

Post-covid preventive practices: The role of health consciousness and health locus of control among a generation-z cohort

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Abstract

Post-Covid susceptibilities are still imminent among the unvaccinated majority in sub-Saharan Africa. This increases the importance of adherence to preventive practices among its populace. This study examined post-Covid preventive practices (PCPP) among a cohort of Generation-Z (Gen-Z) students in the University of Lagos; and how these are influenced by health consciousness and health locus of control. The study adopted a cross-sectional survey in which data was obtained from students who were residents in hostels within the premises of the University. A sample size of 360 students was obtained and selected via multistage sampling techniques. Data was obtained from the participants via a structured questionnaire made up of standardized scales. Results showed a significant differences in PCPP between Gen-Zs who exhibited high levels of health consciousness and their counterparts who exhibited low levels of health consciousness at $[t(248)=8.578; p<.05]$. Health locus of control significantly accounted for about 13.8% of the variance in PCPP $[F_{(3, 242)}=12.926; p<.05]$ with only the internal dimension of health locus of control ($\beta=.342; p<.05$) being a significant positive independent predictor of PCPP among students. Male students reported lower mean levels of PCPP ($\bar{x}=45.89$) while female students reported higher mean levels of PCPP ($\bar{x}=49.90$). Based on the results obtained, there is need for the school management to pay attention to health education as both a curricular and extracurricular activity to enhance health consciousness and internal locus of control, especially among male students in order to improve the application and adherence of Covid preventive practices.

Keywords: Gen-Z, Covid-19, Health Consciousness, Locus of Control

1. Introduction

The Corona Virus pandemic was caused by a viral acute respiratory infection known as SARS-COV2. During the pandemic, several health crisis and socio-economic implications were experienced globally. The world, as it was known, was threatened even though continuous efforts were made concurrently to mitigate the effects of the pandemic (Ayouni et al., 2021). While humanity can acknowledge the efforts of scientists and researchers in mitigating the scourge of the pandemic and stemming the alarming rate of the spread, Covid-19 had a lasting impact on economies and livelihoods across the world, with a persisting burden of morbidity and mortality (Olalekan, et al., 2021). By July 2022, the cases and death toll from Covid-19 were above 12 million, with more than 250,000 in Africa (Wachira et al., 2022). Currently, there are several approved vaccines that have been made available to prevent the spread rates of Covid-19 morbidity and mortality; but the African continent still lags behind in its vaccination rate as less than 20% can be said to have received the vaccine. This is a significant contrast when compared to an average vaccination rate of 66.8% across many Western economies across the globe (Moore et al., 2022). This implies that post-Covid challenges are still imminent among the unvaccinated majority in sub-Saharan Africa, especially among the Generation-Z age cohort. A Generation-Z age cohort as described by Pew research center (2019) includes children born between the years 1997-2012. This post-Covid challenge is validated by the fragility of a health system that has been marred by poverty and other illnesses which have proven endemic to the society, and further lead to an exacerbation of the negative effects of the pandemic in the continent. This cohort has grown into an economic and cultural force that is difficult to ignore.

This concern has increased scholarly attention towards the perception of Covid-19 among communities, as well as the preventive health practices which are deemed significant as mitigating considerations for reducing contraction and transmission of the virus. The World Health Organization, alongside other health institutions in Africa, is now putting issues of preventive practices at the front burner of scholarly discourse. Preventive practices for the post-Covid era involve a set of health-prioritized guidelines which individuals and community members as a whole should adhere to in order to prevent the transmission of the virus (WHO, 2020). Most of the post-Covid preventive practices are offshoots of health practices that were promoted through awareness campaigns during the peak of the pandemic. Some studies have

however revealed that a low adherence rate to some of these guidelines is reported among cohorts of youthful and adult populations, even though their knowledge levels of preventive health guidelines against the virus are high (Bedewi et al., 2023). There is thus a need to look beyond knowledge levels of preventive guidelines and pay attention to factors that enhance practice levels. The fight against Covid-19 pandemic and other similar outbreaks should be spurred on by prioritizing the allocation of resources to campaigns that enhance preventive health practices in society. This study, therefore, focuses on the role of health locus of control and health consciousness on post-Covid-19 preventive practices among a Generation-Z cohort.

Health locus of control refers to an individual's belief about the extent to which they have control over their health outcomes (Pourhoseinzadeh et al., 2017). Individuals with an internal health locus of control believe that their actions and decisions can have a significant impact on their health outcomes, while those with an external health locus of control believe that their health is primarily determined by external factors such as chance, fate, or the actions of others. Research has suggested that variances in the health locus of control among individuals are likely to influence health-promoting behaviors and adherence levels to preventive measures (Ganjoo et al., 2021). In the context of Covid-19, individuals with a stronger internal health locus of control may be more likely to engage in preventive practices such as wearing masks, practicing social distancing, and getting vaccinated. However, it is important to note that many factors influence individuals' adherence to Covid-19 preventive practices: these include social norms, access to resources and information, and individual risk perception (Itani & Hollebeek, 2021). Therefore, while health locus of control may be one factor that influences individuals' engagement in Covid-19 preventive practices, it is unlikely to be the sole determinant; some level of health consciousness may be implicated in categorizing one's health locus of control.

Health consciousness refers to awareness and concern for one's own health and well-being (Čvirik, 2021). It involves taking a proactive approach to maintain good health through healthy lifestyle choices, such as regular exercise, a balanced diet, getting enough sleep, reducing stress, and avoiding harmful habits such as smoking and excessive drinking (Pu et al., 2020). People who are health conscious tend to be more informed about health issues and take steps to prevent

illness and disease. This may include getting regular check-ups with a healthcare provider, monitoring their own health metrics such as blood pressure and cholesterol levels, and seeking medical attention promptly when symptoms arise (Janetius, 2020). Being health conscious can have a positive impact on both physical and mental health. It can help prevent chronic diseases such as heart disease, diabetes, and certain cancers, and can also improve mood, energy levels, and overall quality of life. In relation to Covid-19 preventive practices, it is logically assumed that individuals who exhibit high levels of health consciousness would be more proactive, compliant, and adherent to health-related guidelines that prevent the contraction, transmission, and spread of the virus.

2. Literature Review

Theoretical Framework

Efforts of various professionals in the social sciences and public health disciplines have been significant in proposing numerous models and theories that provide explanations of the different factors that are implicated in the health of individuals within the society. The Health Belief Model is one of such models which has gained international reputation and can be applied across several disciplines. The proponent of the model, Rosenstock (1974) conceptualized a framework which could guide the behaviours of individuals within the society towards maintaining a healthy status through informed decision-making and practices. The health belief model encapsulates the theoretical linkages that bind health consciousness and health locus of control with post-Covid-19 preventive practices. The Health Belief Model (HBM) hypothesizes that health-related behavior depends on the combination of several factors, namely, *perceived susceptibility* (an individual's belief in the threat of sickness or disease), *perceived severity* (an individual's interpretation of the consequences of a disease), *perceived benefits* (an individual's belief in the merits of a health behaviour), *perceived barriers* (an appraisal of obstacles that must be overcome in practicing a health behaviour), *cues to action* (an appraisal of factors that may facilitate practicing a health behaviour), and *self-efficacy* (an individual's confidence in their ability to practice and maintain the health behaviour).

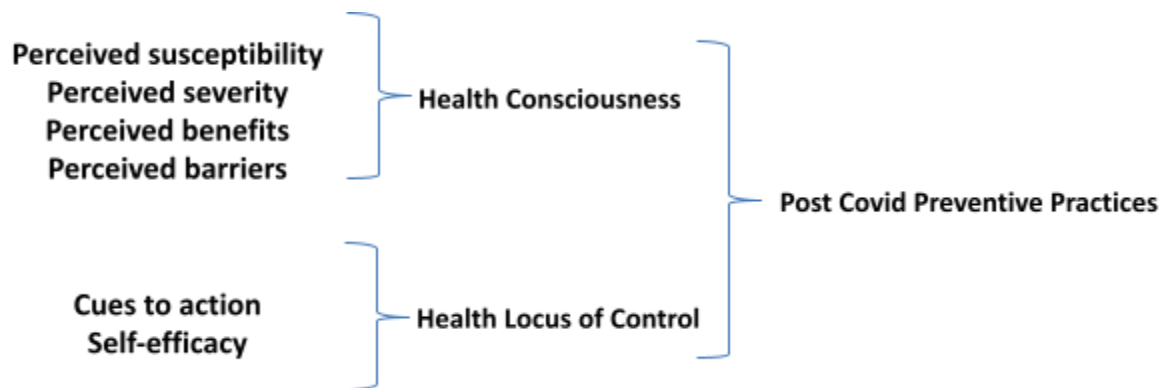


Figure 1: Theoretical Model

The Health Belief Model can be used to guide health promotion and disease prevention programmes. It is used to explain and predict individual changes in health behaviours, and it has remained one of the most widely used models for understanding health behaviours. In relation to the variables in this study, figure 1 provides an illustration of the applicability of the health model as an adequate theoretical framework. From the illustration above it can be logically implied that the perception of susceptibility, severity, benefits and barriers are shaped by the level of health consciousness that an individual exhibits, while the factors that determine one's actions and abilities to act may be shaped by the health locus of control. It is therefore expected that the combination of health consciousness and health locus of control may influence one's level of practice and adherence to guidelines that prevent the contraction, transmission and spread of the Covid-19 virus (Adejumo & Fatokun, 2017). The model's ability to explain and predict a variety of behaviours associated with positive health outcomes has been successfully investigated several times (Abraham & Sheeran, 2015). The model has also been used to develop many successful health communication interventions by framing messages to the HBM variables to change health behaviours (Shmueli, 2021). The ability of each component of the HBM in predicting a variety of health behaviors is quite different.

Empirical Review of Studies

In a study by Čvirik (2021), variances of health consciousness was evaluated during the initial wave of the corona virus epidemic and the wave of the virus' mutant version. The study was

conducted to coincide with the emergence of measures to mitigate the contraction and spread of the virus. The specific objective was to compare levels of health consciousness in line with the WHO health guidelines provided for the public during the epidemic in Hungary and Slovakia. Data for the two-phased study, the initial wave and the mutant wave of the virus, was obtained via online surveys. The use of one-way ANOVA and regression models to highlight existing relationships and the predictive influence of related time variables produced findings that suggested that variances in health consciousness and preventive practices were accounted for by the acuteness and time of health risks during the periods. Similar results were obtained by Pu et al., (2020) and Espinosa et al. (2018). The results are a fair reflection of the Health Belief Model which proposes that the period of perceived susceptibility to a disease is a major driver of health awareness and preventive practices.

Hi: Post-Covid preventive practices will significantly differ across health consciousness levels among a Gen-Z cohort of UNILAG students

In a study by Bianchi et al. (2022), the preventive practices against Covid-19 as exhibited by young adults was explored with the aim of unearthing the roles of pandemic fear and health locus of control among the target population. The sample comprised young adults in Italy from who relevant data were collected via online surveys. The survey was designed in line with the study objectives and made up of standardized scales used for measuring the study variables. Three dimensions of health locus of control and two dimensions of pandemic fear were assessed in relation to preventive health practices. Results showed that pandemic fear emerged as a significant moderator in the predictive role of health locus of control on preventive health practices. In similar fashion, Itani and Hollebeek (2021) showed that customers' adoption of social distancing measures during the covid pandemic varied across the dimensions of health locus of control. The results as obtained through a web-based survey and structural equation modeling showed that customers with high internal locus of control adopted social distancing behaviours as opposed to their counterparts with high external locus of control.

Hi: Dimensions of health locus of control will jointly and independently predict post-Covid preventive practices among a Gen-Z cohort of UNILAG students

Demographic factors have also been identified as being relevant in the variance of preventive health practices for Covid-19. For instance, Okoroiwu et al. (2022) found that gender, level of education, monthly income and religion were predictors of hand sanitizer use. Another cross-sectional survey was that conducted by Sibiya et al. (2023) in which gender differences in preventive health practices was reviewed. The study was conducted among students and faculty of a selected university in South Africa. Results obtained from the analysis showed that female participants exhibited higher preventive practice levels than their male counterparts. Marital status also yielded significant variance in preventive health practice among the participants. Furthermore, Glasso et al.'s (2020) examination of differences in gender perceptions of health beliefs and practices across eight Organisation for Economic Co-operation and Development (OECD) countries during the coronavirus pandemic showed that female gender perceived the virus to be a major threat to humanity than the male gender. Thus, adherence to preventive health practices was higher among women than men.

Hi: There will be significant gender differences in the post-Covid preventive practices among a Gen-Z cohort of UNILAG students

3. Methods

Design and Participants

The study adopted a cross-sectional survey in which data was obtained from students who were residents in hostels within the premises of the University of Lagos. A sample size of 360 students was obtained via the Slovin sample size determination formula. Participants for the sample were selected via multistage sampling techniques which included gender stratification of the hostels; random selection of 2 male and 2 female hostels from each stratum; purposive sampling based on students' availability and consent to participate in the study. Equal number of participants was drawn from each of the selected hostels. The mean age of the participant was 21.6 years

with a standard deviation of 2.4. Data was obtained from the participants via a structured questionnaire made up of standardized scales.

Measures

A structured questionnaire was used to collect data from the study population. The questionnaire comprised three standardized scales. The measure for post-Covid preventive practices was developed by the researchers based on the WHO guidelines and recommendations for preventing contraction and transmission. The 14-item scale was made up of statements that reflect preventive practices across several health related domains. Responses were rated on a five-point Likert rating scale ranging from 'strongly agree' to 'strongly disagree'. Results from an initial pilot study produced a reliability coefficient of 0.76.

Respondents also answered questions from the *Health Consciousness Scale* (HCS; Gould, 1988), a 9-item self-report global measure of one's health awareness. Sample items include "I reflect about my health a lot" and "I am alert to changes in my health." Items are presented on a 7-point Likert rating scale (1 = Strongly Disagree to 7 = Strongly Agree). The scale has been validated in studies using international samples (Gould, 1990; Bearden et al., 2011; Mesanovic et al., 2013). In this study, a reliability coefficient of .82 was obtained for the scale.

Health locus of control was measured using Wallston et al.'s (1978) 18-item Multidimensional *Health Locus of Control Scale* (MHLC) which was developed for use in a *healthy* population. It assesses a person's beliefs regarding whether his or her health status is determined by the actions of individuals (as opposed to fate, luck, or chance) and, if so, whether the locus of that control is "internal" (i.e., residing in the person's own actions) or "external" (i.e., dependent on the actions of other people). Each item is scored on Likert-type, scale from 1 (Strongly Disagree) to 5 (Strongly Agree). In this study, reliability coefficients ranging from 0.71 – 0.79 was obtained across the three dimensions of the scale.

Data Analysis

Data obtained from the survey were subjected to quantitative analysis which included a process of data cleaning and data coding. Inferential statistics such as t-test and multiple regression were used to test the hypotheses of the study.

Hypothesis Testing

Table 1: t-test analysis for Health consciousness and Post-Covid preventive practices

	Health Consciousness	N	Mean	S.D	df	t	Sig	η
Covid-19 Preventive Practices	High	146	51.2956	8.42131				
					358	8.578	.002	1.128
	Low	214	42.3516	6.99106				

Table 1 presents the summary of t-test analysis showing differences in post-Covid preventive practices across health consciousness of a selected Generation-Z cohort from the University of Lagos. Results from the table show that there is a significant difference in post-Covid preventive practices between Gen-Zs who exhibited high levels of health consciousness and their counterparts who exhibited low levels of health consciousness [$t(358)=8.578$; $p<.05$]. The former reported higher mean levels of post-Covid preventive practices ($\bar{x}=51.29$) while the latter reported lower mean levels of post-Covid preventive practices ($\bar{x}=42.35$). The effect size by which health consciousness influenced post-Covid preventive practices was very high as demonstrated by Cohen's d-point estimate of 1.128. The hypothesis stated was therefore supported.

Table 2: Multiple regression analysis for Health Locus of Control and Post-Covid preventive practices

	R	R ²	F	Sig	B	t	Sig
Internal					.342	5.664	.000
External	.372	.138	12.926	.000	.114	1.753	.081
Chance					-.035	-.539	.590

Dependent Variable: Covid19 Preventive Practices

Table 2 presents the summary of multiple regression analysis showing the influence of health locus of control on post-Covid preventive practices among a Generation-Z cohort from the University of Lagos. Results from the table show that health locus of control significantly accounted for about 13.8% of the variance in post-Covid preventive practices [$F_{(3, 355)}=12.926$; $p<.05$]. Furthermore, only internal dimension of health locus of control ($\beta=.342$; $p<.05$) emerged a significant positive predictor of post-Covid preventive practices among students while external ($\beta=.114$; $p>.05$) and chance ($\beta=-.035$; $p>.05$) dimensions did not predict post-Covid preventive practices. The results imply that students who acknowledge that their health status is within their own control are more likely to adhere to post-Covid preventive practices. The hypothesis stated is, therefore, supported based on the composite influence of health locus of control and independent influence of its internal dimension on post-Covid preventive practices.

Table 3: T-test analysis for Gender and Post-Covid preventive practices

	Gender	N	Mean	S.D	df	t	Sig	η
Covid-19 Preventive Practices	Male	180	45.8947	9.21942				
					358	-3.588	.034	-0.455
	Female	180	49.9051	8.46609				

Table 3 presents the summary of t-test analysis showing differences in post-Covid preventive practices across gender of a selected Generation-Z cohort from the University of Lagos. Results from the table show that there is a significant difference in post-Covid preventive practices between male and female students [$t(249)=-3.588$; $p<.05$]. The former reported lower mean levels of post-Covid preventive practices ($\bar{x}=45.89$) while the latter reported higher mean levels of post-Covid preventive practices ($\bar{x}=49.90$). The effect size by which gender influenced post-Covid preventive practices was moderately high as demonstrated by a Cohen's d point estimate of -0.45. The hypothesis stated was therefore supported.

4. Discussion of Findings

The first hypothesis was supported by the study findings which showed that highly health conscious students were found to adhere more to Covid preventive practices. In justifying the

study outcomes which show that high levels of health consciousness play a critical role in preventing the spread of Covid-19, it is logically assumed and theoretically confirmed that being conscious of one's health increases the propensity to adopt measures to protect oneself and others from the virus. This is borne out of a greater awareness of the health risks associated with Covid-19 and which motivates health conscious persons to pay more attention to guidelines and recommendations from public health officials. The likelihood of being more compliant with Covid-19 preventive measures is also associated with health consciousness. Moreover, being highly health conscious has an implication on the lifestyle choices of individuals who are more likely to engage in healthy lifestyle practices such as exercising regularly, eating a balanced diet, and getting enough sleep. These practices can boost overall health and strengthen the immune system, making individuals more resistance to Covid-19. Another plausibility that may facilitate adherence to Covid-19 preventive practices among highly health conscious persons is their status as role models to other peers who are able to imbibe such conscious levels and adopt more preventive measures. The results obtained are also supported by Čvirik (2021) who found a close connection between health consciousness and Covid-19 prevention.

From testing the second hypothesis, it was found that External and Chance domains of health locus of control were not significant predictors of post-Covid preventive practices; however, internal health locus of control significantly predicted post-Covid preventive practices among the Gen-Z cohort. The plausibility of this outcome lies in the association of internal health locus of control with a sense of empowerment and self-efficacy. Students who believe that they have control over their health are more likely to engage in preventive behaviours, such as wearing masks, social distancing, and hand washing to protect themselves from Covid-19. They are also more likely to seek out information about the virus and take steps to protect themselves and their loved ones. The desire and ease to seek information is a major feature of the Gen-Z populace who are well advanced in their understanding and use of ICT. Such students are also less likely to be influenced by external factors, such as peer pressure or misinformation, when making decisions about their health. They are more likely to rely on their own judgment and beliefs about what is best for their health, even in the face of conflicting information. Furthermore, acknowledging personal control over one's health reduces the chances of learned helplessness as a reaction for health challenges. Thus, students who believe they have control over their health

are less likely to feel helpless or hopeless in the face of a pandemic, and are more likely to take proactive steps to protect themselves. In support of the assertions made above, several studies have established that internal health locus of control is a significant predictor of health behaviours and outcomes across a range of populations and health conditions, including infectious diseases like Covid-19. For instance, Itani and Hollebeek (2021) found that consumers' internal health locus-of-control drives greater social distancing behaviour.

Outcomes of the third hypothesis showed that female students reported higher post-Covid preventive practices than their male counterparts. The justification of this outcome could stem from the perception of gender social norms in which women are considered typically socialized to be more caring and responsible for their own health and the health of others; therefore, they may be more likely to follow guidelines that are aimed at protecting the health of themselves and others. Furthermore, research has shown that the feminine gender tend to have a higher perception of risk than men. This means that female students may be more likely to see the potential dangers of not following preventive practices, such as wearing a mask or washing hands regularly. In furtherance of the study outcome, the literature on existing health disparities between men and women acknowledges that women are more likely than men to have pre-existing health conditions that put them at higher risk of severe illness or complications resulting from Covid-19. This may make them more motivated to strictly follow preventive measures. For instance, female students may be more likely to pay attention to the triggers of pre-existing health conditions than their male counterparts. Similarly, studies (Galasso et al., 2020; Sibiya et al. 2023) have demonstrated that women tend to seek out and engage with health information more than men. This means that women may be more informed about their susceptibility and importance of following preventive practices and may be more afraid of contracting the virus.

5. Conclusion

In conclusion, the findings of this study provide valuable insights into the factors that influence post-Covid preventive practices among students. The study outcomes indicate that highly health conscious students are more likely to adhere to Covid preventive measures. Their heightened awareness of the health risks associated with the virus motivates them to pay closer attention to

guidelines and recommendations from public health officials. Additionally, their commitment to healthy lifestyle practices strengthens their immune system, making them more resistance to Covid-19. Regarding the second hypothesis, the study outcomes conclude that students who believe they have control over their health display a sense of empowerment and self-efficacy, leading them to engage in preventive behaviours. They are less influenced by external factors and more likely to rely on their own judgment, making informed decisions about their health. This finding highlights the importance of fostering a sense of personal control over health to encourage proactive measures in the face of a pandemic. Finally, the fact that female students reported higher post-Covid preventive practices than their male counterparts may be attributed to gender social norms, and the perception of women being more caring and responsible for health. Moreover, women tend to have a higher perception of risk, pay more attention to pre-existing health conditions, and seek out health information more diligently. These factors contribute to their increased motivation to strictly follow preventive measures. Overall, these findings underscore the significance of health consciousness, internal health locus of control, and gender in shaping post-Covid preventive practices among students. The implications of these findings can inform interventions and strategies to promote and sustain adherence to preventive measures, ultimately contributing to mitigating the spread of Covid-19 within educational settings and beyond.

Recommendations

Based on the results obtained, recommendations for intervention and policy formulation aimed at improving Covid-19 preventive practices among the Generation-Z cohort of students in Nigeria are proffered. Firstly, there is need for the school management to pay attention to health education as both a curricular and extra-curricular activity. Through such activities, students are provided with education that enhances their understanding of health consciousness, therefore improving the application of preventive practices. Secondly, the school management may invite psychologists and other public health experts to facilitate a student training programme aimed at enhancing the internal dimension of health locus of control to enable students to express control over their health by following precautions and strengthening their immunity. Thirdly, the school and hostel management should introduce polices that provide positive reinforcement to stimulate a sense of responsibility, encourages more students to follow preventive measures, and join

forces in fighting the disease. Fourthly, there may be need to introduce mediating elements that would facilitate the influence of health consciousness and health locus of control; thus providing essential resources like face masks, hand sanitizers, protective gear, and other related products at easily accessible points. This, not only encourages people to keep up with positive measures, but also helps in cost reduction, thereby making the products available to different categories of students.

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