjective Norms	-.009	.018	-.497	.619
Personal Health Attitude	-.006	.024	-.267	.790
Perceived Beh. Control	-.026	.019	-1.366	.173
Moral Attitude	.117	.022	5.277	<0.01
r = .268; F-statistic: 7.616 on 4 and 395 *degree-of-freedom*, Sig-value: <0.01				

Dependent Var: Intention to adopt covid-19 measures

DISCUSSION

The study extends the Theory of Planned Behaviour with moral attitude to understand the predictors of behavioural intentions in the prevention of infectious disease. The study used empirical data obtained from the Kwara State University undergraduates during the time restrictions were relaxed. Based on the findings, the overall model is statistically significant. However, only moral attitude showed up as a significant predictor of the students' behavioural intentions, rather than the traditional TPB constructs: subjective norms, personal health attitude and perceived behavioural control. In this context, the dominance of the moral attitude construct in the model indicates that intention to adopt preventive behaviours is driven more by internalised moral responsibility than social and cognitive determinants highlighted in TBP. This deviates from the traditional application of TBP in different contexts (Jeihooni et al. 2021; Ho et al, 2017; Grimes & Marquardson, 2019; Ajzen, 2015), where intentions were predicted by these constructs. Therefore, in contexts where health is threatened factors such as social influence, personal health evaluation, and perceived ability to control behaviour do not strongly shape health decision making, even though they are generally important.

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The broader socio-cultural context and information ecosystem during the COVID-19 lockdown in Nigeria, which seemed different from other countries that recorded very high mortality and morbidity rates, may explain this outcome. Past studies indicate that many Nigerians were hesitant, and government enforcement seemed ineffective, which was partly attributed to government distrust (Ezeibe *et al*, 2020; Reuben et al., 2021; Akingbade, 2022). There was misinformation that spurred the erroneous belief that the virus was a white man's disease, a disease for the influential and the old (Aiyewumi & Okeke, 2020). In this context, social norms may be fragmented, with significant aspects reflecting these beliefs, thereby reducing the influence on behavioural intentions. Also, personal attitudes may be weakened by these inconsistent beliefs about the disease, affecting preventive behavioural intentions. In the same vein, structural constraints and ineffective external control may reduce individuals' ability to control their behaviours. In line with these, Reuben and his colleagues reported a higher likelihood of violations of the safety measures among Nigerians below 40 years of age due to their low perception of risk of the disease (Reuben *et al*, 2021). This underscores the possibility of internal moral reasoning playing a decisive role over external cues. This supports Ajzen's (1991) argument that moral obligation should be considered in some contexts. Therefore, in Africa and in the Nigerian context, characterised by communitarian life and moral orientation, framing health behaviour in terms of moral responsibility to oneself and others may be particularly relevant. This aligns with studies highlighting the ethical dimensions of infectious disease prevention, in which personal actions have implications for collective wellbeing (Harris & Holm, 1995; Fernandes de Araujo *et al*., 2025).

The study measured only intention to behave and is limited by a lack of actual behavioural measures. This, however, is common in TPB studies. Also, the study model shows very little explanatory power in terms of the proportion of variance (7.2%) on the outcome variable (behavioural intention). This is also common in behavioural research, especially in health contexts where other factors not examined in the study might be responsible for the outcome. In this case, the low proportion of variance in behavioural intention suggests that other factors, such as perceived risk, severity, media influence and government trust, may play an important role in shaping behavioural outcomes in Nigeria; therefore should be investigated in future research. Given that the university undergraduates constitute the younger population, future studies can also explore other demographics, such as older adults.

CONCLUSION AND RECOMMENDATIONS

The present research does not support the key hypotheses of the study that TPB constructs significantly influence intention to adopt safe measures in the study context. Moral attitude was shown to significantly shape behavioural intentions. The study provides empirical support for TBP extension to provide contextual determinants of health behaviour. It also contributes to health communication research by showing how constructing beliefs and moral framing in health messages can influence preventive health intentions.

The study concludes that health communication and education interventions, based on TPB, can be a good educational and promotional strategy for desirable health behaviours for the

prevention of infectious diseases like COVID-19. Importantly, Health communication experts should consider moral responsibility framing in developing health campaigns for infectious disease prevention. A cross-sectoral collaboration is also necessary for interventions aimed at positively influencing the general health attitudes of young Nigerians.

Ethical clearance
Ethical consent was sought and obtained from the participants used in this study.

Acknowledgements
Not applicable
Sources of funding
The study was not funded. All costs were covered by the researchers.

Conflict of Interest

The authors declare no conflict of interest.

Authors' Contributions
Umeaku, PC contributed to the study conception and design, drafted the initial manuscript, analysis and interpretation of the data.

Shaibu, AJ contributed to the study conception and design, data collection and analysis and manuscript revision. Both approved the final draft and responsible for the content and integrity of the manuscript.

Data availability statement
The datasets on which conclusions were made for this study are available on reasonable request.

Citation
Umeaku, P. C. & Shaibu, A. J. (2026). Theory of Planned Behaviour (TPB) Constructs as Predictors of Intentions to Adopt COVID-19 Safety Protocols among Undergraduates of Kwara State University, Malete, Nigeria. *International Journal of Sub-Saharan African Research,* 4(2), 199-212

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