

A Socio-Cultural Analysis of Users' Intentions to Use Facemask in the Post Covid-19 Era in Nigeria

Mojisola Bolarinwa, BSc, MSc, PhD

Paul Adeosun, MSc, BSc

University of Ibadan, Nigeria

[Doi:10.19044/esj.2024.v20n24p53](https://doi.org/10.19044/esj.2024.v20n24p53)

Submitted: 04 June 2024

Accepted: 09 August 2024

Published: 31 August 2024

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Cite As:

Bolarinwa M. & Adeosun P. (2024). *A Socio-Cultural Analysis of Users' Intentions to Use Facemask in the Post Covid-19 Era in Nigeria*. *European Scientific Journal, ESJ*, 20 (24), 53. <https://doi.org/10.19044/esj.2024.v20n24p53>

Abstract

This paper investigates individuals' intention to use facemasks in the post-COVID-19 era using the extended unified theory of acceptance and use of technology. During the COVID-19 pandemic, enforcement, rather than individual choice, drove facemask usage. In the post-COVID-19 era, the effects of facilitating condition, social influence, price value, performance expectancy, effort expectancy, hedonic motivation, experience and habit on the intention to use the facemask were investigated using the regressions analyses. A total of 417 respondents took part in the selection from government organisations, including higher institutions and public offices in South-West Nigeria and the Federal Capital Territory (Abuja). The result shows that facilitating conditions and hedonic motivation positively influenced the intention to use the facemask, while price value, experience and habit have negative impacts. Findings from this study suggest that facemask manufacturers and distributors must suitably design their products to suit the value perception of the user and beliefs that trigger social status and hedonic motivations in conjunction with the primary health benefits of the facemasks. It is recommended that further improvement of the facemask technology, such that it can convert traditional facemasks into smart technology with increasing emphasis on fashion and style, while adhering to safety measures be promoted by policymakers and manufacturers. While facemask manufacturers must see that the quality of their products meets up to ASTM (or relevant) standards, for which user-friendly, durable, microbe-resistant, yet biodegradable

materials have been used, policymakers must organise regular sensitization programs on the importance of mask usage, and as well promote continuous development of improved technologies for nose mask designs.

Keywords: Intention to use, Unified theory of acceptance and use of technology (UTAUT), Facemasks, Users' intention, post-COVID-19 era

Introduction

The use of the facemask has been part of our history, notably in performing certain activities or preventing diseases. At some points in the man's endeavours long before the COVID-19 pandemic, protective equipment has been incorporated as part of the requirements for safety, be it the use of a gas mask, scuba mask, face shield, *etc.* (Matuschek *et. al.*, 2020). Using the extended unified theory of acceptance and use of technology (UTAUT) to measure continuous facemask usage provides useful insights into users' intention for using the mask. Understanding the individual's acceptance and use of the facemask is a complex phenomenon, owing to various multidimensional factors involved in its adoption as a utility or necessity for protection.

During the COVID-19 pandemic, the intention to use the facemask was more compelling through enforcement, rather than the individual choice. The rapidly increasing number of cases from the COVID-19 outbreak forced governments of different nations to impose lockdowns and propose the use of facemasks (de Sousa Neto & de Freitas, 2020; Wang *et. al.*, 2021). During this period, more than 130 million confirmed cases were reported, resulting in the death of more than 2.8 million people globally (Carbon, 2021). To curb the spread of the virus, the World Health Organization (WHO) placed substantial emphasis on using protective equipment, in addition to distancing and handwashing to prevent individuals from contracting the virus. Health professionals and the general public were forced to use some of these equipment in public places, including wearing: Protective Face Masks (PFMs), Surgical Face Masks (SFM), Filtering Facepiece Respirators (FFRs), and Elastomeric Air-Purifying Respirators (EAPRs) (Monini *et al.*, 2021). Besides the global lockdown, wearing the facemask, social distancing and regular washing of hands were considered precautionary measures to reduce the likelihood of human-to-human transmission. To enforce the use of these regulations, non-essential workers were forced to stay at home, while the use of facemasks was made mandatory as a type of personal protective equipment in all public offices, schools, *etc.* At the onset of the COVID-19 pandemic, WHO issued a directive instructing the public on the proper use of the facemask for maximum protection and safe procedures for its disposal. WHO advocated for the universal use of face masks in epidemic prevention, as a

means of personal protection and source control; for healthy people, wearing masks can protect them by allowing fewer coronavirus particles to be inhaled when in close contact with an infected person, while for infected people, the use of masks can prevent onward transmission. In Nigeria, the facemask was widely accepted at the early stages of the outbreak with little public resistance. Most people were enlightened on the significance of the facemask in preventing the transmission of COVID-19 among the general public (Ogunsola *et. al.*, 2023).

Findings from a study conducted by Gunasekaran *et. al.* (2020) showed the prevalence of the use of facemasks by people visiting a wet market; 99.7% of the respondents were observed to be wearing a facemask, out of which only 4.3% were observed to engage in unacceptable facemask practices. This indicates that the procedure for properly using the facemask is quite simple for most users. The difficulty of using a mask is far lower than that of the technologies employed, and the correlation between perceived ease of use and attitude towards mask-wearing is assumed to be insignificant (Zhang *et. al.*, 2021). Globally, the use of the facemask was made mandatory in all public spaces, in addition to regular washing of the hands with soap and water, social distancing, sneezing or coughing into tissue paper or elbow, and using alcohol-based sanitisers. The emphasis was on the facemask's ability to prevent virus transmission to non-carriers. Countries worldwide adopted wearing the facemask as a universal preventive technology to combat the spread of the COVID-19 virus, enforcing their citizens to use face coverings in public, particularly in densely populated areas like markets, schools, churches, social gatherings, *etc.*, in addition to regular hand washing, use of hand sanitisers, temperature monitoring and social distancing. These measures were reported to be effective in slowing down the spread of the virus.

Facemasks might be worn in some places based on the prevailing environmental conditions which may include: local social habits, religion, and personal preferences for displays or disguises (Ogunsola *et. al.*, 2023). Popular amongst the use of facemasks are the renowned Venice carnival masks used for their decorative and attractive nature, and the most memorable costume worn by mediaeval 'Plague Doctors' for protection against the Black Death while treating patients suffering from the plague (Matuschek *et. al.*, 2020). Empirical findings reveal that people continue to use facemasks after the COVID-19 pandemic. Although, most countries of the world have lifted all restrictions and enforcements enacted during the lockdown; people are free to travel, gather or attend schools or other social gatherings, but the use of the facemask in public is still common. The use of the facemask may be construed as solely driven by the user's intention since there is no public enforcement to the use of the facemask in public places. Since the extended unified theory of acceptance and use of technology (UTAUT2) examines users' behaviour in

the acceptance of technology based on perceived effects of performance, effort, social influence and facilitating conditions and moderated by age, gender, and experience, the model provides a basis to study users' behavioural intention and technology use of the facemask (Venkatesh *et. al.*, 2012). Therefore, the objective of this study was based on unearthing the critical factors that influence users' intentions to continuously use the facemask in the post-COVID-19 era.

Methods

Hypothesis Development

Performance expectancy: Performance Expectancy (PE) addresses the individual's belief in the utility to be derived. The expected usefulness of face masks is the consideration as the first means of curtailing the spread of the COVID-19 virus.

H1: Expected performance of the facemask influences its continuous use

Effort expectancy: This measures the relative ease of using the facemask. The procedures of use and design of the facemask are less complicated.

H2: The relative ease of the facemask positively influences its continuous use

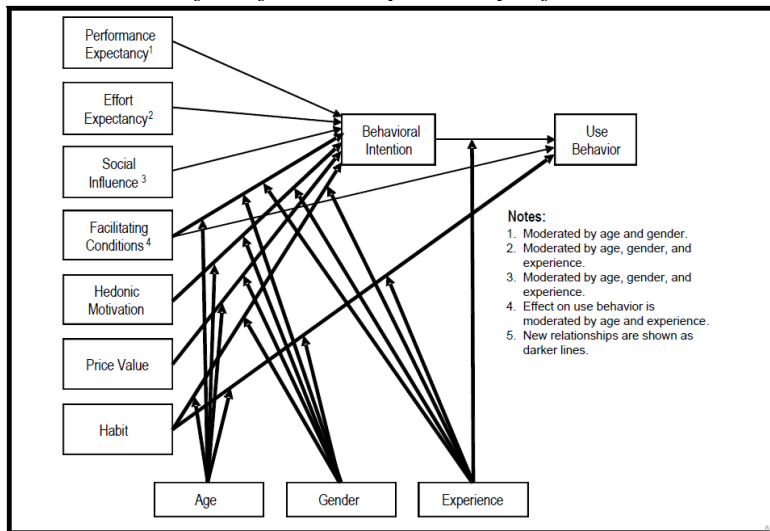


Figure 1: The UTAUT2 model (Venkatesh *et. al.*, 2012)

Social influence: The introduction of the facemask at the early stages of the pandemic was perceived as strange and unfamiliar. This perception fundamentally evolved due to the everyday usage of such masks influenced by users' beliefs and behavioural intention to use the mask.

H3: Social factors influence the behavioural perception and use of facemasks.

Facilitating Conditions: Use conditions were grouped into factors of pain or discomfort when wearing the mask. Despite some reported cases of discomfort, findings showed that a large proportion of the respondents were willing to wear facemasks as an effective preventive measure against COVID-19 (Ogunsola et al., 2023).

H4: the comfort of wearing the mask is positively related to the continuous use of the mask.

Price Value: The cost of purchasing the facemask is relatively cheap which is as low. The users' expectation that the cost of the facemask is lower than the risk associated with infectious diseases represents good value, or their perception of positive impact value influences their intention to use it.

H5: Price value influences users' intentions to use the facemask

Hedonic Motivation: It may also be asserted that users may derive fun and pleasure from using the facemask, which oftentimes influences their intention to use it. Wearing a mask could promote other individuals' imagination about the outlook of the face hidden behind the mask.

H6: The perceived hedonic function of the mask to improve one's appearance influences the user's intention to wear the facemask

Experience and Habit: Users' prior experience in technology could be positive or negative based on performance. Positive experience controlled by performance expectation may subject the user to a greater desire to replicate such experience resulting in continuous usage while negative experience results in the opposite.

H7: the perceived and intended use of the facemask is influenced by the user's habit and experience

Data Source and Survey Administration

Data were collected online from participants in seven states in Nigeria: Lagos, Ekiti, Ondo, Oyo, Ogun, Edo, and FCT Abuja using the quantitative research approach in 2022. During this period, restrictions imposed during the COVID-19 lockdown have been lifted even though few cases were reported globally. Wearing the mask was no longer enforced for use in public while the fear of contracting the virus has lessened. The items were developed to measure the respondents' free will to use the facemask without compulsion. A

total of 417 respondents took part in this study. The respondents were randomly selected from government organisations, including higher institutions and public offices from the selected states in South-West Nigeria and the Federal Capital Territory.

Research Design

The demographic variables of the respondents were measured in the first section of the survey questionnaire including age, gender, and marital status. The second section is composed of factors relating to the intentions of using the facemasks using the Likert Scale (LS) ranging from “strongly disagree” to “strongly agree”. Items for each of the eight variables for the hypothesis testing were developed to measure the respondents’ perceptions of these variables. Performance expectancy was considered to be the individual’s belief in the utility to be derived or the expected usefulness of the facemasks to prevent and curtail the spread of other viruses and other benefits of wearing the facemask. The survey measured their views on whether they agree or disagree on the ability of the facemask to protect them from contracting diseases. Facilitating conditions are conceived as conditions relating to the simplicity of the technology design and procedure for wearing the mask. The general public easily understood the procedure involved in using the mask. The price value is measured as the amount the individual pays to acquire the facemask based on the perceived utility to be derived from using the facemask. The question was asked based on the respondent’s perceived ability to purchase the facemask. The respondents were asked how they felt using the facemask. The social influence is derived from the perceived feelings of the respondents based on feelings of shame in public, pride, misconfiguration, or concealing of identity (e.g., *‘I sometimes feel embarrassed, shy or misconfigured when using the facemask in public’*).

Experience and habit were measured using the user’s prior experience of wearing the facemask and their perceived performance of the item. The respondents were asked about their desire to replicate such an experience with the potential for continuous usage based on the user’s derived positive outcome. The hedonic motivation of the respondents to use the facemask measures the fun they derive from wearing it. The respondents were asked to specify the degree to which their level of pleasure/fun derived from using the facemask influences their intention to continue using it. Effort expectancy is measured by the relative ease of wearing the facemask. This represents the required energy to use the facemask. The respondents were asked to indicate the level of difficulty and complexity in wearing the facemask.

Data Analysis

The data collected was analysed statistically using descriptive statistics for the respondents' demography and regression analysis. The regression analysis determined the strength and nature of the relationship between the dependent variable (*Intention To Use The Facemask*) and the independent variables. A collinearity diagnostics test was performed on the regression model to measure the degree of linear intercorrelation using the condition index and variance decomposition proportion (VDP) diagnostic tools. A correlation analysis was performed to examine the degree of association between various factors that influence the use of the facemask. The correlation matrix showed the correlation coefficients between the variables indicating the strength and direction of their relationships.

Results

Respondents Demographics

Table 1 shows that a total number of 417 respondents took part in the survey. Only 415 participants indicated their ages and 416 participants indicated their marital status. The table shows the distribution of the questionnaire among the different age groups of 17 or under, 18 to 24, 25 to 34, 35 to 44, 45 to 54, 55 to 64 and 65 or older years with frequencies of 20, 149, 142, 52, 29, 16, and 7, respectively. A majority of the respondents were aged between 18 to 34 years, amongst which 54.7% were males while 45.3% were females. In terms of their marital statuses, the number of singles, married, and separated/divorced was 246, 160, and 10, respectively at 59%, 38.40% and 2.40%.

Table 1: Summary of Respondents' Demographics

Item	Frequency	Per cent
Gender		
Male	228	54.7
Female	189	45.3
Age		
17 or under	20	4.8
18 to 24	149	35.7
25 to 34	142	34.1
35 to 44	52	12.5
45 to 54	29	7
55 to 64	16	3.8
65 or older	7	1.7
Marital Status		
Single	246	59
Married	160	38.4
Separate/divorce	10	2.4

Regression and Correlation Analysis

The result of the regression analyses for testing the hypotheses of the factors of the UTAUT2 model is shown in Table 2. The result shows that both facilitating conditions and hedonic motivation have a positive contribution to the dependent variable ($\beta = 0.146$ and 0.127 at $p < 0.05$ respectively) while effort expectancy ($\beta = 0.009$, $p = 0.888$) is not significant at 95% CI. Factors of facilitating conditions, hedonic motivation and effort expectancy positively affect the intention to use the facemask (Hypotheses H4 and H6 supported).

Table 2: Regression Analysis Result of Users’ Intentions and the Independent Variables

Model		Unstandardized Coefficients		Standardized Coefficients Beta	T	Sig.	95% Confidence Interval for B		Result
		B	Std. Error				Lower Bound	Upper Bound	
1	(Constant)	4.556	.244		18.681	0.000	4.076	5.035	
	Performance_expectancy	-.041	0.049	-0.046	-0.828	0.408	-	0.056	Reject
	Facilitating_Conditions	0.127	.047	0.146	2.674	0.008	0.034	0.220	Reject
	Price_Value	-0.142	.049	-0.157	-2.907	0.004	-	-	Reject
	Social_Influence	-0.077	.051	-0.086	-1.521	0.129	0.238	0.046	
	Experience_Habit	-0.207	.082	-0.179	-2.540	0.011	-	-	Reject
	Hedonic_Motivation	0.104	.049	0.127	2.102	0.036	0.368	0.047	Accept
	Effort_Expectancy	0.008	.054	0.009	0.141	0.888	0.007	0.201	Accept
							0.098	0.113	Reject

a Dependent Variable: Intention_to_use

The result also shows that factors of price value ($\beta = -0.157$, $p = 0.004$), and experience and habit ($\beta = -0.179$, $p = 0.011$) have a negative contribution to the intention to use the facemask (Hypotheses H5 and H7 supported). However, performance expectancy ($\beta = -0.046$, $p = 0.408$) and social influence ($\beta = -0.086$, $p = 0.129$) equally have negative contributions to the intention to use the facemask but are not significant at 95% CI. Therefore, hypotheses H1, H2, and H3 are insignificant at 95% CI. The correlation analyses (Table 3) showed that price value (-0.182 , $p = 0.000$), social influence (-0.109 , $p = 0.026$), experience and habit (-0.122 , $p = 0.013$), and effort expectancy (-0.099 , $p = 0.044$) were negatively correlated with the users’ intentions to use the facemask.

Table 3: Correlation analyses of the Variables

		Intention to use	Performance expectancy	Facilitating Conditions	Price Value	Social Influence	Experience Habit	Feature Most Appreciated	Hedonic Motivation	Effort Expectancy
Intention to use	Pearson Correlation	1	-.069	.035	-.182(**)	-.109(*)	-.122(*)	-.031	-.031	-.099(*)
	Sig. (2-tailed)		.158	.480	.000	.026	.013	.530	.535	.044
	N	417	417	415	414	416	412	408	410	412
Performance expectancy	Pearson Correlation	-.069	1	.260(**)	.361(**)	.258(**)	.146(**)	-.101(*)	.186(**)	.145(**)
	Sig. (2-tailed)	.158		.000	.000	.000	.003	.042	.000	.003
	N	417	417	415	414	416	412	408	410	412
Facilitating Conditions	Pearson Correlation	.035	.260(**)	1	.136(**)	.332(**)	.273(**)	.109(*)	.072	.257(**)
	Sig. (2-tailed)	.480	.000		.006	.000	.000	.028	.149	.000
	N	415	415	415	412	414	410	407	408	410
Price Value	Pearson Correlation	-.182(**)	.361(**)	.136(**)	1	.219(**)	.164(**)	-.110(*)	.227(**)	.133(**)
	Sig. (2-tailed)	.000	.000	.006		.000	.001	.027	.000	.007
	N	414	414	412	414	414	410	406	408	410
Social Influence	Pearson Correlation	-.109(*)	.258(**)	.332(**)	.219(**)	1	.352(**)	.034	.231(**)	.372(**)
	Sig. (2-tailed)	.026	.000	.000	.000		.000	.490	.000	.000
	N	416	416	414	414	416	412	408	410	412
Experience Habit	Pearson Correlation	-.122(*)	.146(**)	.273(**)	.164(**)	.352(**)	1	-.001	.573(**)	.579(**)
	Sig. (2-tailed)	.013	.003	.000	.001	.000		.984	.000	.000
	N	412	412	410	410	412	412	406	410	412
Hedonic Motivation	Pearson Correlation	-.031	.186(**)	.072	.227(**)	.231(**)	.573(**)	.030	1	.331(**)
	Sig. (2-tailed)	.535	.000	.149	.000	.000	.000	.551		.000
	N	410	410	408	408	410	410	404	410	410
Effort Expectancy	Pearson Correlation	-.099(*)	.145(**)	.257(**)	.133(**)	.372(**)	.579(**)	.052	.331(**)	1
	Sig. (2-tailed)	.044	.003	.000	.007	.000	.000	.294	.000	
	N	412	412	410	410	412	412	406	410	412

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Data Validity and Collinearity Testing

The collinearity diagnostics test measured the degree of linear intercorrelation between explanatory variables in the regression that may lead to incorrect results of the regression analyses (Table 4). Diagnostic tools utilized include the condition index and variance decomposition proportion (VDP). The values of the VDPs obtained show the extent of the inflation of the variance in each of the condition indexes. In Table 4, no two or more VDPs corresponding to a common condition index, greater than the range 10-30, are more than 0.8 to 0.9, indicating that the explanatory variables are not collinear based on the recommendation by Kim (2019). Hence, the explanatory variables were sufficiently stable in the regression models.

Table 4: Collinearity Diagnostics Test

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions									VIF
				Performance_expectancy	Facilitating_Conditions	Price_Value	Social_Influence	Experience_Habit	Hedonic_Motivation	Effort_Expectancy	(Constant)	Performance_expectancy	
1	1	7.304	1.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.843
	2	0.196	6.105	0.00	0.14	0.00	0.34	0.00	0.03	0.07	0.08	0.08	.072
	3	0.148	7.021	0.01	0.01	0.16	0.22	0.03	0.00	0.33	0.01	0.01	.204
	4	0.110	8.137	0.00	0.47	0.00	0.41	0.01	0.00	0.16	0.14	0.14	-.062
	5	0.090	9.032	0.03	0.35	0.22	0.01	0.01	0.00	0.07	0.46	0.46	.041
	6	0.068	10.354	0.00	0.00	0.33	0.01	0.80	0.01	0.00	0.03	0.03	-.023
	7	0.047	12.510	0.69	0.00	0.29	0.01	0.13	0.10	0.16	0.03	0.03	.183
	8	0.037	14.018	0.27	0.03	0.00	0.01	0.02	0.85**	0.21	0.25	0.25	.090

a Dependent Variable: Intention_to_use

Discussion

Wearing facemasks during the COVID-19 pandemic was sternly enforced by relevant authorities against the will of the public, but was regarded as one of the techniques to slow down the spread of the virus. After the pandemic, facemasks were still being used based on intention, even though they have never been part of the natural man’s habit (Carbon, 2021). For the general public, the intention to continue using the facemask after the COVID-19 era is influenced by the cumulative stimulus of social habit and memory of the past era of the pandemic. During this period, almost everybody was reported to have had an experience of wearing the facemask in public, signifying a wide acceptance and effectiveness of the mask in the fight against the virus.

The study objective was to provide insight into the factors responsible for using the facemask and intentions to use the facemask in some selected states in Nigeria. Adopting factors from the UTAUT2 model, this study explored eight potential determinants for the explanation of future intentions

and facemask-wearing prediction in Nigeria considering; Social Influence, Facilitating Condition, Price Value, Performance Expectancy, Effort Expectancy, Hedonic Motivation, Experience and Habit. The regression analyses showed that facilitating conditions of the facemask such as simplicity to wear, and the hedonic motivation such as derived fun and pleasure positively contribute to intentions to use the facemask. The result reveals that among all factors considered, facilitating conditions better predict the individuals' intention to use the facemasks. The design and procedure for wearing the facemask have been as simple as possible requiring little or no experience of use. The general perception of the people, most especially Nigerians, is that the harder the procedures involved in using a technology, the less likely it would be adopted for use. In line with the findings of Zhang *et al.*, (2021), designing the facemask to be very easy to use significantly contributes to its intention to use. The hedonic motivation shows that the facemasks are becoming a part of the everyday accessories of the public which appeals more to the individual as both part of the person and the social environment. Common designs of the facemask are being tailored to appeal to the tastes and preferences of individuals at both collective and personal levels. Manufacturers produce the facemask in different designs, colours and shapes that appeal to the user or situation offering them more options. The facemask oftentimes has been transformed into extraordinary objects with a deeper meaning to the user boosting both attractiveness and achievement. Wearing the facemask tends to beautify the face and make it compact, improving the status of the user.

Price value, experience and habit have negative contributions to the intention to use the facemask. The majority of Nigerians live below the poverty line despite being an oil-producing country. Most people believe that the cost of purchasing the facemask was relatively higher than the risk associated with contracting infectious diseases representing a negative influence of perception to use the facemask. This is supported by the prevalence of cheap homemade facemask designs which were relatively cheap and washable, even though they were less effective in preventing the virus. In addition, the price of the facemask varies significantly based on the type, design and location. Based on users' experience and habit, prior experience and habit of using the facemask negatively influence the intention to use the facemask compared to the perceived performance. Negative experiences and habits influenced by non-performance expectations afford the user a lesser desire to replicate an experience. Those who saw the use of the facemask as a burden are more likely to discontinue its use except when they are compelled to.

Performance expectancy of the public relating to the individual's belief in the utility derived from using the facemask is observed to have diminished.

The expected usefulness of face masks for preventing the spread of infectious disease appears to have waded off. In Nigeria, the intention to use the facemask could largely be attributed to the activities of the law enforcement agencies who arrest and prosecute defaulters rather than the individual's belief in the capability of the facemask for protection. Not everyone wore the facemask for health purposes. Social influence has little effect on individuals' intention to use the facemask, rather, factors such as feelings of shame or misconfiguration of the individual for wearing the facemask significantly influence facemask usage. The intention to use the facemask is a contention between the perceived benefit and the barriers to the conscious actions to use the item. Protection from the spread of infectious diseases, hedonic motivation and facilitating conditions favourable influence the individual's intentions to use the facemask. On the other hand, obstacle encountered exists in price value, experience and habit, and effort expectancy acting as hindrances to intentions of using the facemask. These factors play significant roles in the continuous and future use of the facemask as the need arises.

Conclusions

In the context of users' intentions to use the facemask, the current study observed the continuous use of the facemask under no compulsion during the post-COVID-19 era. Using facemasks is common even after all restrictions have been lifted in the post-COVID-19 pandemic era. First, facilitating conditions, hedonic motivation, price value, and experience and habit influence the individual's intention to use the facemask. While facilitating conditions and hedonic motivation positively influence the intention to use the facemask; price value, experience and habit have negative impacts. Second, social influence, performance expectancy, and effort expectancy have no significant influence on respondents' intentions to continue using the facemask. Thus, monetary value, perceived value and facilitating conditions significantly influence the users' intentions of using the facemask construed as value attached to the product influencing its utilisation. In post-COVID-19 era, using facemasks will continue to evolve, influenced by various factors, including individual preferences, health recommendations and cultural norms. People may choose to wear the facemask in crowded places like large events, public transport and airports as a precaution. In some cultures, the practice of wearing facemasks could be more entrenched as a societal norm for beauty and public well-being. Individuals with health challenges or compromised immune systems may be advised to use the facemask perpetually. Therefore, facemask manufacturers should develop facemasks of various designs that are aesthetically pleasing and easy to use to enhance user adoption. These manufacturers should define their product and marketing strategies to suit the user's value perception and beliefs that trigger social status and hedonic

motivations in conjunction with the mask's primary health benefits. This will lead to the development of scintillating products that appeal to the general public of all ages, enhancing the hedonic value based on the individual's preferences and current fashion trends. The effects of social factors and the moderating effects of gender and age can aid facemask designers in identifying the market segments to focus on, in order to augment users' experience, habits and cultural perception in boosting their existing hedonic value and assuring users of more value in their product. Furthermore, public health campaigns should leverage on the societal acceptability of the mask to additionally emphasize the health benefits of wearing the facemask.

Conflict of Interest: The authors reported no conflict of interest.

Data Availability: All of the data are included in the content of the paper.

Funding Statement: The authors did not obtain any funding for this research.

Declaration for Human Participants: This research followed the University of Ibadan guidelines for research ethics involving human participation and data collection, and has been approved by the University and the principles of the Helsinki Declaration were followed.

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