

Predicting COVID-19 health behaviour initiation, consistency, interruptions and discontinuation among social media users in Nigeria

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Summary

Literature on the predictors of health behaviour initiation, interruption, consistency and discontinuation is scarce. This study sought to fill this gap by suggesting a model that takes into account these variables. Using the structural equation modelling, we surveyed 470 social media users in Nigeria and found that perceived vulnerability, perceived seriousness; benefits to action, self-efficacy and cues to action significantly predict health behaviour initiation. Also, the predictors of health interruption were found to be perceived vulnerability, perceived seriousness, benefits to action, challenges to action and perceived realness. The predictors of health behaviour consistency were found to be perceived vulnerability, perceived seriousness, benefits to action, perceived realness, self-efficacy and cues to action. Finally, the predictors of health behaviour discontinuation were found to be perceived vulnerability, perceived seriousness, perception on realness, behaviour fatigue and behaviour discomfort. We explored the implication of these results on health promotion and made suggestions for further studies.

Key words: COVID-19, health behaviour, health belief model, modelling, social media Nigeria

INTRODUCTION

Over the years, health behaviour has been examined in literature (Lawton *et al.*, 2007; Adjah and Panayiotou, 2014; Ezeah *et al.*, 2020; Onuora *et al.*, 2021). The seeming focus on health behaviour among researchers and health experts underscores the critical role of health behaviour in healthcare delivery. When health

information and campaigns are planned and implemented, the goal is usually to ensure that the target receivers of such information adopt and sustain positive health behaviour. Ezeah *et al.* affirm that behaviour modification is the fundamental desire of all health promotion efforts (Ezeah *et al.*, 2020). This implies that effective control of public health emergencies is largely

dependent on the adoption and sustenance of relevant health behaviour.

Typically, behaviour can be examined from the perspective of positive and negative health behaviour (Ezeah *et al.*, 2020). Health behaviour can be regarded as positive if it contributes in combating a public health emergency. For example, within the context of COVID-19 (Coronavirus Disease), positive health behaviour may include regular hand washing, use of face mask, and use of hand sanitizers, social distancing, and personal hygiene (World Health Organization, 2020a). On the other hand, negative health behaviour may include attending events with large gathering that do not conform with physical distancing, shaking of hands, as well as non-usage of face mask among others. Conner says in describing health behaviour, it is essential to differentiate health enhancing from health impairing behaviour (Conner, 2002). Health impairing behaviour has harmful effects on health or otherwise predisposes individuals to disease. On the other hand, engagements in health enhancing behaviour convey health benefits or otherwise protect individuals from disease. Kasl and Cobb (Kasl and Cobb, 1996) in Adegoke (Adegoke, 2010) put forward an inclusive definition of health behaviour within the context of health enhancing behaviour as ‘any activity undertaken by a person believing himself to be healthy, for preventing disease or preventing it in an asymptomatic stage’. Gochman defines health behaviour as ‘overt behavioural patterns, actions and habits that relate to health maintenance, to health restoration and to health improvement’ [(Gochman, 1997), p. 3]. Previous studies (Baltzell *et al.*, 2013; Ankomah *et al.*, 2014) related to health behaviour often assume that once health behaviour are initiated, they will continue unhindered and without discontinuation. This is because researchers have over the years paid attention in understanding issues related to health behaviour interruption, consistency and discontinuation. The neglect of health behaviour consistency, interruptions and discontinuation is also applicable to COVID-19 literature.

Since the outbreak of COVID-19 in 2019, researchers (Ale, 2020; Melugbo, 2020; Odii *et al.*, 2020; Olijo, 2020) have examined different aspects of the virus including health behaviour but little or no attention has been extended to health behaviour initiation, interruptions, consistency and discontinuation. A study of predictors of COVID-19 health behaviour consistency, interruptions and discontinuation is important because it will provide recent information that could prove beneficial for designing implementing and monitoring health behaviour change campaigns within the context of

public health emergencies, hence the need for the current study.

OBJECTIVES OF THE STUDY

The objective of this study was to suggest a model that explains COVID-19 health behaviour initiation, consistency, interruptions and discontinuation. Within this broad objective, the researchers examined the predictors of initiation, consistency, interruptions and discontinuation separately after which a single model was suggested to explain health behaviour initiation, consistency, interruptions and discontinuation among social media users.

LITERATURE REVIEW

Health promotions in the era of social media

Health promotion channels have changed significantly even as recent as 10 years ago. Before now, channels for health information exchange were mainly limited to traditional media such as radio, newspaper, television, posters and face-to-face. However, as time progressed, coupled with the growing acceptance of social media as means of communication, healthcare delivery strategy and health information sharing modified to consider social media as effective channels for health education and awareness. Okpara *et al.* note that we are now in a social media dominated era to an extent that social media platforms have made communication more affordable than it was years back (Okpara *et al.*, 2021). Okpara *et al.* add that social media platforms have equally widened message options such that message elements such as text, video, voice, pictures as illustrations can be combined to deliver information.

Social media platforms are now regarded among health promotion experts as cardinal in health education and awareness. Lyson *et al.* conducted a study with the objective to ascertain the use of social media platforms as channels of communication to create awareness and found that social media platforms, such as Facebook, Twitter, WhatsApp, Instagram among others are essential in raising awareness regarding health issues (Lyson *et al.*, 2019). Gough *et al.* did a study with the aim to examine the effectiveness of social media platforms in health education and found that social media utilization leads to improvements in knowledge of health issues (Gough *et al.*, 2017). Ikpi and Undelikwo carried out a study to determine if social media usage correlates health behaviour of users and reported that social media use is significantly associated with health behaviour (Ikpi and Undelikwo, 2019). In the same manner,

Laranjo *et al.* did a study with the objective to determine how social media is linked to health behaviour (Laranjo *et al.*, 2015). Their results showed that social media interventions result to modifications in health behaviour of users. Onuora *et al.* conducted a study to determine the influence of YouTube animated cartoons on the health behaviour of social media users in Nigeria (Onuora *et al.*, 2021). The researchers paid particular attention to health behaviour related to COVID-19 and reported that exposure to health information on COVID-19 on social media significantly influences the health behaviour of social media users in Nigeria. Okpara *et al.* also reported that animated cartoons influence health behaviour related to COVID-19 but added that this relationship is moderated by cartoon colour (Okpara *et al.*, 2021). According to Okpara, the brighter the colour the more likelihood that such YouTube animated cartoons will influence health behaviour and vice versa.

From the studies above, it can be seen that social media platforms are now playing critical roles in healthcare delivery. However, previous studies as reflected above usually neglect issues such as health behaviour consistency, interruptions and discontinuation. It is one thing to adopt health behaviour but entirely another to sustain such behaviour. When people modify their health behaviour to avoiding contracting public health emergencies, they need to be consistent; however, we cannot assume that they will be consistent. There may be some interruptions or even outright discontinuation. However, previous studies appear to have ignored this aspect. This study filled this gap.

Health behaviour initiation, interruption, consistency and discontinuation

Over the years, interruption has been examined in literature (van Solingen *et al.*, 1998; ; Nicholas, 2016;) with a view to understanding how planned behaviour is disrupted. Marulanda-Carter and Jackson define interruption as ‘any distraction that makes a [person] stop their planned activity to respond to the interrupt’s initiator’ [(Marulanda-Carter and Jackson, 2012), p. 84]. It is noteworthy that most of these studies cited above on interruption link it to work than they do to health behaviour. But, the most important thing is that these studies acknowledged that behaviour can be interrupted. However, very little is known about health behaviour interruptions. Conner and Norman acknowledged that despite the benefits associated with health behaviour consistency, interruptions are likely to occur (Conner and Norman, 2017). The implication from the views of

Conner and Norman is that the health behaviour can be interrupted. However, the predictors of such interruptions are hardly investigated in literature.

Closely related to the issue of interruption is that of consistency. It is one thing to initiate health behaviour, it is completely another to be consistent with such behaviour. It is noteworthy to posit here that in situations where the benefit of taking health behaviour is dependent on off-performance such as immunization, then attention can be focused on initiation. However, in situations such as COVID-19 where health benefits are dependents on the consistency of health behaviour, then greater focus need to be on behaviour consistency. For example, a person may use facemask for 6 out of 7 days in a week but just that 1 day that he or she did not use a face mask might expose him or her to contracting COVID-19. The same thing is applicable to other health behaviour related to COVID-19 such as regular hand washing, physical distancing and use of hand sanitizers among others. Conner says that there is need to fully understand the factors that determine health behaviour sustenance so that health experts will be properly guided in their health promotion efforts (Conner, 2008). Conner and Norman add that knowledge of health behaviour consistency will reveal that the factors which drive people to engage in health behaviour may not be the same with those that drive them to be consistent with such behaviour (Conner and Norman, 2017). Rothman in a study reported that the satisfaction with the outcome of quitting smoking could be an essential consideration to sustain the behaviour, but it is not a determinant of behaviour initiation (Rothman, 2000). On the other hand, Bandura reported that self-efficacy may be a critical consideration for both health behaviour initiation and maintenance (Bandura, 2001). Schwarzer adds that this may, however, act in diverse ways (Schwarzer, 2008). The fundamental point to make here is that health behaviour consistency is key to combating COVID-19 because health benefits related to the virus are not dependent on one off performance. There are instances where health behaviour is discontinued.

Health behaviour discontinuation explains the stoppage of adopted health behaviour even when consistency is still required to gain the health benefits. It is a situation where people who had previously adopted health behaviour stop it even where they are still vulnerable to a health issue. For example, people may discontinue health behaviour related to COVID-19 even when the pandemic is still very much active. Literature on health behaviour discontinuation related to public health emergencies is scanty. It is even near none existence within the context of COVID-19. Parr carried out a study to

determine contraceptive discontinuation in Ghana (Parr, 2003). The researcher made use of Ghana's demographic health survey data of 1998 and reported that the amount of time for using contraceptive was generally short with particular attention to condom. Additionally, injectable contraceptives and periodic abstinence were used relatively longer than other contraceptive. Overall, the researcher reported contraceptive continuation among the population but did not examine the predictors of such discontinuation. Samosir *et al.* examined how information and communication technology is linked with contraceptive discontinuation in Indonesia and reported that the use of the Internet negatively impacts on contraceptive use because it predicts health behaviour discontinuation related to contraceptive (Samosir *et al.*, 2020). In particular, the researchers reported that ownership of a mobile phone and access to the Internet are linked to high contraceptive discontinuation. Although this study explains predictors of contraceptive discontinuation, attention was not paid to consistency as well as interruption. This is important because predictors of discontinuation may not necessarily be the same as those for discontinuation.

Health behaviour discontinuation has its risks because it makes those involved vulnerable to health issues. Generally, researchers (Bolton *et al.*, 2010; Bradley *et al.*, 2009) agree that health behaviour discontinuation has negative implication on health promotion. Sato *et al.* examined the consequences of health behaviour discontinuation within the context of contraceptive and found that up to 20.9% of women who discontinued contraceptive use experienced unwanted pregnancy (Sato *et al.*, 2020). This goes to show that health behaviour discontinuation exposes those who do it to health risks. Despite this, health behaviour discontinuation is hardly examined from the perspective of pandemics like COVID-19. Most of the studies available on health behaviour discontinuation focus on family planning and contraceptive with little or no attention paid to global pandemics.

Theoretical framework and hypotheses development

To develop the hypotheses for this study, we made use of the health belief model (HBM). We regarded HBM useful for the study because it provides explanations on why health information may be successful in changing health behaviour or not. The basic assumption of the model is to provide an explanation regarding the conditions that may lead to health message effectiveness and the condition which may hinder the effectiveness of such

messages. The motivation for the postulation of HBM (Health Belief Model) was when the Government of United States of America was confronted with the obstacle of implementing its healthcare delivery policies in 1950s. Government needed to know why its health campaigns were not recording the desired outcome. Consequent open this, three researchers viz: Irwin Rosenstock, Godfrey Hochbaum and Stephen Kegels conducted a study to provide an explanation regarding health behaviour (Burke, 2013). Based on the postulations of HBM, people do not just engage in health behaviour, rather behaviour change is determined by some psychological variables. These variables included perceived vulnerability perceived severity, benefit to taking action, cue taking action, barriers to taking action.

Perceived vulnerability describes the extent to which an individual thinks that he or she can be affected by an existing health issue. The primary question here is: 'can I contract the disease?' According to HBM, the answer to this question will determine the adoption of health behaviour by an individual. For this study, the main question will be if an individual thinks that he or she is vulnerable to COVID-19 or not. The second component of the model worth considering is perception regarding the severity of the public health issue. The main question is: 'Is the health issue serious?' According to HBM, perception concerning the seriousness or otherwise of the health issue will determine the health behaviour of persons (Scarinci *et al.*, 2012). The third variable in the model is benefits for taking action. This variable seeks to explain the health advantages that an individual seeks to derive from engaging in health behaviour. The question that this variable seeks to answer is: 'What health benefits await a person for adopting certain health behaviour?'

Another variable that has been considered in the model is barriers to taking action. It assumes that when people make up their minds to be engaged in certain health behaviour, they will very likely face challenges that will limit them from doing so. The argument of the theory is that low readiness to take action will result to higher possibility that the action will not be taken and vice versa. The fundamental question that this variable seeks to answer it: 'What stops a person from taking action?' Cue to action is the last variable. It explains the trigger to health behaviour (Jones *et al.*, 2015). Another variable that has been HBM is self-efficacy (Champion and Skinner, 2008). As a concept, self-efficacy explains the degree to which it is easy or cumbersome for a person to engage in health behaviour. The question here is, 'how difficult or easy is it for person to get engaged in health behaviour?' Onuora *et al.* in their recent study on

COVID-19 added the concept of perceived realness as an important determinant of health behaviour (Onuora *et al.*, 2021). According to the concept, people will more likely adopt health behaviour if they perceive a health issue as real than when they see it as fake. Gever *et al.* in a study suggested two other variables that predict health behaviour (Gever *et al.*, 2021). They are behaviour fatigue and behaviour discomfort. According to Gever *et al.* behaviour fatigue describes a situation where people are tired of observing health behaviour. They will just discontinue. The World Health Organization notes that behaviour fatigue is an essential component when discussing health behaviour related to COVID-19 (World Health Organization, 2020b). The second addition of Gever *et al.* is behaviour discomfort. It explains the discomfort that people go through in a bid to observe health behaviour. For example, the use of face-mask may be discomforting to some people while to others, it may be the social distancing, staying at home, regular hand washing or use of hand sanitizers. Based on the above, the researchers tested the following hypotheses:

H1: Perceived vulnerability, perceived seriousness, benefits to action, challenges to action, self-efficacy and cues to action will significantly predict COVID-19 health behaviour initiation among social media users in Nigeria.

H2: Perceived vulnerability, perceived seriousness, benefits to action, challenges to action, perceived realness and cue to action will significantly predict COVID-19 health behaviour interruption among social media users in Nigeria.

H3: Perceived vulnerability, perceived seriousness, benefits to action, perceived realness, self-efficacy and cues to action will significantly predict COVID-19 health behaviour consistency among social media users in Nigeria.

H4: Perceived vulnerability, perceived seriousness, perception on realness, challenges to action, self-efficacy, behaviour fatigue and behaviour discomfort will significantly predict COVID-19 health behaviour discontinuation among social media users in Nigeria.

METHODOLOGY

We made use of a descriptive survey research design to investigate predictors of health behaviour initiation, interruption, consistency and discontinuation among social media users in Nigeria. We considered descriptive survey research design appropriate for the study because it is often beneficial for studies that seek to explore,

explain or describe phenomenon. In this study, we sought to describe and explain the predictors of health behaviour initiation, interruption, consistency or discontinuation among social media users in Nigeria. The study was conducted in Nigeria with a total of 24 million social media users (Pulse, 2019). To determine the adequacy of the sample size, we did a priori power analysis using the G*power programme (Faul *et al.*, 2007). We subsequently checked the parameters with power $(1 - \beta)$ at 0.90, 0.30 effect size f , and $\alpha = 0.05$. Our result of the priori power analysis point to the fact that a total sample size of 470 participants was required to detect statistical differences at 0.05 level of confidence. Therefore, the sample size for this study is 470 social media users. It is important to clarify here that a priori power analysis was needed to reduce errors and increase the accuracy of the sample size with the possibility of enhancing the validity of the conclusion drawn (Onuora *et al.*, 2021).

The sampling technique that we utilized in this study was the respondent-driven sampling (RDS) chain referrals (Johnston *et al.*, 2008; Okpara *et al.*, 2021). We decided to apply this sampling technique because it is capable of ensuring that inclusion into the sample was open to as many social media users in Nigeria as possible. Usually, RDS is initiated by first sampling initial participants known as 'seeds'. We sampled the seeds in this study through social media announcements that were pasted on the social media handles of the research team. The 'seeds' in this study were required to be social media users who have at least one active account with a social media platform. The seeds were also expected to be utilizing social media for at least 1 h in 12 h. The earlier seeds then recruited subsequent participants by forwarding the research link to them. We continued with this process until we were able to get the number of respondents for the study.

The instrument for data collection was an online questionnaire that was designed and sent to the respondents. We regarded the questionnaire as a sufficient instrument for data collection because it has the proclivity to generate large amount of data. We designed the questionnaire using the Likert scale response format such as strongly agree to strongly (4) disagree (1). To ensure that only the respondents who were social media users took part in the study, we had an introductory question in the questionnaire that sought to determine if the respondents were active social media users. Only those who responded in the affirmative were able to respond to the instrument. Overall, the instrument had four segments. The health behaviour which were examined in this study were: use of face mask; regular hand washing,

social distancing, use of hand sanitizers, avoiding hand shake and staying at home. A total of three experts; one from measurement and evaluation, one from mass communication and one from information science all from the University of Nigeria, Nsukka validated the instrument. In their assessment, the experts looked at the clarity of the items contained on the instrument, their appropriateness as well as logicality. We made use of their comments and observations to produce a final version of the instrument. We then took another step by examining the reliability of the instrument. To achieve this, we administered 40 copies of the instrument to selected respondents in a pilot study. The outcome of the pilot study showed that the instrument was reliable as evidence in the Cronbach alpha values presented in [Table 1](#). All the Cronbach alpha values were above 0.7, which Olijó ([Olijó, 2020](#)) and Ale ([Ale, 2020](#)) consider as excellent.

Measurement of the study model

To enable us measure our model, we took into consideration two things; convergent validity and discriminant validity. We determined the convergent validity by screening the indicator loading and the figures were found to be well-above the benchmark of 0.7 ([Hair *et al.*, 2019](#)). Also, the average variance extracted (AVE) figures for the study were more than 0.5. Furthermore, the composite reliability (CR) values were above the benchmark of 0.7 benchmark ([Hair *et al.*, 2017](#)). Based on these values, the convergent validity for the study was acceptable. We then took another step by examining the discriminant validity for the study and the result as presented in [Table 2](#) revealed that each construct AVE's square roots were above their correlations with other constructs ([Fornell and Larcker, 1981](#)). The implication is that our discriminant validity was within the acceptable range. Based on these, we conclude that our model's psychometric properties were excellent.

Data analysis

To analyse the data that were collected in this study, we combined both descriptive and inferential statistics. The descriptive statistics that were utilized in this study included simple percentages, mean and SD. The inferential statistics that was used in this study was the structural equation modeling. Specifically, we made use of partial least squares (Smart PLS 3.3.2) to analyse the data for the study. To determine the path of the study model, we utilized bootstrap re-sampling using 5000 samples and tested the hypotheses at 0.05 level of significance.

RESULTS

We were able to secure the required sample size of 470 participants. This is because up to 470 social media users in Nigeria filled the online survey and submitted. The high response rate was because the link was well circulated among social media users in Nigeria. The sample was 55% male and 45% female. The mean age of the respondents was 22 years. Concerning educational background, majority (69%) had tertiary education. The average number of hours of social media use in 12 h was 2 h. Below is the result of the study hypotheses:

The essence of figure one above was to determine predictors of COVID-19 health behaviour initiation among social media users in Nigeria. The result showed that all but barriers to action significantly predict COVID-19 health behaviour initiation among the sample examined. The implication of the result is that when social media users perceive COVID-19 as a serious health threat to which they are vulnerable, they will ensure that barriers do not stop them from initiating health behaviour for which they perceive that such behaviour comes with health benefits. Further analysis showed that the predictive relevance (Q^2); $Q^2 = 0.841$, was high. The implication is that the model was 84.1% relevant. In addition, the coefficient of determination (R^2) was found to be 0.781, an indication that the total amount of variance explained by the model is 78.1%.

The figure above showed the predictors of COVID-19 health behaviour interruption among social media users in Nigeria. It was found that perceived seriousness, perceived vulnerability, benefit of taking action, perceived realness of COVID-19 and barriers of taking action significantly predict COVID-19 health behaviour interruption among the sample examined. Overall, it was found that the predictive relevance (Q^2); $Q^2 = 0.751$, was high. The implication is that the model was 74.1% relevant. Further analysis also showed that the coefficient of determination (R^2) was found to be 0.712, an indication that our model explained 71.2% variance.

In the figure above, the researchers determined the predictors of COVID-19 health behaviour consistency among social media users in Nigeria. It was found that variables like perceived seriousness, perceived vulnerability, perceived benefit of taking action, barriers to action, cue to action and perceived realness of COVID-19 significantly predict health behaviour consistency. It was also found that the predictive usefulness was high; $Q^2 = 0.811$ (81.1% usefulness). The analysis equally also showed coefficient of determination (R^2) was 0.701. This means that the model explained 70.1% variance.

Table 1: Convergent validity

Constructs	Code	Items	Outer loading	Chronbach alpha	CR	AVE	M	SD		
Initiation	INIT1	My perception on my vulnerability to COVID-19 will make me to start using face mask, hand sanitizers, practice staying at home, social distancing, regular hand washing and avoiding handshake	0.80	0.76	0.91	0.72	3.0	0.91		
	INIT2	My perception on the seriousness of COVID-19 will make me to start using face mask, hand sanitizers, practice staying at home, social distancing, regular hand washing and avoiding handshake	0.75						3.2	0.60
	INIT3	My perception on the benefit of using face mask, hand sanitizers, practicing staying at home, social distancing, regular hand washing and avoiding handshake will make me to start engaging in such behaviour	0.85						3.4	0.96
	INIT4	The challenges (barriers to action) of using face mask, hand sanitizers, practicing staying at home, social distancing, regular hand washing and avoiding handshake will determine if I can engage in such behaviour	0.75						3.3	0.77
	INIT5	Messages from social media on COVID-19 will prompt me to use face mask, hand sanitizers, practice staying at home, social distancing, regular hand washing and avoiding handshake	0.82						3.2	0.76
	INIT6	My decision to use face mask, hand sanitizers, practice staying at home, social distancing, regular hand washing and avoiding handshake will be determined by my ability (self-efficacy) to engage in such behaviour	0.81						3.3	0.82
Interruption	IRU1	My perception on my vulnerability to COVID-19 will interrupts my continuous use of face mask, hand sanitizers, practicing staying at home, social distancing, regular hand washing and avoiding handshake	0.81	0.79	0.90	0.77	3.2	0.64		
	IRU2	My perception on the seriousness of COVID-19 will interrupt my use of face mask, hand sanitizers, practicing staying at home, social distancing, regular hand washing and avoiding handshake	0.78						3.1	0.68
	IRU3	My perception on the benefit of using face mask, hand sanitizers, practicing staying at home, social distancing, regular hand washing and avoiding handshake will interrupt my engagement in such behaviour	0.77						3.3	0.56

(continued)

Table 1: (Continued)

Constructs	Code	Items	Outer loading	Chronbach alpha	CR	AVE	M	SD
	IRU4	The challenges (barriers to action) of using face mask, hand sanitizers, practicing staying at home, social distancing, regular hand washing and avoiding handshake will interrupt my engagement in such behaviour	0.79				3.5	0.78
	IRU5	Messages from social media on COVID-19 will interrupt my use of face mask, hand sanitizers, practicing staying at home, social distancing, regular hand washing and avoiding handshake	0.80				3.0	0.79
	IRU6	My perception on the realness of COVID-19 will interrupt my use of face mask, hand sanitizers, practicing staying at home, social distancing, regular hand washing and avoiding handshake	0.87				3.6	0.86
Consistency	CON1	My perception on my vulnerability to COVID-19 will make me to be consistent in using face mask, hand sanitizers, practice staying at home, social distancing, regular hand washing and avoiding handshake	0.76	0.77	0.89	0.76	3.2	0.89
	CON2	My perception on the seriousness of COVID-19 will make me to be consistent in using face mask, hand sanitizers, practice staying at home, social distancing, regular hand washing and avoiding handshake	0.72				3.1	0.85
	CON3	My perception on the benefit of using face mask, hand sanitizers, practicing staying at home, social distancing, regular hand washing and avoiding handshake will make me to be consistent in engaging in such behaviour	0.75				3.1	0.62
	CON4	My perception on the realness of COVID-19 will make me to be consistent in using face mask, hand sanitizers, practicing staying at home, social distancing, regular hand washing and avoiding handshake makes me to be consistent in engaging in such behaviour	0.76				3.2	0.56
	CON5	Messages from social media on COVID-19 will make me to be consistent in using face mask, hand sanitizers, practice staying at home, social distancing, regular hand washing and avoiding handshake	0.82				3.3	0.78
	CON6	My decision to be consistent in using face mask, hand sanitizers, practicing staying at home, social distancing, regular hand washing and avoiding handshake will be	0.84				3.2	0.78

(continued)

Table 1: (Continued)

Constructs	Code	Items	Outer loading	Chronbach alpha	CR	AVE	M	SD
Discontinuation	DIS1	determined by my ability (self-efficacy) to engage in such behaviour My perception on my vulnerability to COVID-19 will make me to stop I using face mask, hand sanitizers, practicing staying at home, social distancing, regular hand washing and avoiding handshake	0.79	0.79	0.82	0.75	3.2	0.89
	DIS2	My perception on the seriousness of COVID-19 will make me to stop using face mask, hand sanitizers, practicing staying at home, social distancing, regular hand washing and avoiding handshake	0.77				3.1	0.85
	DIS3	My perception on the realness of COVID-19 will make me to stop using face mask, hand sanitizers, practicing staying at home, social distancing, regular hand washing and avoiding handshake	0.75				3.2	0.56
	DIS4	My decision to stop using face mask, hand sanitizers, practicing staying at home, social distancing, regular hand washing and avoiding handshake will be determined by my ability (self-efficacy) to engage in such behaviour.	0.88				3.2	0.78
	DIS5	I will stop using face mask, hand sanitizers, practicing staying at home, social distancing, regular hand washing and avoiding handshake when I am tired (behaviour fatigue)	0.87				3.0	0.67
	DIS6	I will stop using face mask, hand sanitizers, practicing staying at home, social distancing, regular hand washing and avoiding handshake when if am not comfortable in carrying out such behaviour (behaviour discomfort)	0.79				3.1	0.72

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

S/no.	Constructs	1	2	3	4	5	6	7	8	9	10	11	12	13
1	Perceived vulnerability	0.83												
2	Perceived severity	0.67	0.75											
3	Barriers to action	0.54	0.52	0.72										
4	Benefits to action	0.65	0.65	0.52	0.75									
5	Self-efficacy	0.64	0.65	0.65	0.64	0.78								
6	Cue to action	0.39	0.43	0.45	0.56	0.46	0.82							
7	Behaviour fatigue	0.40	0.19	0.45	0.22	0.14	0.33	0.76						
8	Behaviour discomfort	0.61	0.55	0.53	0.35	0.54	0.33	0.52	0.75					
9	Realness	0.26	0.19	0.43	0.56	0.44	0.45	0.37	0.40	0.77				
10	Initiation	0.56	0.42	0.18	0.37	0.56	0.45	0.33	0.39	0.54	0.76			
11	interruption	0.31	0.19	0.32	0.23	0.32	0.45	0.33	0.52	0.65	0.23	0.83		
12	consistency	0.29	0.49	0.31	0.56	0.32	0.64	0.46	0.23	0.16	0.43	0.13	0.75	
13	Discontinuation	0.53	0.28	0.29	0.45	0.32	0.46	0.54	0.50	0.46	0.27	0.23	0.52	0.75

The bold represents discriminant validity value.

Figure four above presents result of analysis on predictors of COVID-19 health behaviour discontinuation among social media users in Nigeria. It was found that only benefit to action and barriers to action did not predict behaviour discontinuation. However, perceived vulnerability, severity, realness behaviour fatigue and discomfort did. Additional analysis showed that the predictive usefulness was high; $Q2 = 0.771$ (77.1% usefulness). The analysis equally also showed coefficient of determination (R^2) was 0.792. This means that the model explained 79.2% variance. Based on the results in Figures 1–4, a model for health behaviour initiation, interruption, consistency and discontinuation is presented in figure five below:

From the figure above, it can be said that the predictors of COVID-19 health behaviour initiation include: perceived vulnerability, perceived seriousness, benefits to action, self-efficacy and cues to action. On the other hand, the predictors of health interruption are: perceived vulnerability, perceived seriousness, benefits to action, challenges to action and perceived realness. The predictors of health behaviour consistency are: perceived vulnerability, perceived seriousness, benefits to action, perceived realness, self-efficacy and cues to action. Finally, the predictors of health behaviour discontinuation are: perceived vulnerability, perceived seriousness, perception on realness, behaviour fatigue and behaviour discomfort.

DISCUSSION OF FINDINGS

In this study, the researchers attempted to develop a model that explains COVID-19 health behaviour initiation, interruption, consistency as well as discontinuation. Variables from health belief model were used to determine how they contributed to the model. These variables included perceived vulnerability, perceived seriousness, benefit to taking action, and barriers to taking action, cue to taking action as well as self-efficacy. Additional variables were adopted from the studies of Onuora *et al.* (Onuora *et al.*, 2021), Gever *et al.* (Gever *et al.*, 2021) and Okpara *et al.* (Okpara *et al.*, 2021). Therefore, from the study of Gever *et al.* we adopted behaviour fatigue and behaviour discomfort. From the study of Onuora *et al.* we adopted the concept of perceived realness.

The result of the study showed that predictors of health behaviour initiation were different from those for health behaviour interruption, consistency and discontinuation. For example, five variables (perceived vulnerability, perceived seriousness, benefits to action, self-

efficacy and cues to action) predict health behaviour initiation and another five (perceived vulnerability, perceived seriousness, benefits to action, challenges to action and perceived realness) predict health behaviour interruption. However, in the case of health behaviour interruption, perceived realness was found to be an important consideration. Additionally, six determinants (perceived vulnerability, perceived seriousness, benefits to action, perceived realness, self-efficacy and cues to action) predict health behaviour consistency. And another five (perceived vulnerability, perceived seriousness, perception on realness, behaviour fatigue and behaviour discomfort) predict health behaviour discontinuation.

It is essential to point out here that perceived severity and perceived vulnerability appear to cut across initiation, interruption consistency and discontinuation. But an interesting aspect of the finding is that perceived realness also predict interruption, consistency, and discontinuation. This implies that health promoters may have to package health messages in manners that truly convince the target receivers that the health condition talked about actually exists. This is particularly important because perceived realness contributes in predicting health behaviour interruption consistent and discontinuation.

This study has extended previous ones (Laranjo *et al.*, 2015; Gough *et al.*, 2017; Ikpi and Undelikwo 2019; Lyson *et al.*, 2019; Okpara *et al.*, 2021) on health behaviour by combining initiation, interruption, consistency and discontinuation. This is an aspect that has not been significantly considered in extant literature. Even Gever *et al.* who in a recent study examined health behaviour adoption, sustenance and discontinuation did not take into account the issue of interruption (Even Gever *et al.*, 2020). This is important because in the views of Conner and Norman (Conner and Norman, 2017) health behaviour where the benefit is not dependent on one off performance, then consistency is the way to go. Any interruption in such behaviour may make lead to a loss in the gains achieved. Therefore, by adding interruption and consistency in the current study, the researchers have provided fresh data that may be useful in shaping future debates on health promotion and health behaviour.

CONCLUSION/RECOMMENDATIONS FOR FUTURE STUDIES

Based on the result of this study, it is concluded that health behaviour initiation, interruption, consistency and discontinuation are essential in the success of health campaigns. Therefore, knowledge of variables that drive

these stages of health behaviour is important. This study has contributed to existing literature on health behaviour by suggesting a model that provides information from the initiation to discontinuation of health behaviour related to a pandemic. Furthermore, the study has contributed to our understanding of health belief model by showing how its variables explain variations in the initiation and stoppage of health behaviour with particular reference to social media users in a developing country like Nigeria. This information may prove useful for planning and implementing policies in the health sector. One of the limitations of the current study is that the moderating role of social media use in modeling the predictors of health behaviour initiation, interruption consistency and discontinuation among social media users was not examined. It is recommended that further studies should look at this aspect. Additionally, the current study did not examine health behaviour comprehensiveness or what can be called health behaviour completeness. It is recommended that further researchers should look at this limitation too.

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