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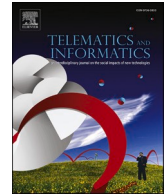
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# Modeling predictors of COVID-19 health behaviour adoption, sustenance and discontinuation among social media users in Nigeria

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## ABSTRACT

The aim of this study was to suggest a model that explains the predictors of COVID-19 health behaviour adoption, sustenance and discontinuation among social media users in Nigeria. Survey research design was used for the study. The sample size was made of 600 social media users with questionnaire as the instrument for data collection. The structural equation modeling (SEM) was utilized to analyse the result for the study. It was found that six variables-risk vulnerability, risk severity, barriers to action, benefits of action, self-efficacy, and cue to behaviour-predict COVID-19 health behaviour adoption. Also, two variables-risk vulnerability and risk severity-predict COVID-19 health behaviour sustenance. Finally, two variables-behaviour fatigue and behaviour discomfort-predict COVID-19 health behaviour discontinuation. The result of the current study has provided information that could guide health experts in dealing with the issue of behaviour fatigue and behaviour discomfort, which have been identified as responsible for health behaviour discontinuation. In addition, a model for predicting health behaviour adoption, sustenance and discontinuation has been suggested.

## 1. Introduction

The aim of the current study was to develop a model that predicts COVID-19 health behaviour adoption, sustenance and discontinuation among social media users in Nigeria. A model predicting COVID-19 health behaviour adoption, sustenance and discontinuation is important because this will provide information for health workers and behaviour change scientists on how to effectively communicate information on public health emergencies and other crises.

Over the years, health behaviour adoption related to different diseases has received attention in literature (Laranjo et al., 2014; Ikpi and Undelikwo, 2019). Researchers are often interested in explaining health behaviour adoption. While this is important, there is also the need to have information on health behaviour sustenance and discontinuation. This is important because during public health emergencies like COVID-19, people are expected to adopt life-saving health behaviour and sustain it. The recommended health behaviour related to COVID-19 includes regular hand washing under the running water, use of facemask, use of alcohol-based hand

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sanitizers, physical distancing, avoiding handshake, among others (World Health Organization, 2020a).

As at January 22, 2021, the World Health Organization (2020d) notes that a total of 96,267,473 cases of COVID-19 have been confirmed globally with 2,082,745 deaths. COVID-19 has impacted significantly on lives and livelihood. For example, people have lost their jobs, some of whom may not get those jobs back. Others have lost loved ones. Additionally, some people have had to close down their business as a result of the virus. Onuora et al. (2020) corroborate that COVID-19 has seriously slowed down economic activities globally. The virus has also resulted to shutting down of schools. Some children may never return to classes again. Governments of countries have also implemented Lock down measures all in a bid to control the spread of the virus. These measures negatively impact on people with long term impact on lives and livelihood.

The Nigeria Centre for Disease Control (2020) says that the appropriate behaviour that people should exhibit in times of COVID-19 should be practiced in places like homes, schools, medical facilities, educational institutions, work place, communities and gatherings. World Health Organization (2020b) also recognizes behaviour change as essential to the fight against COVID-19.

The outbreak of COVID-19 has also sparked studies on health behaviour adoption. Onuora et al. (2020) in a study reported that animated cartoons were effective in triggering health behaviour adoption related to COVID-19 among social media users in Nigeria. Okpara et al. (2020) also reported that animated cartoons significantly propel health behaviour adoption. Okpara et al., add that this is moderated by the cartoon colour. Although Okpara et al., also looked at health behaviour sustenance, they did not examine health behaviour discontinuation. Ezeah et al. (2013) also examined health behaviour adoption related to COVID-19 and reported that interpersonal communication was effective in influencing health behaviour adoption among rural dwellers. Although researchers have examined COVID-19 health adoption, there is currently little or no evidence to suggest that attention has also been paid to modeling health behaviour adoption, sustenance and discontinuation in a single study. Based on the above outlined gaps in literature, the current study developed a model that explains COVID-19 health behaviour adoption, sustenance and discontinuation among social media users in Nigeria.

## 2. Literature review

### 2.1. Use of social media for health promotion

The three basic elements in health promotion are awareness, knowledge and health behaviour. These three elements are considered essential in health promotion because of the critical role they play in combating public health emergencies. These three variables were explained to in this literature. Awareness is fundamental in health promotion. Awareness is needed to trigger the alertness of people regarding the existing of a health situation. Operationally, awareness is consciousness about the existence of COVID-19. Through awareness, the general public gets notified about a public health emergency with a corresponding possibility to educate them about the public health emergency. Awareness rings the bell that there is danger. Zühlke and Engel (2013) corroborate that awareness is key in public health education, prevention and control. Lavaca Medical Center (2012) in making a case for awareness creation in health promotion notes that when health awareness campaigns are made top priority in health promotion, it increases knowledge about public health issues. It adds that the more people are aware, the more likelihood that accurate information about health issue(s) will be in public domain.

World Health Organization (2020b) has identified raising awareness as a critical requirement for combating COVID-19. This means that public awareness concerning issues bothering on COVID-19 is key in controlling its spread and promoting treatment efforts. People need to be aware of COVID-19 before they can adopt preventive measures. They even need to be aware of appropriate prevent measures so that they will not take the wrong measures. Seymour (2017) posits that awareness is fundamental for health promotion. The researcher adds, however, that in creating awareness, different media options should be used to suit different age groups. Gever and Ezeah (2020) in a study reported that that the Nigerian media did not provide sufficient warning messages on COVID-19. Lyson et al. (2018) examined if the use of social media platform is associated with awareness. Their study involved a sample of 782 social media users. The researchers reported that social media platforms are effective for health awareness creation. Ramaprasad and Vedel (2014) in a study reported that social media hold a strong potential for health awareness creation. Evidence in literature (Bahner et al., 2012; Green and Hope, 2010; Wang et al., 2012) have also revealed that educational institutions that produce manpower for health care facilities have equally changed their suggestions when it comes to health awareness creation with the inclusion of social media. For example, Bahner et al. (2012) reported that students of nursing have been persuaded to look above the use of flyers and pamphlets as channels of awareness creation rather, they have been equipped with knowledge and skills to deploy 3-to-5 min YouTube videos to raise awareness and share information. Green and Hope (2010) found that the use of social media platforms like Facebook and Twitter are addition channels for communicating educational messages which can be efficient avenues to interact with medical trainees. A study conducted by Wang et al. (2012) found that 89% of the participants who took part in the study reported that they make use of social media for health promotion. It should be noted that the participants who took part in the study were continuing medical education course participants.

Knowledge of health issues is one of the requirements for people to adopt and sustain the required health behaviour. To have knowledge of health issues entails having knowledge of its causes, symptoms, prevention and treatment. Knowledge is different from awareness because it goes beyond mere consciousness of COVID-19 to knowing other issues that will guide in behaviour modification. Knowledge is also a very critical component of health care service delivery. This is because the overall essence of communicating risk is to ensure that the general public is equipped with the right knowledge about the health issue. Iqbal et al. (2019) in a study concluded that social media platforms present a very strong potential for improving people's knowledge of health issues. Consequently, the researchers recommended the use of social media to equip people with knowledge concerning diseases and outbreaks. Jung et al.

(2013) reported that media of information dissemination (social media inclusive) play roles in improving people's knowledge of diseases. Gough et al. (2017) examined the use of social media to dissemination health information and reported that the utilization of social media to communicate health information results to improvements in knowledge on diseases and other health issues.

Behaviour change is one of the main reasons for health communication. When health messages are communicated to the target receivers, it is expected that they will change their behaviour with a view to making themselves less vulnerable. Conner (2002) holds the view that in describing health behaviour, it is essential to provide a difference between health enhancing behaviour and health impairing behaviour. In the opinion of Conner, health enhancing behaviour promotes safety of those who engaged in it. On the contrary, health impairing behaviour has harmful consequences on health or exposes person's individuals to disease. Within the context of this study, health enhancing behaviour will include regular hand washing, use of protective devices while health impairing behaviour may include avoiding hand washing, not keeping the environment clean, among others. Typically, the essence of health communication is to promote health enhancing behaviour while at the same time, discouraging health impairing behaviour. Operationally, health behaviour explains those actions that a person takes that have implications on healthy living.

Laranjo et al. (2014) did a Meta analysis to find out the association between social media and health behaviour. They searched and retrieved 4656 citations; 12 studies with a total of 7411 participants meeting the inclusion criteria. Their result revealed a significant positive effect correlation between social media interventions and health behaviour. Ikpi and Undelikwo (2019) carried out a study to examine the association between social media use and students' health lifestyle change in the University of Calabar, Nigeria and reported that social media play an essential role in health behaviour change.

## 2.2. Health behaviour adoption, sustenance and discontinuation

Health behaviour adoption is at the heart of all health promotions. When a health campaign is initiated, the aim is usually to create awareness, educate the general public and persuade them to adopt positive health behaviour. Positive health behaviour here means life-saving health behaviour. Ezeah et al. (2013) corroborate that health behaviour is central to health communication. To adopt health behaviour means to start exhibiting health behaviour as a way of preventing contracting diseases. Within the context of this study, a person who starts wearing facemask has adopted it to stop him or her from contracting COVID-19. Schwarzer et al. (2007) carried out a study to examine health behaviour adoption and maintenance and reported that self-efficacy as well as planning are at the centre of health behaviour. The researchers did not clearly state if this was applicable to health behaviour sustenance and discontinuation. This is important because predictors of health behaviour adoption may not be the same for sustenance and discontinuation.

Health behaviour sustenance entails continuing behaviour after adoption. For example, if a person starts using facemask, he she will have to continue wearing it. Where that does not happen, it means that health behaviour has been discontinued. Okpara et al. (2020) in a study reported that self-efficacy, task self-efficacy, coping self-efficacy and outcome expectancy are predictors of health behaviour sustainability among social media users who are exposed to COVID-19 YouTube animated cartoons. Okpara et al., did not examine health behaviour discontinuation.

Generally, research on health behaviour discontinuation is scanty. Mullinax et al. (2017) and Bolton et al. (2010) are among the very few studies on health behaviour discontinuation. Both studies examined condom use discontinuation, applying qualitative method without suggesting a model that explains health behaviour discontinuation. Very few studies (Bradley et al., 2009; Parr, 2003) that have made use of quantitative method on health behaviour discontinuation also exist but it appears that these studies focused mostly on family planning. Even at that, attention was not paid to adoption, sustenance and discontinuation put together. When people discontinue health behaviour, they become vulnerable to diseases and outbreaks. Previously exhibited health behaviour cannot save a person from a public health emergency until the public health issues ceases to pose a threat. This implies that health behaviour has to be sustained as long as medically needed.

## 2.3. Theoretical framework and study model

The researchers made use of health belief model to articulate the study. The model seeks to explain situations under which health messages may be effective in behaviour change or not effective. The model came about when the Government of United States of America faced challenges concerning the implementation of its health policies in 1950s. As a response, a group of three researchers namely Irwin Rosenstock, Godfrey Hochbaum and Stephen Kegels did a study to explain health behaviour (Burke, 2013). According to this model, health behaviour of people does not just take place, certain variables influence such behaviour. This includes perception regarding vulnerability to the health issue. This is called perceived susceptibility. Under this variable, it is argued that health behaviour change does not just happen; the more people think that they are vulnerable to the disease; the more likely they are to engage in health behaviour and vice-versa. The second consideration is perception on the magnitude of the danger which the disease poses. This is called perceived seriousness. That is to say that people are likely to engage in health behaviour if they perceive a health condition as serious. On the other hand, they are likely to avoid engaging in health behaviour if they perceive a health condition as not serious. This is closely followed by perception concerning the benefits of taking particular health behaviour. This is called perceived benefits of taking action. The model assumes that when people perceive that there are benefits that come with adopting certain health behaviour, they are likely to engage in such behaviour than if they feel there are no benefits attached. It is also the assumption of the model that even when people assume that there are benefits associated with taking some health actions, they may be faced with some barriers. It argues further that the lower the readiness to take action is, the higher the chances that action will not be taken and vice versa. Finally, there come forces that stimulate action. This is called cues to action (Rosenstock, 1966 cited in Maguire (2010)). Self-efficacy has been lately added as another construct of the model (Champion and Skinner, 2008). Self-efficacy describes how easy or difficult it is for a

person to adopt health behaviour. Two issues that are closely related to self-efficacy but that have not been substantially examined are behaviour fatigue and behaviour discomfort. Behaviour fatigue explains the boredom that is associated with engagement in health behaviour. Wood (2020) commenting on behaviour fatigue related to COVID-19 notes that even though people have expressed fears that constant COVID-19 restrictions could lead to behaviour fatigue, there is no evidence to back this up. But again, there is no empirical evidence to disprove it either. The World Health Organization (2020c) avers that fatigue is an important consideration suggesting ways of promoting COVID-19 behaviour. In addition to behaviour fatigue, discomfort in adopting and sustaining COVID-19 behaviour is another important consideration. Behaviour discomfort explains the unpleasant experience that people go through as a result of engagement in health behaviour. Adopting some health behaviour can result to discomfort to the person adopting it. For example, wearing facemask and regular hand washing can be discomforting to some people. Based on this mode, this study postulated the following hypotheses:

**H1:** Risk vulnerability, risk seriousness, benefits to action, barriers to action, self-efficacy and cues to action will significantly predict COVID-19 health behaviour adoption among social media users in Nigeria.

**H2:** Risk vulnerability, risk seriousness, benefits to action, barriers to action, self-efficacy and cues to action will significantly predict COVID-19 health behaviour sustenance among social media users in Nigeria.

**H3:** Risk vulnerability, risk seriousness, benefits to action, barriers to action, self-efficacy, behaviour fatigue and behaviour discomfort will significantly predict COVID-19 health behaviour discontinuation among social media users in Nigeria.

### 3. Methodology

The researchers made use of survey approach to determine the predictors of COVID-19 health behaviour adoption, sustenance and discontinuation. The choice of survey was because it is most suitable for studies that explain or describe phenomenon. Therefore, we made use descriptive survey to describe and explain predictors of health behaviour adoption, sustenance and discontinuation. We sampled 600 respondents for the study. Cochran formula (1963, p.75). With 95 percent level of confidence (confidence interval – +5%), population estimate of 50% (0.5) and a permitted margin of error at 0.05 (5 percentage points) was used to arrive at the sample. The total number of social media users in Nigeria is 24 million (Onuora et al., 2020). We applied respondent-driven sampling (RDS) chain referrals (Johnston et al., 2008) to select a sample for the study. The choice of this sampling technique was to allow for the inclusion of only social media users in the sample. By its very nature, RDS starts by sampling earlier participants called “seeds.” The ‘seeds’ are expected to possess characteristics of interest. Social media users were the seeds for the study. The initial seeds further recruited persons from their existing network for participation in the study. This process continued until the needed number of participants was sampled. The initial informants were identified through social media announcements that were posted on Facebook, WhatsApp and Twitter. The researchers collected data for this study using the questionnaire. The instrument was developed by the researcher based on the objective and hypotheses for the study. The response format was a four-point likert scale that range strongly agree to strongly (4) disagree (1). The instrument had an introductory question which sought to determine if the respondents were social media users. Only those who responded in the affirmative were allowed to respond to the questionnaire. The instrument had three segments that were based on health behaviour adoption, sustenance and discontinuation. Overall, there were 20 items in the instrument. The health behaviour that were assessed included; regular hand washing, use of hand sanitizers, physical distancing, use of facemask, staying at home and avoiding handshake. We used three experts to validate the instrument for the study. The experts were lecturers from the Department of Mass Communication, University of Nigeria, Nsukka. We asked the experts to look at the clarity of items, how logical they were presented as well as determine if they were appropriate for the study. At the end, we relied on the comments of the experts to produce a final copy of the instrument. We also conducted a reliability test on the instrument. We did this with pilot study involving 30 respondents. At the end, we found that the instrument was reliable as evidenced in the Cronbach Alpha values (see Table 1) were more than 0.7. This means that all the segments of the instrument were reliable. Researchers (Ale, 2020; Olijo, 2020; Ogonne, 2019) say that reliability figure of above 0.70 is excellent.

### 4. Model measurement

The researchers considered two things in the measurement of the study model. These are convergent validity and discriminant validity. Concerning the convergent validity (which explains the closeness of a new scale to other variables as well as other measures of a similar construct) the researchers screened the indicator loading and the indicator loadings were above the benchmark of 0.7 (Hair et al., 2019). Furthermore, we made sure that the average variance extracted (AVE) were above 0.5. Also, the Composite Reliability (CR) values were all more than 0.7 benchmark (Hair et al., 2017). Additionally, our Cronbach’s alpha values were more than the recommended benchmark of 0.7 (Hair et al., 2017) (See Appendix for Table 1). Consequent upon these values, our convergent validity had no issues. We equally ascertained the discriminant validity; which tests if measurements that are supposed unrelated are actually not related (Hair and Sarstedt, 2019) and the outcome is presented in Table 2 of the Appendix which shows that each construct AVE’s square roots were more than their correlations with other constructs (Fornell and Larcker, 1981). This again points to the fact that our discriminant validity excellent. Our conclusion is that the psychometric properties of all our measures in the model were excellent.

### 5. Data analysis

In the analysis of data for the study, the researchers made use of both descriptive and inferential statistics. Among the descriptive statistics, the researchers used simple percentages, mean and standard deviation. Among the inferential statistics, the researchers made

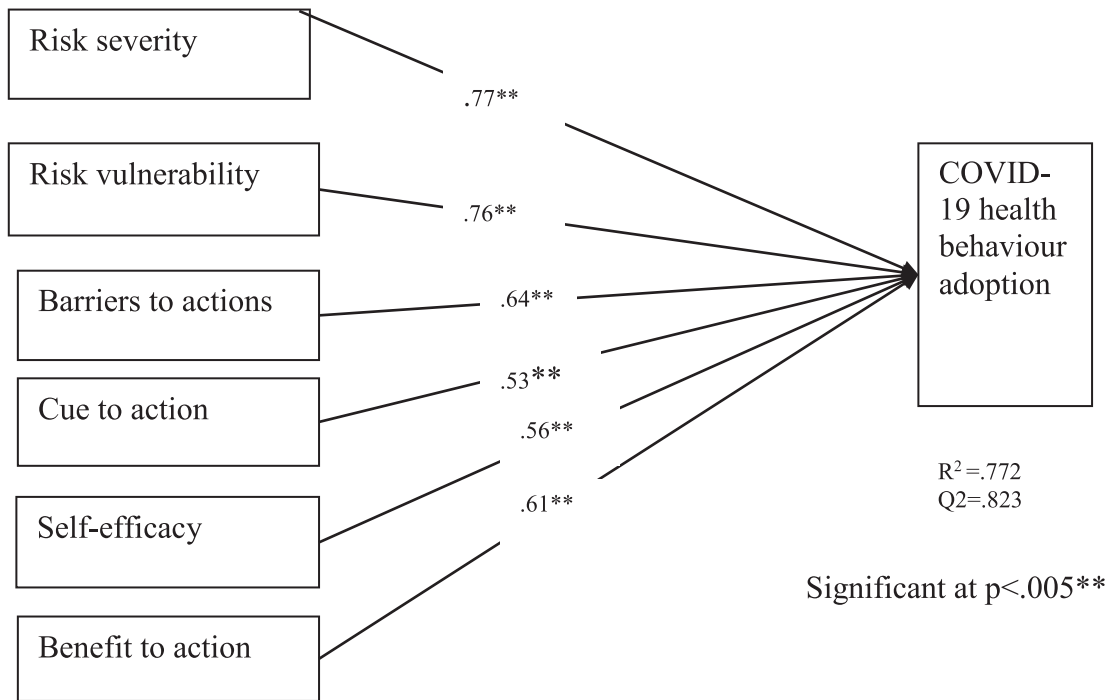


Fig. 1. Structural model for COVID-19 health behaviour adoption.

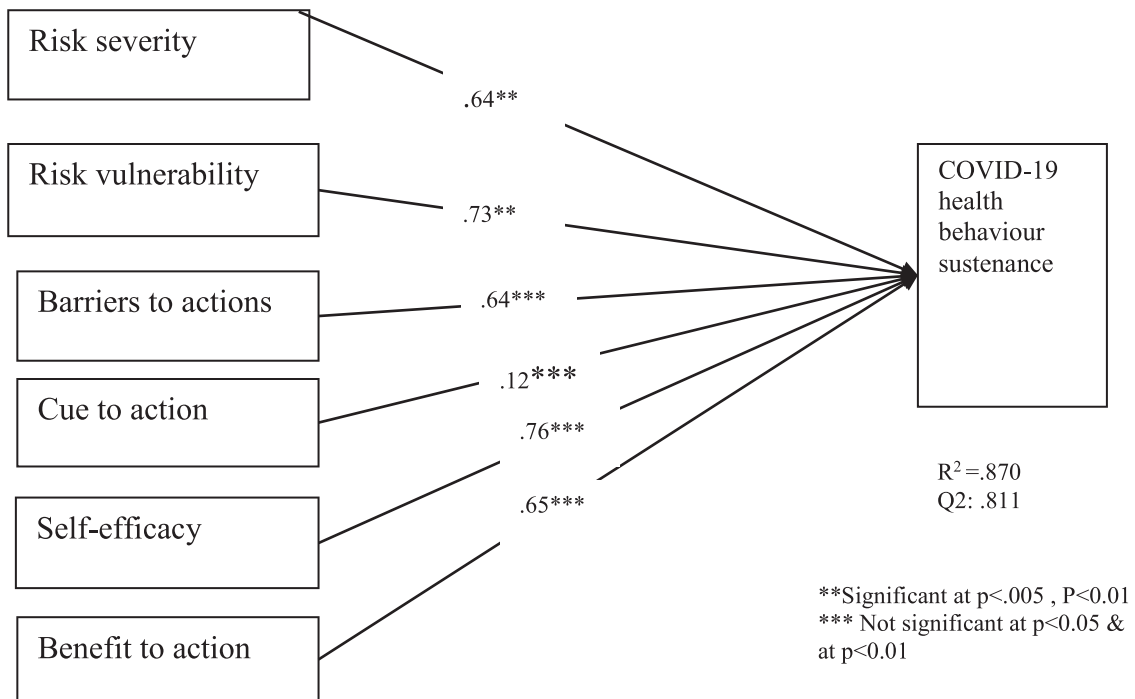


Fig. 2. Structural model for COVID-19 health behaviour sustenance.

use of structural equation modeling (SEM). In particular, we utilized Partial Least Squares (Smart PLS 3.3.2) in our inferential analysis. To ascertain the path of our model, we made use of bootstrap re-sampling involving 5000 samples. The hypotheses were tested at 0.05 level of significance.

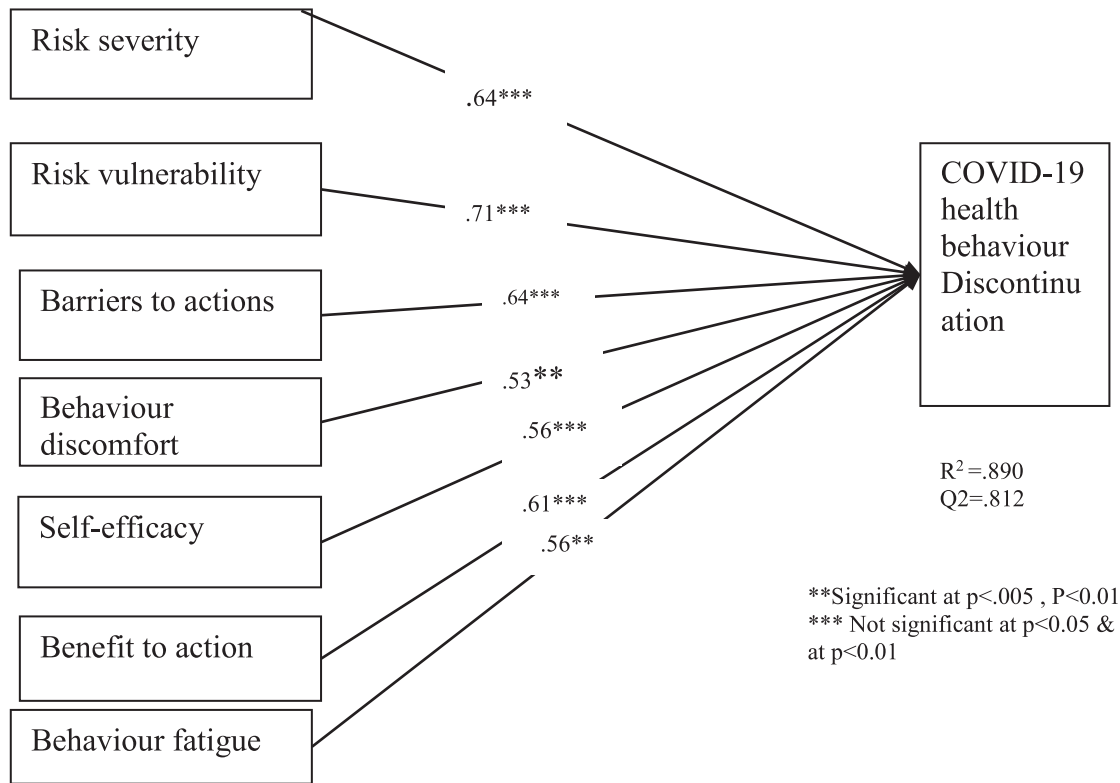


Fig. 3. A structural for predictors of COVID-19 health behaviour discontinuation.

6. Results

The response rate for this study was 91%. This is because among the 600 copies of the questionnaire that were administered to the respondents, 546 copies were filled returned and found useful. Concerning gender distribution, our sample was 52% male and 48% female. This means that there was no significant dominance of either of the gender. With regards to age, we found that the range was 18–40 years. This means that the mean age was 29 years. With regards to education, most (67%) of the respondents had tertiary education while 33% had secondary education. Concerning occupation, 55% were working, 45% were unemployed. The results of the hypotheses testing is presented below:

The figure above reveals the predictors of COVID-19 health behaviour adoption among social media users in Nigeria. Accordingly, it was found that risk seriousness, risk vulnerability, self-efficacy, benefit to taking action, cues to action and barriers to health behaviour significantly predict COVID-19 health behaviour adoption. The result of the study also showed that the predictive relevance (Q2); Q2 = 0.823, was high. This means that the model was 82.3% relevant. On the other hand, the coefficient of determination (R2) is 0.772, which means that the total amount of variance explained by the model is 77.2%.

The structural model above explains the predictors of COVID-19 health behaviour sustenance. Based on the result, only risk vulnerability and risk severity predict health behaviour sustenance. On the contrary, benefits to action, cues to action, self-efficacy and barriers to actions do not. Additionally, we found that the predictive relevance (Q2) for the model was Q2 = 0.811, an indication that the model was 81.1% relevant. On the other hand, the coefficient of determination (R2) is 0.870, meaning that the total amount of variance explained by the model is 87.7%. Figure three below presents results on predictors of health behaviour discontinuation.

The figure above ascertained the predictors of COVID-19 health behaviour discontinuation among social media users in Nigeria. The model above showed that behaviour fatigue and behaviour discomfort significantly predict COVID-19 health behaviour continuation. However, risk severity, risk vulnerability, barriers to actions and self-fatigue did not predict COVID-19 health behaviour discontinuation. Based on the results from Figs. 1–3, Fig. 4 was presented to show a model for health behaviour adoption, sustenance and discontinuation.

The figure above seeks to explain health adoption, sustenance and discontinuation. Based on our model, predictors of health behaviour adoption are risk vulnerability, risk severity, barriers to action, cues to action, self-efficacy and benefits to actions. The predictors of health behaviour sustenance are risk vulnerability and risk severity. Finally, predictors of health behaviour discontinuation are behaviour fatigue and behaviour discomfort.

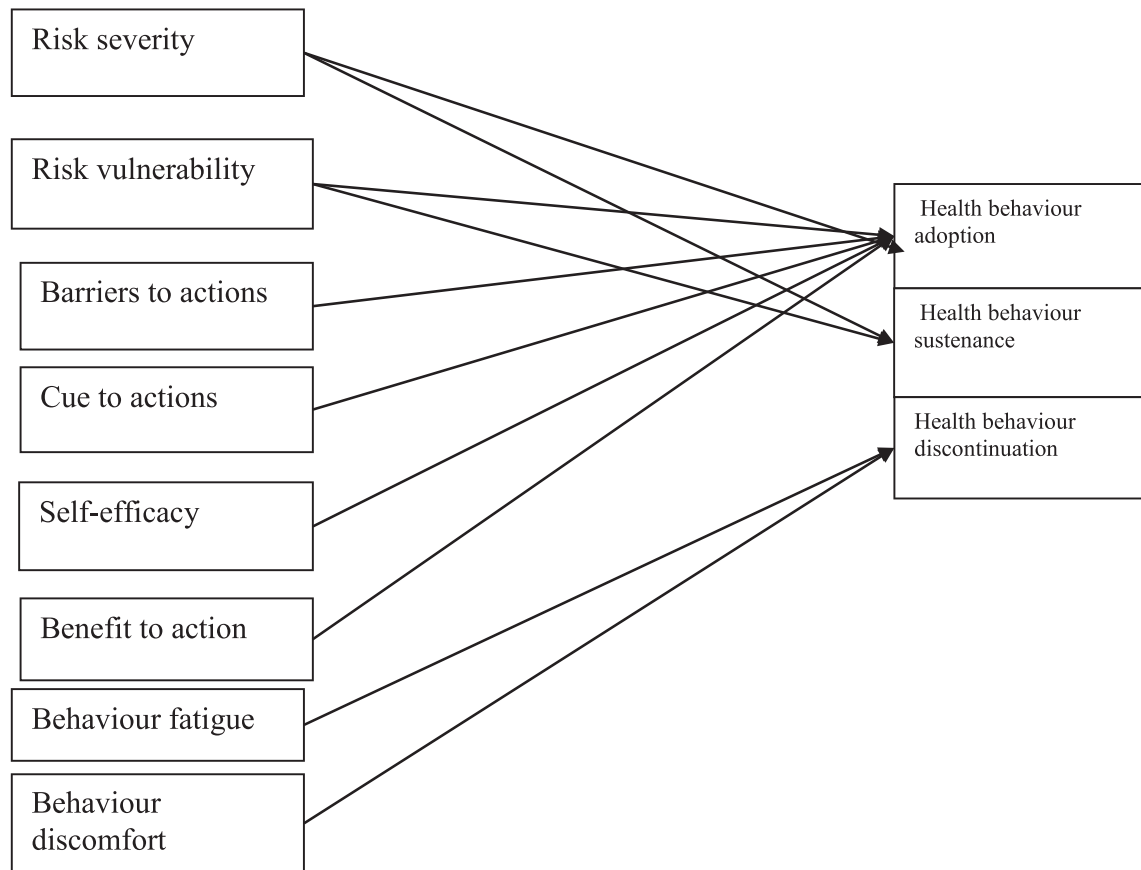


Fig. 4. A model for predicting health behaviour adoption, sustenance and discontinuation.

## 7. Discussion of findings

The aim of this study was to assess the predictors of COVID-19 health behaviour adoption, sustenance and discontinuation. We made use of variables from health behaviour model with the addition of behaviour fatigue and behaviour discomfort. The result of the study showed that the predictors of COVID-19 health behaviour adoption include risk vulnerability, risk severity, benefit to action, self-efficacy, barriers to action and cues to action. This result has extended those of previous researchers (Bahner et al., 2012; Ramaprasad and Vedel, 2014; Zühlke and Engel, 2013) who examined the impact of social media as veritable tools through health awareness campaigns could be raised without paying attention to predictors of health behaviour adoption. The result of this study also revealed that the predictors of health behaviour sustenance are risk severity and risk vulnerability. This means that social media users will likely be more interested in sustaining adopted health behaviour if they still perceive a public health issue as severe and that they are vulnerable to it. This result has extended those of previous scholars (Iqbal et al., 2019; Jung et al., 2013; Gough et al., 2017) who found a strong association between social media and knowledge of health issues without paying attention to health behaviour sustenance.

Finally, the result of the study showed that the predictors of health behaviour discontinuation are behaviour fatigue and behaviour discomfort. This aspect of the study has also extended previous studies (Ezeah et al., 2013; Onuora et al., 2020) that have examined health behaviour without paying attention to health behaviour discontinuation. Ignoring health behaviour discontinuation makes it appear as those once people adopt health behaviour, they sustain it. However, the outcome of the current study has shown that health can be discontinued when people feel uncomfortable sustaining them or when they experience behaviour fatigue. Therefore, this information will prove beneficial for health promotion experts and health information researchers.

## 8. Theoretical, scholarly and practical implications

This study has implications on theory, existing literature as well as practical implications on health promotion. Theoretically, the current study has shown that variables from the health belief model can also be useful in explaining, not just health behaviour adoption, but sustenance. Additionally, the current study has introduced two new variables that may add to our understanding of health belief model. These are behaviour fatigue and behaviour discomfort. It is expected that these additions will contribute to future



**Table 1**  
Convergent validity.

Constructs	Code	Items	Outer loading	Chronbach alpha	CR	AVE	M	SD	Source		
Adoption	AND1	I adopt COVID-19 behaviour like regular hand washing, use of hand sanitizers, physical distancing, use of facemask, staying at home and avoiding handshake because of my perception on the seriousness of the virus	0.85	0.83	0.93	0.72	3.7	0.99	Ale (2020)		
	AND2	I adopt COVID-19 behaviour like regular hand washing, use of hand sanitizers, physical distancing, use of facemask, staying at home and avoiding handshake because of my perception on my vulnerability to the virus	0.88							3.8	0.87
	AND3	I adopt COVID-19 behaviour like regular hand washing, use of hand sanitizers, physical distancing, use of facemask, staying at home and avoiding handshake because of my perception on benefit of such behaviour	0.87							3.6	0.76
	ADN4	I adopt COVID-19 behaviour like regular hand washing, use of hand sanitizers, physical distancing, use of facemask, staying at home and avoiding handshake because of the messages (cues to action) I receive about the virus	0.91							3.7	0.99
	ADN5	I adopt COVID-19 behaviour like regular hand washing, use of hand sanitizers, physical distancing, use of facemask, staying at home and avoiding handshake because of my ability to carry out such actions (self-efficacy)	0.93							3.8	0.76
	ADN6	I adopt COVID-19 behaviour like regular hand washing, use of hand sanitizers, physical distancing, use of facemask, staying at home and avoiding handshake because of the barriers I face in carrying out such behaviour	0.87							3.6	0.87
Sustenance	SUS1	I sustain COVID-19 behaviour like regular hand washing, use of hand sanitizers, physical distancing, use of facemask, staying at home and avoiding handshake because of my perception on the seriousness of the virus	0.79	0.92	0.92	0.76	3.7	0.87	Olijo (2020)		
	SUS2	I sustain COVID-19 behaviour like regular hand washing, use of hand sanitizers, physical distancing, use of facemask, staying at home and avoiding handshake because of my perception on my vulnerability to the virus	0.87							3.8	0.76
	SUS3	I sustain COVID-19 behaviour like regular hand washing, use of hand sanitizers, physical distancing, use of facemask, staying at home and avoiding handshake because of my perception on benefit of such behaviour	0.90							3.5	0.77
	SUS4	I sustain COVID-19 behaviour like regular hand washing, use of hand sanitizers, physical distancing, use of facemask, staying at home and avoiding handshake because of the messages (cues to action) I receive about the virus	0.88							3.8	0.88
	SUS5	I sustain COVID-19 behaviour like regular hand washing, use of hand sanitizers, physical distancing, use of facemask, staying at home and avoiding handshake because of my perception ability to carry out such behaviour (self-efficacy)	0.79							3.6	0.76
	SUS6	I sustain COVID-19 behaviour like regular hand washing, use of hand sanitizers, physical distancing, use of facemask, staying at home and avoiding handshake because of the barriers I face in carrying out such behaviour	0.89							3.6	0.77
Discontinuation	DIS1	I will discontinue COVID-19 behaviour like regular hand washing, use of hand sanitizers, physical distancing, use of facemask, staying at home and avoiding handshake because based on my perception on the seriousness of the virus	0.88	0.87	0.90	0.78	3.9	0.70	Ogbonne (2019)		
	DIS2		0.77							3.7	0.98

(continued on next page)

Table 1 (continued)

Constructs	Code	Items	Outer loading	Chronbach alpha	CR	AVE	M	SD	Source
		I will discontinue COVID-19 behaviour like regular hand washing, use of hand sanitizers, physical distancing, use of facemask, staying at home and avoiding handshake based on my perception on my vulnerability to the virus							
	DIS3	I will discontinue COVID-19 behaviour like regular hand washing, use of hand sanitizers, physical distancing, use of facemask, staying at home and avoiding handshake based on my perception on the benefits of such behaviour	0.87				3.7	0.65	
	DIS4	I will discontinue COVID-19 behaviour like regular hand washing, use of hand sanitizers, physical distancing, use of facemask, staying at home and avoiding handshake because of the messages (cues to action) I receive about the virus					3.8	0.45	
	DIS5	I will discontinue COVID-19 behaviour like regular hand washing, use of hand sanitizers, physical distancing, use of facemask, staying at home and avoiding handshake based on my ability to carry out such actions (self-efficacy)					3.6	0.67	
	DIS6	I will discontinue COVID-19 behaviour like regular hand washing, use of hand sanitizers, physical distancing, use of facemask, staying at home and avoiding handshake based on the barriers I face in carrying out such behaviour					3.7	0.78	
	DIS7	I will discontinue COVID-19 behaviour like regular hand washing, use of hand sanitizers, physical distancing, use of facemask, staying at home and avoiding handshake if I am tired (behaviour fatigue)					3.6	0.89	
	DIS8	I will discontinue COVID-19 behaviour like regular hand washing, use of hand sanitizers, physical distancing, use of facemask, staying at home and avoiding handshake if am not comfortable in carrying out such behaviour (behaviour discomfort)					3.7	0.87	

debates on health belief model. Scholarly, the current study has extended literature on health behaviour by combining health behaviour adoption, sustenance and discontinuation. Additionally, then current study has examined behaviour discontinuation from the perspective of health issues beyond family planning and the use of contraceptive, contrary to the few studies [Mullinax et al. \(2017\)](#), [Bolton et al. \(2010\)](#), [Bradley et al. \(2009\)](#) and [Parr \(2003\)](#) on health behaviour discontinuation. Also, most of these studies did not combine health behaviour adoption, sustenance and discontinuation.

Furthermore, the current study has suggested a model that explains health behaviour adoption, sustenance and discontinuation. This model could be useful to future researchers who are interested in suggesting ways of combating public health emergencies. Finally, the current study has implications on policies and programmes aimed at combating public health emergencies. First, this result makes a case for the need for health experts to refocus health campaigns in manners that highlights risk severity and vulnerability. Doing so is beneficial because it has the possibility of ensuring the sustenance of adopted health behaviour. Second, the result of the current study has provided information that could guide health experts in dealing with the issue of behaviour fatigue and behaviour discomfort, which have been identified as responsible for health behaviour discontinuation. One of the limitations of this study is that it examined only social media users. It is good to other consider other members of the general public who may not have access to social media platforms. Also, the study did not examine health behaviour interruption.

## 9. Suggestions for further studies

Based on the result of this study, the researchers make the following recommendations:

1. Further studies should test the developed model in other countries to enrich literature on health behaviour sustenance and discontinuation. This is important because literature have often focused most on health behaviour adoption.
2. It is also the recommendation of the current study that this study should be replicated in other countries for the purposes of comparison.
3. Further studies should also consider modeling predictors of health behaviour interruption and consistency.
4. Further researchers should also model health behaviour adoption, sustenance and discontinuation related to other public health issues like malaria.

**Table 2**  
Discriminant validity (Fornell and Larcker, 1981 criteria).

S/N	Constructs	1	2	3	4	5	6	7	8	9	10	11
1	Risk vulnerability	<b>0.81</b>										
2	Risk severity	0.54	<b>0.77</b>									
3	Barriers to action	0.43	0.53	<b>0.79</b>								
4	Benefits to action	0.41	0.44	0.54	<b>0.92</b>							
5	Self-efficacy	0.31	0.32	0.32	0.45	<b>0.82</b>						
6	Cue to action	0.30	0.63	0.43	0.32	0.52	<b>0.75</b>					
7	Behaviour fatigue	0.42	0.11	0.19	0.23	0.54	0.53	<b>0.77</b>				
8	Behaviour discomfort	0.23	0.23	0.14	0.28	0.64	0.35	0.56	<b>0.78</b>			
9	Adoption	0.34	0.24	0.25	0.34	0.24	0.56	0.34	0.56	<b>0.81</b>		
10	Sustenance	0.23	0.44	0.32	0.43	0.42	0.36	0.56	0.34	0.61	<b>0.83</b>	
11	Discontinuation	0.43	0.23	0.23	0.45	0.34	0.28	0.66	0.54	0.34	0.45	<b>0.76</b>

The bold represents discriminant validity value.

## Declaration of Competing Interest

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

## Appendix

See Tables 1 and 2.

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