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A Study on How Social Media Users in Sub-Saharan Africa are Learning New Health Behaviors

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Abstract

This study sought to investigate the influence of cognition and locus of control on the health behaviors of social media users so as to mitigate the learning of negative health behaviors by social media users. Four hypotheses were formulated including H₁: Cognitive Factors have a positive effect on the Health Behavior of social media users; H₂: Cognitive Factors have a positive impact on Internal Locus of Control of social media users; H₃: Internal Locus of Control positively affects the Behavioral Intention of social media users; H₄: Behavioral Intention positively affects Health Behavior of social media users.

Quantitative research methods were used in this study. A sample of 450 social media users was taken from three countries namely; Uganda, Nigeria and Cameroon for data collection using questionnaires. Data were analyzed using descriptive statistics, hierarchical regressions and structural equation modeling techniques.

Findings reveal that all the four hypotheses were supported. Given the findings, we recommend that communities implement knowledge enhancement programs such as trainings, education, and sensitization among others. Social media users should be taught on the benefits of using social media for positive health gain. Further, it is recommended that cultural institutions, religious institutions join social media platforms and moderate the learning process. This will enable users to learn new health behaviors that positively affect their health.

Keywords: Cognitive factors; Internal Locus of Control; Social Media; Health Behaviors; Social learning; Cognitive learning

Introduction

Over the past decade, Sub-Saharan Africa has experienced the advent of relatively new health behavioral patterns being learned via social media as well as an upsurge the health behaviors that were already known. Behaviors such as addictions to pornography, gambling, alcoholism and drug abuse, sexting, smoking, prostitution [1] among others are now common in society across the region. These behaviors are most prevalent among the youths-82% of who use social media [2]. The consequences of these new health behaviors are immense with some being moral degeneration, marriage and family break-ups, increased spread of diseases such as tuberculosis and HIV/

AIDS due to increased smoking and prostitution. [3] Report that drug abuse fuels spread of HIV/AIDS in Uganda. Moreover, drug and alcohol abuse among the youths in Uganda has risen to 45% [4], and 40% in Nigeria [5]. Although statistics for other countries are scanty, reports reveal that drug abuse and trafficking in Sub-Saharan Africa is also on the rise. [6] Report that drug and alcohol abuse is responsible for 25.8% of extra marital affairs in Cameroon. The other consequences of health behavioral patterns fueled by social media are increased national health budgets across the region for buying drugs and rehabilitating addicts. This hampers the realization of the Millennium Sustainable Goals where good health and wellbeing is the 3rd most paramount goal [7].

Scholarly initiatives have been tried to address the challenges being brought in by social media. For example studies have been conducted to see how best social media can be used without causing the negative effects to society e.g [8-12] but the problems remain at large. More so, no empirical study has been conducted to investigate the relationships and effects of Cognitive Factors, Internal Locus of Control and Behavioral Intention on the Health Behaviors of social media users.

This study sought to investigate the influence of cognition and locus of control on the health behaviors of social media users Sub-Saharan Africa so as to mitigate the learning of negative health behaviors by social media users. The social cognitive theory proposed by [13] was triangulated with Rotter's (1966) and Bandura (1965) social learning theory constructs to guide the study.

Social Media and Health Communication

Social media have been adopted by institutions across the globe for purposes of disseminating health related information to patients and masses at large. The Centre for Practice Improvement and Innovation (CPII) indicates that demand for online health information is on the increase [14]. A study by Harris poll showed that 81% of Americans go online in search of healthcare information, while over 90% seek interaction with medical physicians about their ailments [14-16]. Due to this, social media have greatly picked up and benefited patients in the USA and elsewhere. For example, the UAMS Winthrop P. Rockefeller Cancer Institute, Arkansas USA has patients discussing their experiences with hospital medical staff [17]. In this case, a visitor is welcomed by a medical doctor explaining how to diagnose diseases and how they will handle a given disease. This page is linked to YouTube videos. A hospital official responds to posts by visitors to guide them on various issues that concern their health, while asking for feedback.

Another example of hospitals using social media is the Pew Research Center's Hispanic Trends Project and [18]. Pittsburgh Medical Center and Hillman Cancer Institute has a Facebook page, UPMC Cancer Center where they give professional advice to visitors [19]. The hospital page has many images and a link to YouTube with a video showing how stereotactic radio surgery for lung cancer is delivered in one to five days and treatment in a period of seven to ten days. This kind of interaction has helped patients get first-hand information from the medical experts at almost zero costs compared to other forms of medical consultations that are very costly [20,21].

In Africa, several healthcare providers have adopted social media for providing healthcare services to their patients. For example, the Volunteer Abroad in Africa- orphanages, schools, hospitals, clinics,

HIV, a healthcare Non-Governmental Organization (NGO) uses social media to mobilize healthcare volunteers to come and provide healthcare services in Ghana. Another example is the social media page for Valley Farm Animal Hospital which is a Facebook page that provides healthcare services for dogs and pets in Pretoria South Africa. Genesis Clinic Saxonwold, Johannesburg also has a page on Facebook with over 1000 users. This page is used to communicate and educate members about the clinic's natural birth fertility services. Med clinic Southern Africa is a page for the hospital and teaching school used to disseminate information about the hospital's services. Edna Adan University Hospital has over 8,000 members on their Facebook page exchanging information about the hospital's maternity services, and Nairobi Women's Hospital Facebook page provides healthcare information services to the members.

Perhaps the most healthcare related content was found on YouTube videos. A quick search on YouTube yields several videos that have documented medical issues in different parts of Sub-Saharan Africa and Africa at large. For example, there are videos for JHB Hospital, Ghana hospital and Edendale Hospital, South Africa. On Twitter, there is information on healthcare from African healthcare providers, such as Edna Maternity Hospital, Somalia.

Internal Locus of Control and the learning of new behaviors

[22] Places the individual on a spectrum of locus of control; one side internal and the other side External Locus of Control. On the Internal Locus of Control, the individual controls the consequences of his behavior. Once this happens, the individual will realize better performance in terms of achievement; the individual will have better interpersonal relations and will make greater efforts to learn [22,23]. This is basically because an individual with Internal Locus of Control believes that they are in charge of their activities and are directly responsible for the consequences of their actions [23]. Such individuals also tend to control themselves better (Self-Regulation) and can internalize success or failure before taking action. Because of this, they tend to perform better. [23] advance cultural norms, gender, age, level of education, level in managerial hierarchy as some of the factors that influence one's Internal Locus of Control. For example older people tend have a higher internal locus compared to the young ones who are under the control of their parents or guardians. Similarly, top managers have a higher Internal Locus of Control compared to their counterparts in the lower managerial ranks. According to [22], Internal Locus of Control is a motivating factor.

Behavioral Intention of social media users

Behavioral Intention is used to show the likelihood of an individual or community towards learning new behaviors [24,25]. According to [25], Behavioral Intention variable should always precede the dependent intended behavioral variable. Behavioral Intention has been used in several health and e-health studies [26]. Behavioral Intention in this study was hypothesized to play a mediation role between Internal Locus of Control and Health Behavior of social media users.

Theoretical underpinning of the study

New health behaviors of social media users are manifested through acquired skills, new practices, observational learning, and moral disengagement. According to [13] in his Social Cognitive Theory, observational learning enables behavioral change through observing role models. In this process, the observer (learner) retains the key

pieces of information observed and uses them at a later stage in a process called "delayed learning". The motivation for learning is the desire to mimic the role model, whereby the learner wants to behave and act like the person observed. After observing the role model, a learner can self-train himself on the observed aspects of behavior [27]. This happens through cognitive modeling, overt guidance, overt self-guidance and faded overt self-guidance.

[28] Conducted a study on observational learning of church members and its influence on their behavior in participating in health physical exercises. It was found that the number of people participating in this activity increased after observing their church leader participate in it. The community had confidence in the priest because he was their spiritual leader (role model) and had grown up from the same community (had similar attributes as the learners).

Another aspect of behavioral change is moral disengagement [29]. Moral degeneration-also known as moral disengagement is a behavioral attribute that makes the learner to aspire and imitate harmful behaviors to the individual or to the community at large [27]. These could be smoking, pornography, prostitution, drug abuse, among others. For example, a young person may learn to smoke by observing an influential member of the community. These could political leaders, teachers, although role modeling mainly comes from celebrities and other entertainers [27]. The observed role model in this case acts as an incentive and provides a facilitating condition and motivation to the observer – hence, he is responsible for the new behavior [30].

Theoretical framework

As seen above, the study was grounded on social learning as well as social cognitive theories proposed by [13,31] and [22]. Each of the three reviewed theories made a great contribution to this study in different ways. The main construct advanced by [31] Social Learning Theory is learning through role modeling. [31] teaches us the importance of role modeling. We are able to understand how humans adapt behaviors when exposed to certain conditions and also that learning happens through replication, retention and mimicking of role models. The most influential form of learning is presented as indirect learning, which influences behavioral change over a period of time. Direct reinforcement is caused by the learner, while vicarious reinforcement happens due to observation of a role model. Self-reinforcement is a state of satisfaction or dissatisfaction arising from one's performance

On the other hand, we learn that [22] Social Learning Theory addresses both internal and external factors that influence behavior by relating the health outcomes of individuals to the environment in which the situations arose. The key constructs of this theory are locus of control-internal and external, behavioral potential, expectancy, reinforcement value and psychological situation.

Locus of control which can be internal or external, helps to show the link between people and environment. This theory tries to integrate learning with personality- psychology. On the other hand, behavioral potential (behavioral intention) looks at the likelihood of engaging in a given behavior, while expectancy is the probability that a given behavior will result into certain outcomes. Reinforcement value is used to show the extent to which the outcomes are desired, while Psychological situation states that the environment in which an individual experiences a situation will influence that individual's behavior.

In [13] SCT, we learn that learning takes place through observing others. Whereas the environment influences changes in behavior, a person's behavior also influences change in the environment, hence the "reciprocal determinism". The key constructs advanced by Bandura's SCT are role modeling, reciprocal determinism, Cognitive Factors, environmental factors, behavioral factors, Outcome Expectations, self-efficacy and Self-Regulation.

Reciprocal determinism explains the situation where "the world and the behavior of persons are mutually caused". Three reciprocal constructs interact to cause behavioral change. These include Cognitive Factors, environmental factors and behavioral factors. Outcome expectation is a "likelihood and value of the consequences of behavioral choices", while self-efficacy is a person's ability to self-judge and perform a given task. Reciprocal determination is the causal influence that Cognitive Factors, environmental factors and behavioral factors have on each other in the learning process. Environmental factors are those elements of the learning process that are not within the learner's control, while Cognitive Factors are those attributes unique to an individual that help in the learning process. These include beliefs, knowledge, attitude, and Self-Regulation. Behavior factors are the ultimate outcome in the learning process manifested through acquired skills, new practices, observational learning, and moral engagement or disengagement.

Materials and Methods

Research design

Research can take three paradigms, namely; qualitative research, quantitative research and mixed research. According to [32] a paradigm specifies viewpoints held by researchers about certain values, assumptions and concepts. Initially, quantitative research was the most popular research paradigm until 1990s when [33] started debates on the qualitative research. One of Guba's aims was to explain the differences between quantitative and qualitative research paradigms. Guba argues that these two research paradigms distinctively differ in terms of methodology, rhetoric, ontology, epistemology and axiology [33]. Many of these characteristics had been well explored in earlier studies although with little emphasis on qualitative research [34]. There are basically five main types of qualitative research. These include phenomenology research, ethnography research, case study research, grounded theory research, and historical research.

Phenomenology research is one where a researcher sets out to understand how one or more individuals experience a given phenomenon. An example of phenomenology research is where a researcher can conduct a phenomenological study on combat soldiers who have returned from a war to understand how they experienced the war phenomenon. According to Williamson, Pollio and Hood (2000), phenomenology research is based on experiences [35].

On the other hand, ethnography research is a type of qualitative research that involves "writing about people". For example, a researcher can conduct an ethnographic study to document a certain people's culture, norms and practices. It is mainly used in social and education research where there is much need to describe attributes of a community such as language, attitudes, values, norms, practices and patterns.

The other most popular type of qualitative research commonly used in social sciences research is case study research. Case study research is where a given entity is chosen among a whole to provide a more

detailed understanding about the whole. Stake (1995) argues that case study research can be exploratory or descriptive research. For example, a descriptive case study research can be conducted in a school to examine how schools in a given community have adopted Information Communication Technology.

The last two types of qualitative research are grounded theory research and historical research. Grounded theory research is one where the focus is on building theory that presents steps on solving real-life problems. Although grounded theory may rely on secondary data, many times, it builds theory from primary data [36]. On the other hand, Historical research is one that sets out to study events of the past. These may be about a people's culture and how it evolved over the past 100 years. Historical research is mostly presented using a narrative approach because it is based on literature review and storytelling.

On the other hand, quantitative research is one where a phenomenon is explained through collecting numerical data and mathematically analyzing it. Quantitative research is perhaps the most commonly known and used research paradigm in today's social sciences studies. According to [37], quantitative research normally follows a series of five steps namely; problem identification, literature review, setting of research objectives, data collection, data analysis and interpretation and report writing.

Although no literature outlines the types of quantitative research holistically, it can take various forms. Even the types of qualitative research described in the previous section can easily be transformed into quantitative depending on the researcher's objective. As earlier mentioned, however, quantitative research paradigms can take the form of descriptive, analytical, and exploratory, among several others. The foundations of quantitative research include realism and objectivism-whereby every assumption can be mathematically proven by numbers, other than relying on subjective perceptions. Quantitative research is based on post-positivism and experiential realism and pragmatism philosophies. For example, findings of a quantitative study should be totally objective, truthful, certain and predictable.

This study adopted a quantitative research approach in which quantitative research methods were applied in line with [38]. According to [39] quantitative research involves collecting and analyzing quantitative data.

Sampling and data collection methods

The study was conducted amongst social media users in three African countries namely; Uganda (in East Africa), Nigeria (West Africa) and Cameroon (Central Africa). The respondents were social media users. Simple random sampling method was used to pick 150 social media users from each of the three listed countries in order to participate in the study.

The data were collected using structured questionnaires administered mainly online through Google forms and e-mail. However, some questionnaires were printed and administered in hardcopies.

Research hypotheses and testing methods

The study set out with four hypotheses listed below:-

H₁: Cognitive Factors have a positive effect on the Health Behavior of social media users in Sub-Sahara Africa.

H₂: Cognitive Factors have a positive impact on Internal Locus of Control of social media users in Sub-Sahara Africa.

H₃: Internal Locus of Control positively affects the Behavioral Intention of social media users in Sub-Sahara Africa.

H₄: Behavioral Intention positively affects Health Behavior of social media users in Sub-Sahara Africa.

To test the above hypotheses, two methods were used; 1) hierarchical regression analysis method, and 2) structural equation modeling method. Structural equation modeling is a powerful confirmatory analysis method that was used to confirm the results from hierarchical analysis. Some descriptive statistics were conducted to analyze background information.

Face validity

Face validity measures the extent to which an instrument appears effective in achieving its stated goals [40]. It is a subjective form of evaluating research instruments through reading through the items and giving an opinion on whether they are appropriate, well written and adequately measure their constructs or variable. In this study, face validity was done by the research supervisors and peers on the Ph.D. program. These were given the developed questionnaire for review. Their comments were incorporated into the final survey instrument. Owing to its subjectivity, D [40] argues that face validity is a weak form of validating research instruments. Hence, it was incumbent upon the researcher to explore other approaches in validating the questionnaire such as content validity index.

The research instrument was given to 10 experts in the area of information technology, who were selected purposively by the researcher. The experts had a minimum of a master's degree in the discipline and had work experience of at least 10 years teaching and working in the area Information Communication Technology. These experts were requested to indicate the relevance of items on the questionnaire on a 5 point likert scale where 1=Not Relevant, 2=Not relevant, 3=Quite Relevant, 4=Relevant and 5=Very Relevant. In the computation for CVI, only responses indicating Relevant (4) and Very Relevant (5) were considered. Out of the 10 experts, 7 returned fully filled-in questionnaires. The content validity index for each expert was computed as the frequency of responses for Relevant (4) added to the frequency of responses for Very relevant (5) divided by the total number of items. The average CVI for all experts was then computed to represent overall expert findings. Table 1 presents the CVI for experts:

Experts	QCVI
Expert 1	0.95588
Expert 2	0.77206
Expert 3	0.78971
Expert 4	0.96324
Expert 5	0.78971
Expert 6	0.78529
Expert 7	0.75735

Average CVI	0.83046
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Table 1: Expert content validity index results.

Results in Table 1 show that the average CVI=0.83, which is greater than the required 0.7 for a research instrument to be valid (Nunnally, 1978). Each expert CVI is given as follows; Expert 1 (CVI=0.955882); Expert 2 (CVI=0.772059); Expert 3 (CVI=0.78971); Expert 4 (CVI=0.963235); Expert 5 (CVI=0.78971); Expert 6 (CVI=0.78529); Expert 7 (CVI=0.757353).

Handling of missing values

Missing values were inevitable due to errors committed during data entry and also due to nonresponse on some questions. The researcher tested to establish if the missing values Missing Completely at Random (MCAR). A Little MCAR test found that Sig.=1.0, which was significant i.e. Sig>0.05. This meant that the missing values were not intentional. Therefore, we used linear interpolation to replace missing values [41].

Findings

Social media usage duration

Descriptive statistics were used to examine the duration that respondents had taken using social media. Table 2 shows the results.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 2 years	74	20.7	20.7	20.7
	2 to 4 years	63	17.6	17.6	38.3
	5 years and above	221	61.7	61.7	100
	Total	358	100	100	

Table 2: Social usage duration.

Results in Table 2 show that most respondents had used social media for a period of 6 years and above (freq=221, 62%). A total of 74 (21%) respondents had used social media for less than 2 years, while 63 (18%) respondents had used social media for 2 to 4 years.

Usage of social media to access health related information

Descriptive statistics were used to determine if respondents used social media to access health related information. Table 3 presents the findings.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	320	89.4	89.4	89.4
	No	38	10.6	10.6	100
	Total	358	100	100	

Table 3: Usage of social media to access health related information.

Results in Table 3 show that 320 respondents (89%) had ever used social media to access health related information, while only 38 (11%) had never.

and Behavioral Intentions on the Health Behavior of social media users in Sub-Sahara Africa. The control variables were also considered in the analysis. Table 4 presents the results.

The influence of cognitive factors, internal locus of control and behavioral intentions on the health behavior of social media users

Further, Multiple Hierarchical Regression analysis was used to analyze the influence of Cognitive Factors, Internal Locus of Control

	Model 1		Model 2		Model 3		Model 4	
Variable	B	Beta	B	Beta	B	Beta	B	Beta
(Constant)	4.037**		3.029**		2.024**		1.494**	
Gender	-0.328**	-0.221**	-0.418**	-0.282**	-0.371**	-0.250**	-0.372**	-0.251**
Age	0.018	0.018	0.018	0.018	0.067	0.067	0.111*	0.111
Education	0.03	0.076	0.025	0.063	0.028	0.071	0.052**	0.130**
Marital Status	0.019	0.015	-0.066	-0.05	-0.099	-0.074	-0.034	-0.026
Country of Residence	-0.077	-0.073	-0.045	-0.043	-0.078	-0.074	-0.089	-0.085
Cognitive Factors			0.303**	0.246**	0.190**	0.154**	0.102	0.082
Internal Locus of Control					0.315**	0.233**	0.325**	0.241**
Behavioral Intention							0.215**	0.383**
R	0.240		0.334		0.393		0.539	
R2	0.058		0.111		0.154		0.291	
Adj R ²	0.044		0.096		0.137		0.275	
R ² Change	0.058		0.054		0.043		0.136	
F Change	4.303		21.214		17.819		67.117	
Sig. F	0.001		0		0		0	
F	4.303		7.328		9.127		17.885	
Sig.	.001		.000		.000		.000	
	** Significant at 0.01							
	* Significant at 0.05							

Table 4: Regression results for objective two.

Results in Table 5, results in model 1 show that Control variables including Gender, Age, Education, Marital status, and Country of residence predict 4.4% of Health Behavior (Adj R² =0.044). The relationship between Gender and Health Behavior is significant (Beta=-0.221**, P<.01). The relationship between Age and Health Behavior is not significant (Beta=0.018). The relationship between level of education and Health Behavior is not significant (Beta=0.076). The relationship between, Marital Status and Health Behavior is not significant (Beta=0.015). The relationship between Country of Residence and Health Behavior is not significant (Beta=-0.073).

Results in model 2 reveal that control variables together with Cognitive Factors predict 9.6% of Health Behavior (Adj R²=0.096) while Cognitive Factors alone predicts 5.4% of Health Behavior (R² Change =0.054). Further, the relationship between Cognitive Factors and Health Behavior is significant at 99% confidence level (Beta=0.246**).

Results in model 3 reveal that control variables together with Cognitive Factors and Internal Locus of Control predict 13.7% of Health Behavior (Adj R²=0.137) while Internal Locus of Control alone predicts 4.3% of Health Behavior (R² Change =0.043). Further, the

relationship between Internal Locus of Control and Health Behavior is significant at 99% confidence level (Beta=0.233**).

Results in model 4 reveal that control variables together with Cognitive Factors, Internal Locus of Control and Behavioral Intention predict 28% of Health Behavior (Adj R²=0.275) while Behavioral Intention alone predicts 13.6% of Health Behavior (R² Change =0.136). Further, the relationship between Behavioral Intention and Health Behavior is significant at 99% confidence level (Beta=0.383**).

The above findings suggest that Cognitive Factors, Internal Locus of Control and Behavioral Intentions contributed 27.5% of the changes in the Health Behavior of social media users in Sub-Sahara Africa.

χ ²	DF	P	χ ² /DF	GFI	AGFI	NFI	RFI	IFI	TLI	CFI	RMSEA
724.24	17	0	42.602	0.82	0.523	0.431	-0.205	0.437	-0.211	0.428	0.341
						Estimate	S.E.	C.R.	Beta	P	Hypothesis
Health Behavior	<---	Cognitive Factors				0.206	0.071	2.903	0.131	0.004	H ₁ is supported
Internal Locus of Control	<---	Cognitive Factors				0.272	0.051	5.363	0.273	***	H ₂ is supported
Behavioral Intention	<---	Internal Locus of Control				0.393	0.114	3.445	0.18	***	H ₃ is supported
Health Behavior	<---	Behavioral Intention				0.11	0.034	3.263	0.152	0.001	H ₄ is supported

Table 6: Model Fit Summary for the hypothesized model.

In terms of model fitness, all indices of goodness-of-fit seen in Table 6 reveal that the model was not fit. The obtained chi-square (χ²) of 724.240, P=0.000, and χ²/DF of 42.602 are very high. According to (Kline, 1998) for a model to be acceptable, χ²/DF ratio should be <=3. Further, the GFI (.820), AGFI (0.523), NFI (0.431), RFI (-0.205), IFI (0.437), TLI (-0.211), and CFI (0.428) were all below the 0.9 which was below the recommended threshold of 0.9 (Hoe, 2008). The RMSEA of 0.341 is far above the recommended maximum of 0.08 for model fitness [42,43].

H₁: Cognitive Factors have a positive effect on the Health Behavior of social media users.

Results in Table 6 also reveal that Cognitive Factors and Health Behavior is significant (Beta=0.131, P=0.004). This finding indicates that a change in the Cognitive Factors such as knowledge and beliefs among social media users leads to a positive change in Health Behavior of social media users. Therefore, this result upholds H₁ hypothesis that states that Cognitive Factors have a positive effect on the Health Behavior of social media users.

H₂: Cognitive Factors have a positive effect on Internal Locus of Control of social media users.

Results in Table 6 reveal that there is a significant positive relationship between Cognitive Factors and Internal Locus of Control (Beta=0.273, P<0.001). This means that a change in the Cognitive Factors such as skills, knowledge and experience will improve the internal locus of the social media users. This finding is in agreement with H₂ that Cognitive Factors have a positive effect on the Internal Locus of Control of social media users.

H₃: Internal Locus of Control positively affects the Behavioral Intention of social media users.

Results

Confirmatory analysis

As earlier indicated, confirmatory analysis was done using structural equation modeling technique. The results are shown in table 6.

Results in Table 6 further show that the relationship between Internal Locus of Control and Behavioral Intention was positive and significant (Beta=0.180, P<0.001). Since the relationship implies a positive effect of the independent on the dependent variable. This finding means that an increase in the Internal Locus of Control of social media users will increase their Behavioral Intention to learn new Health Behaviors. This finding is in-line with H₃ which postulates that Internal Locus of Control positively affects Behavioral Intention of social media users.

H₄: Behavioral Intention positively affects Health Behavior of social media users.

Findings in Table 6 reveal that the relationship between Behavioral Intention and Health Behavior is positive and significant (Beta=0.152, P=0.001). This means that an increase in Behavioral Intention increases the learning of Health Behaviors. The finding is in agreement with H₄ that Behavioral Intention positively affects Health Behavior of social media users.

Discussion

Behavioral Intention

Behavioral Intention was originally measured by 8 observed variables. However, 2 were dropped in the CFA. The EFA total variance explained by 6 retained items was 77%. The obtained Average Variable Extracted by the 6 measurement items in the CFA was greater than 0.5. This finding indicates that 6 observed variables converged to measure Behavioral Intention. The confirmed measurement variables were inline literature of [24].

Cognitive Factors and Health Behavior of control of social media users

Although correlation and regression results indicated that no significant relationship existed between Cognitive Factors and Health Behavior, SEM results revealed a significant positive relationship between Cognitive Factors and Health Behaviors. In this situation, we consider SEM results because hierarchical results were controlled by extraneous variables such as age, gender, country of residence and level of education. Further, the proposed model is based on SEM. However, this discrepancy poses questions for further investigation in order to discover the role played by those extraneous variables in this relationship.

The SEM finding implies that a positive change in the Cognitive Factors of social media users such as improved knowledge and beliefs facilitated the learning of new Health Behaviors via social media.

[44] Argues that Cognitive Factors or personal factors are instrumental in the learning process. They shape the learner; help him or her identify the learning or knowledge gap for which information should be sought. Therefore people with high Cognitive Factors are target learners. They are selective on the subjects of their interest on which they wish to learn about. For example, an individual who is knowledgeable and believes that seeking information about drug abuse or alcoholism via social media can help them solve their health related problem through behavioral change, will join a given social media community that specifically discuss that particular problem. This, in the long run enhances the learning and behavioral change through observational learning [13] and practice [27].

On the other hand, an individual with lower Cognitive Factors such as low knowledge and beliefs is likely to access health information randomly. This is so because such individuals do not set their learning goals and have no specific sources of information from where to learn new Health Behaviors. Therefore, given that goals are not set prior to learning, there is limited behavioral change through observational learning and practice. Instead, given the randomness of information consumption, these kind of individuals may be vulnerable to information upsurge leading behavioral change in terms of moral degeneration once fully engaged on social media.

For example, a Muslim may observe their role model eating pork, but because of his religious beliefs, such a person may not start eating pork. Similarly, for an individual having knowledge of the consequences of eating pork as a Muslim, they will unlikely imitate the act. Hence, there will be no behavioral change. However, if the subject's beliefs are similar to the role model—in this he is not Muslim and his religious beliefs permit him to eat pork, such a person will learn the observed act and do it through imitation. This causes behavioral change.

Cognitive Factors and Internal Locus of Control of control of social media users

Both findings correlation and Multiple Hierarchical Regressions and those of SEM suggested that Cognitive Factors had a significant positive relationship with Internal Locus of Control. The finding for H₂ was in agreement with literature that suggested that individuals whose beliefs allowed them to use social media to access and share health information, and also who were knowledgeable about usage of social media were likely to be self-reliant, independent and make greater

efforts to learn new Health Behaviors via social media platforms [23,44].

According to [22] an individual with high Internal Locus of Control controls the consequences of his behavior and always seek better results from what they engage in. according to [23], individuals with high Internal Locus of Control belief strongly in their cultural values and they tend to cultivate good interpersonal relations with others. They are inherently problem solvers and are always willing to enhance their knowledge and skills through learning [22,23]. Internal Locus of Control therefore is a facilitating condition in the learning process. Given that older people are more knowledgeable and have strong beliefs in their actions, they are more likely to control their actions, seek learning and eventually learn new Health Behaviors via social media compared to the young people who, in most case are very doubtful of their beliefs and are less knowledgeable.

Internal Locus of Control and Behavioral Intention of control of social media users

Correlation and regression analysis revealed that no significant relationship existed between Internal Locus of Control and Behavioral Intention. However, SEM results revealed that individual with high Internal Locus of Control also have high Behavioral Intention to learn new Health Behaviors via social media. This finding is in-line with literature [22,23]. According to [22] Internal Locus of Control is where an individual controls the consequences of his/her actions. The individual is calculative and acts in anticipation of some achievement. This enables such an individual achieve greater performance in terms of learning useful health behaviors. Further, individuals with high Internal Locus of Control have better interpersonal relations and make greater efforts to learn new behaviors [23]. These attributes increase their Behavioral Intentions to learn new behaviors [24].

On the other hand, if an individual's Internal Locus of Control is low, he/she will have no much control over their actions and will not accept the consequences of their actions. Such individual tend to blame their mistakes on others [22,23]. They also heavily rely on others for their own achievements, to the extent that they are nonperformers. Worse still, individual with low Internal Locus of Control have poor interpersonal relations, making it hard for them to create synergy and learn from others. Therefore, their Behavioral Intention to learn new Health Behaviors is lower compared to their counterparts with high Internal Locus of Control [24].

Behavioral Intention and Health Behavior of control of social media users

Correlation and regression results revealed a significant positive relationship between Behavioral Intention and Health Behavior. SEM findings also revealed a positive significant relationship between Behavioral Intention and Health Behavior, implying that when you increase the Behavioral Intention of social media users, the learning of new Health Behaviors via social media also increases. This finding helps to support the argument that Behavioral Intention facilitates the process of learning by projecting the learner's level of willingness and the conditions under which they are willing to learn new behaviors [24]. In this study, social media users were willing to learn if they anticipated that learning new behaviors would help them acquire new health skills and practices that would enable them transform their health wellbeing [13,27]. Through observational learning, the users intended to acquire new health practices self-management of diseases,

especially the chronic disease such as cancers, HIV/AIDS, diabetes among others. Social media users intended join online forums where they would obtain information about how to manage these ailments.

However, other than learning the useful practices for improving their health wellbeing, social media users intended to access and consume health related information on dangerous substances such as alcoholism, smoking, pornography, homosexuality among others. For example, they intended to learn how to smoke, use drugs, alcohol, and pornography by observing images and videos of influential people in the online community doing it via social media. This was prevalent among the young respondents who were greatly affected by role modeling and observational learning compared to the mature adults.

Conclusion

The objective of the study was to analyze the influence of Cognitive Factors, Internal Locus of Control and Behavioral Intentions on the Health Behavior of social media users. This objective was investigated through a set of four hypotheses – H₁, H₂, H₃ and H₄. H₁ hypothesized that Cognitive Factors had a positive effect on the Health Behavior of social media users in Sub-Sahara Africa. The findings confirmed this hypothesis given that Cognitive Factors was found to have a positive significant relationship with Health Behaviors. Findings also confirmed H₂ which posited that Cognitive Factors had a positive effect on Internal Locus of Control of social media users in Sub-Sahara Africa. Further, it was found that Internal Locus of Control positively affected the Behavioral Intention of social media users, meaning that H₃ was accepted. Finally, H₄ which stated that Behavioral Intention positively affects Health Behavior of social media users was also confirmed. These findings suggested that higher values of each of Cognitive Factors, Internal Locus of Control and Behavioral Intention increased the chances of learning new Health Behaviors by social media users. Inversely, lower values of these variables reduced the chances of learning new Health Behaviors of social media users.

With the above findings therefore, we conclude that Cognitive Factors, Internal Locus of Control and Behavioral Intentions positively significantly influenced the leaning of Health Behaviors by social media users.

Recommendations

Given that Cognitive Factors positively influenced Health Behavior, we recommend that communities implement knowledge enhancement programs such as trainings, education, and sensitization among others. Social media users should be taught on the benefits of using social media for positive health gain. For example, patients in cancer ward can be shown how to access cancer blogs and other online cancer resource centers. This way, they will be able to join such communities of common interest and share their experiences as well as be educated by their fellow patients on how to manage the disease. More importantly, such platforms should have trained medical personnel and counselors who should come in and offer technical advice to the users.

Further, as regards beliefs- since it was established that individuals with strong beliefs in their cultures, religion, and traditional were likely to learn new Health Behaviors, it is recommended that cultural institutions, religious institutions join social media platforms and moderate the learning process. This will enable learns to learn new Health Behaviors that positively affect the health. Otherwise, without

proper guidance, such individuals will not learn beneficial Health Behaviors.

Improving on the knowledge and beliefs of social media users will not only help them learn new Health Behaviors but will go a long way in ensuring that social media users learn how to regulate themselves while using online platforms. This is very important given that Cognitive Factors positively influenced Self-Regulation, which in turn positively affects Health Behavior. More self-regulated social media users are selective in their actions and will not access or share information randomly. This promotes maturity in the learning process, thereby promoting positive Health behavioral learning.

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