

THE IMPACT OF HEALTH BELIEFS AND SELF-EFFICACY ON INTENTIONS TO SEEK ONLINE HEALTH INFORMATION AMONG WOMEN IN UGANDA

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ABSTRACT: The present internet revolution has opened a new avenue in healthcare where individuals now primarily refer to the Internet for health-related information searches. This shift from traditional methods of looking for health information has been prevalent among women. Many studies have uncovered the factors that trigger women's intentions to look for health-related information online. Meanwhile, empirical investigations on factors influencing African women's behavioral intentions to search for health-related information on the Internet are rare. It is imperative to investigate such factors due to social, economic, and technological differences among women populations in advanced and developing nations. Thus the urgency of this study. Therefore, this study examined the influence of health belief factors and self-efficacy on women's intentions to seek health-related information. An online survey questionnaire was employed to collect the required data, and the Smart PLS3.0 was used to execute the structural equation modeling technique to evaluate the hypothesized relationships in the study. The findings indicate that the triggers of intentions for women in Uganda to look for health-related information on the Internet include internet navigation skills and concern over their general well-being (health consciousness). It is interesting to note, however, the perceived susceptibility and severity to chronic illnesses did not affect the intentions of women to look for online health-related information. This study is the first of its nature in the Sub-Saharan region. Although online health information research is still in its infancy in Uganda, it provides imperative inputs for policymakers to offer befitting interventions on health information-seeking skills and knowledge in the community.

KEY WORDS: Women, Online health information seeking, Uganda, HBM, Internet Self-efficacy

1. INTRODUCTION

One of the most vital social and economic challenges countries face in the 21st century is healthcare. To this end, the United Nations Sustainable Development Goal Three (UNSDG3) promotes well-being for all ages and ascertain healthy lives. One of the ways of transforming and promoting medical services quality is the promotion of information and communication technology (ICT) in the health domain (Aceto et al. (2018). The Internet is one of the advancements in ICT that has altered healthcare by disseminating information to individuals outside the bounds of

geographical location and time. It is no wonder that looking for health-related information has become a common phenomenon in the 21st century.

Studies in some countries have documented self-reported good results arising from using online health information, improvement of patient-physician relationship (Tan & Goonawardene, 2017), gaining social support (Chen et al. 2019), self-help for socially stigmatized illnesses (Chen et al. (2019) among others.

Women have dominated online health information. For example, a study in the United States showed that six in ten females use the Internet for health purposes (Sedrak et al., 2020). Various factors trigger women's online health information seeking, such as caregiving roles and chronic disease.

Meanwhile, the extant literature on online health information seeking among women has mainly focused on advanced countries, with a dearth of studies done in developing countries, particularly those in Africa (Nangsangna & Vroom, 2019). It is, therefore, imperative to bridge this knowledge gap by identifying the factors that influence the behavioral intentions of women to seek health-related information on the Internet. Since advanced and developing countries have varied social, economic, and technological dynamics, the expectation is that the factors affecting women's online health information search intentions differ. Therefore, this study investigates factors that impact the intentions for adopting the Internet for health information-seeking purposes among women in Uganda (a developing country).

2. BACKGROUND OF STUDY

Over the years, most countries have experienced tremendous changes in healthcare services and systems due to advancements in information and communication technology (ICT). This scenario changed the health information landscape (Alwi & Murad, 2018). With the availability of numerous sources of health information, health information-seeking behaviors have surfaced over the years. Health information seeking involves collecting data about health or disease (Basch et al., 2018). Therefore online health information seeking is about how individuals gather information about health from the Internet (Jacobs et al., 2017).

Recent reports indicate that the world's internet penetration will have skyrocketed to 4.9 billion users by 2021 (ITU, 2022). While a more significant percentage of internet penetration is apparent in developed countries, developing countries have also attempted to boost internet usage and penetration to benefit their citizenry. Uganda, in January 2021, reported a 26.2% growth in internet penetration which saw an increase in Internet penetration and usage at the individual level to over 12 million active internet users.

The implications and importance of online health information-seeking behaviors have interested researchers in investigating the factors influencing individuals to use the Internet for health information-seeking purposes. Nangsangna and Vroom's (2019) and Ofori and Antwi's (2021) research regarded online health information seeking as a perceived technology-driven behavior and investigated the correspondence of such behavior using technology adoption theories. Internet self-efficacy is among the technology-related factors examined under online health information seeking. Self-efficacy is a belief in one's ability to complete any action of interest, notwithstanding the barriers at hand. According to Bandura (1997), self-

efficacy significantly correlates to and predicts online health information-seeking behavior.

Other studies have examined online health information seeking from a health perspective by investigating the health-related predictors of online health information adoption (Ahadzadeh et al., 2015). Among the health-related factors, the belief that one's health is at risk influences online health information-seeking behavior (Ahadzadeh et al., 2015). More so, individuals who are health conscious are more inclined to seek health information online to manage their health than those who are less health conscious (Ahadzadeh et al., 2015).

Women are predominant users of online health-related information. For instance, a study in the United States revealed that six in ten females use the Internet for health purposes (Sedrak et al., 2020). The predominance of female users has prompted empirical research to investigate factors influencing their online health information-seeking behaviors. Research indicates that women intend to look for health information on the Internet because of deficiency in healthcare services (Maslen & Lupton, 2018), the need for reassurance from others experiencing similar health problems (Chu et al., 2017), and suffering from a chronic ailment such as (Cancer) (Nikoloudakis et al., 2018) among other reasons.

Health and technology-related factors are the primary motivations for women's online health information-seeking. Therefore, considerable research on online health information-seeking behavior among women in different communities/societies, especially in developed countries, is available (Maslen & Lupton, 2018). In Uganda, however, there is no published study to provide insights on online health information-seeking activities of women and the possible factors influencing their adoption intentions of the Internet as a health information source. Thus the urgency of this study.

This paper aims to contribute to the literature by introducing the Health Belief Model constructs (i.e., perceived health risk and health consciousness) and internet self-efficacy to investigate women's online health information-seeking behavior in Uganda. Establishing these factors is critically important since it helps inform policies and interventions to enhance women's well-being and develop health management skills. The health belief model (HBM) is one of the most widely accepted health behavior models in information systems research. It has broad applicability and high explanatory power to predict health behavior change and adoption intent. A user behavior model to explain the mechanism that underlies the connection between perceived susceptibility, perceived severity, internet self-efficacy, and online health information-seeking behaviors of Ugandan women by utilizing HBM constructs and internet self-efficacy as predictors for online health information seeking. Thus, the objective of this study is to investigate the influence of health-related factors, drawing from HBM (perceived susceptibility, perceived severity) and internet self-efficacy on the online health information-seeking behavior of women in Uganda

3. LITERATURE REVIEW

3.1 Online health information seeking Behavior (OHISB)

Billions of individuals worldwide are on the Internet engaging in various activities, some of which are health-related. The most prevalent health-related activity done online is health information seeking. Here, people's searches include but are not limited to symptoms, diagnoses, healthy diets, wellness tips, and treatments for various diseases or general health information. This information provides individuals with knowledge about health issues and managing health issues, which prompts decision-making and behavior change (Ghahramani & Wang, 2020).

There is a consensus among scholars who study online health information seeking behavior that women are the predominant users of online health-related information (Sedrak et al., 2020; Baumann et al., 2017). Most studies suggest that women are primarily surrogate information seekers for their families. Moreover, other factors prompt women to search for health information online. These include the need for reassurance from others experiencing similar health problems, deficiency in healthcare services, and suffering from a chronic ailment such as (Cancer), among other factors (Baumann et al., 2017; Chu et al., 2017). These findings show that women utilize the Internet to satisfy their health needs.

3.2 Theoretical Framework: The Health Belief Model (HBM) Approach

This model was developed in 1966 by Irwin Rosenstock, and it is among the earliest health prominent health promotion models. The initial aim of the model was to examine why individuals sought or declined X-ray examinations for tuberculosis. It had four constructs: (1) perceived susceptibility, ((2) perceived severity, (3) perceived barriers, and (4) perceived costs of committing to the proposed intervention. The model was, however, modified by Becker and colleagues in the 1970s and 1980s to add individuals' reactions to symptoms and illnesses and how they observed medical commands.

The HBM predicts general and positive health behaviors, especially towards severe illnesses like cancer (Guidry et al. 2020). The primary hypothesis of HBM is that individuals may not engage in any health activities without symptoms. As such, they psychologically need to be vulnerable to disease. The HBM thus suggests that health risk arouses the possibility of engagement in health behavior (Glanz et al., 2008). Perceived health risks have two dimensions: perceived susceptibility and perceived severity. Perceived susceptibility refers to the beliefs about the probability of contracting an illness or condition, and perceived severity relates to the emotions surrounding the seriousness of a disease once acquired (Glanz et al., 2008). Perceived susceptibility and severity motivate individuals to take action. These actions may include preventive health behavior like information search on the Internet to satisfy health-related information needs (Yun & Park, 2010). Chen et al. (2019) stated that perceived susceptibility and severity influence online health information-seeking behavior.

Health consciousness is another construct from HBM that impacts health-seeking behavior. Health consciousness is "the degree to which health concerns are integrated into a person's daily activities" (Jayanti & Burns, 1998.) Health-

conscious individuals tend to be concerned about their well-being and work to improve their health (Ahadzadeh et al., 2015).

Internet self-efficacy is one's capability to complete any task of interest despite the barriers at hand. Bandura (1997) stated that self-efficacy is a significant predictor of behavior and correlates with online health information-seeking behavior. Knowing how to navigate and use the computer/electronic device is a prerequisite to using the Internet for any purpose, including online health information seeking. Thus, people with less efficient navigation skills are less likely to use the Internet for health purposes (Jiang et al.'s (2021). Pourrazavi et al. (2022)'s study indicated that self-efficacy led to a 15% increase in the probability of using online health-related information among older adults. Moreover, self-efficacy in Iran influences the intention to seek online health information by 14% of the variation (Baji et al. (2019).

4. PROPOSED RESEARCH FRAMEWORK AND HYPOTHESES

Extant literature has established significant relationships between perceived susceptibility, perceived severity, health consciousness, internet self-efficacy, and behavioral intention. Therefore this study hypothesizes that:

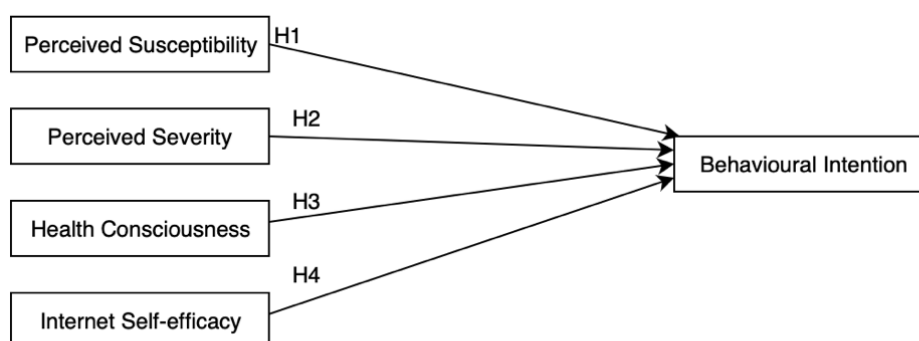
H₁: Perceived susceptibility has a positive relationship with behavioral intention to use the Internet to search for health-related information

H₂: Perceived severity has a positive relationship with behavioral intention to use the Internet to search for health-related information

H₃: Health Consciousness has a positive relationship with behavioral intention to use the Internet to search for health-related information

H₄: Internet self-efficacy has a positive relationship with behavioral intention to use the Internet to search for health-related information

The proposed research framework is illustrated below:



5. METHODOLOGY

4.1 Population, Sample, and Data Collection

This study's target population consisted of women residing in urban areas of Kampala metropolitan, Mukono, and Wakiso. An online survey questionnaire was employed to evaluate the hypothesized relationships, as shown in Figure 1. 400 attempts of online survey distribution were made using a link to identified women via WhatsApp groups where willing respondents took part in the study. 394 online surveys were completed and submitted via the google forms survey platform. After data cleaning, all 394 responses were deemed usable and retained for statistical analysis. A probability sampling technique (the cluster sampling technique) was utilized to select women identified as internet users.

4.2 Measures

The current study used 23 measurement items borrowed from existing research but modified to suit the context and objective of the present study.

a) *Perceived Susceptibility*

This construct was measured using four items adapted from Bryan et al. (1997) and Jeongeun & Hyeoun (2012). The researchers asked the study participants to rate the items on a 5-point Likert-type scale (1=strongly disagree, 2=disagree, 3=neutral, 4=agree, and 5=strongly agree) (see Appendix 1).

b) *Perceived Severity*

This construct was measured using four items adapted from Jeongeun & Hyeoun (2012). The Participants ranked the items on a 5-point Likert-type scale (1=strongly disagree, 2=disagree, 3=neutral, 4=agree, and 5=strongly agree) (see Appendix 1).

c) *Health Consciousness*

This construct was measured using five items adapted from Jeongeun & Hyeoun (2012) and Chen (2011). The study participants ranked the items on a 5-point Likert-type scale (1=strongly disagree, 2=disagree, 3=neutral, 4=agree, and 5=strongly agree) (see Appendix 1).

d) *Internet Self-efficacy*

This section was measured using five items adapted from Venkatesh et al. (2012) and Zalessky & Hasan (2018) studies. Using a 5-point Likert-type scale (1=strongly disagree, 2=disagree, 3=neutral, 4=agree, and 5=strongly agree), respondents ranked these items by indicating their level of agreement with the statements where higher scores indicated a high frequency of usage of the Internet for a particular health issue (see Appendix 1).

a) *Behavioral Intention*

This section was measured using five items adapted from Venkatesh et al. (2012) and Zalessky & Hasan (2018) studies. Respondents ranked these items using a 5-point Likert-type scale (1=strongly disagree, 2=disagree, 3=neutral, 4=agree, and 5=strongly agree) by indicating their level of agreement with the statements where higher scores indicated a high frequency of usage of the Internet for a particular health issue (see Appendix 1).

4.3 Statistical Analysis

This research is quantitative and uses a cross-section research design. The study utilizes the SmartPLS 3.0 software package (Ringle et al., 2015) to analyze quantitative data using the Partial least squares structural equation modeling (PLS-SEM) technique. This analysis method is an upcoming data analysis tool best known for handling small sample sizes and non-normal data used in social sciences, business, and management (Hair et al., 2014). This technique suits studies that evaluate existing theories (Ringle et al., 2018).

The PLS-SEM has two analysis stages, the measurement model specification and structural model assessment (Ringle et al., 2018). The measurement model specification allows for the evaluation of constructs to ascertain that only constructs with acceptable indicator loading, convergent validity, composite reliability (CR), and discriminant validity are retained in the structural model. The structural model, through bootstrapping technique, evaluates the path coefficients to test their significance.

Data from the online survey was downloaded in an excel sheet and cleaned before analysis. The Statistical Package for the Social Sciences (SPSS) version 25 (IBM) was used to assess the first section of the survey for frequencies, means, and standard deviations of the demographic data. The second section of the online survey data was analyzed using the SmartPLS 3.0 software by applying the Partial Least Squares (PLS) algorithm to test the proposed research framework. PLS is a variance-based structural equation modeling procedure that allows researchers to predict the dependent variable by evaluating the structural paths in the model (Henseler et al., 2015).

6. DATA ANALYSIS AND FINDINGS

5.1 Assessment of the Measurement Model

Initially, the researchers assessed the measurement model to confirm the constructs' reliability and validity, following Hair et al.'s suggestions (2006). At first, the model included 23 indicators. However, the researchers removed indicators with low factor loadings during the measurement model analysis. Hair et al. (2014) suggested that indicator outer loadings/factor loadings values be at 0.708 or higher. In this study, the initial assessment showed that most items had factor loadings greater than 0.703. However, indicators HC5 (0.301) and SI5 (0.506) had factor loadings lower than the recommended values and were thus omitted from the measurement model by the researchers. The model was re-run, and all the factor loadings were above or close to the recommended value of 0.703. After the elimination of HC5, Composite Reliability increased from **0.871** to **0.921**. After omitting SI5, the Composite Reliability improved from **0.897** to **0.922**. Inevitably, the final measurement model included 21 items.

Table 2 presents factor loadings of the measurement model (<recommended value of 0.703).

The CR of all the constructs is respectively above the recommended values of 0.70, establishing convergent validity and reliability. Additionally, as indicated in table 3, discriminant validity is also established based on the criterion proposed by Fornell and Larcker (1981). The gross findings of the confirmatory factor analysis demonstrated that the model is satisfactory for structural evaluation.

Table 1: Convergent validity and reliability

Construct	Item	Outer Loadings	CR
Perceived Susceptibility (PS)	PS1	0.82	0.863
	PS2	0.914	
	PS3	0.703	
	PS4	0.68	
Perceived Severity (PSV)	PSV1	0.796	0.909
	PSV2	0.923	
	PSV3	0.872	
	PSV4	0.785	
	PSV1	0.796	
Health Consciousness (HC)	HC1	0.847	0.921
	HC2	0.894	
	HC3	0.863	
	HC4	0.792	
Self-efficacy (SE)	SE1	0.753	0.922
	SE2	0.936	
	SE3	0.914	
	SE4	0.79	
Behavioural Intention (BI)	BI1	0.814	0.912
	BI2	0.914	
	BI3	0.869	
	BI4	0.81	
	BI5	0.691	

Table 2: Discriminant validity (Fornell–Larcker criterion)

	BI	HC	PS	PSV	SE
BI	0.823				
HC	0.395	0.863			
PS	0.12	0.015	0.787		
PSV	0.307	0.379	0.302	0.846	
SE	0.651	0.394	0.14	0.285	0.852

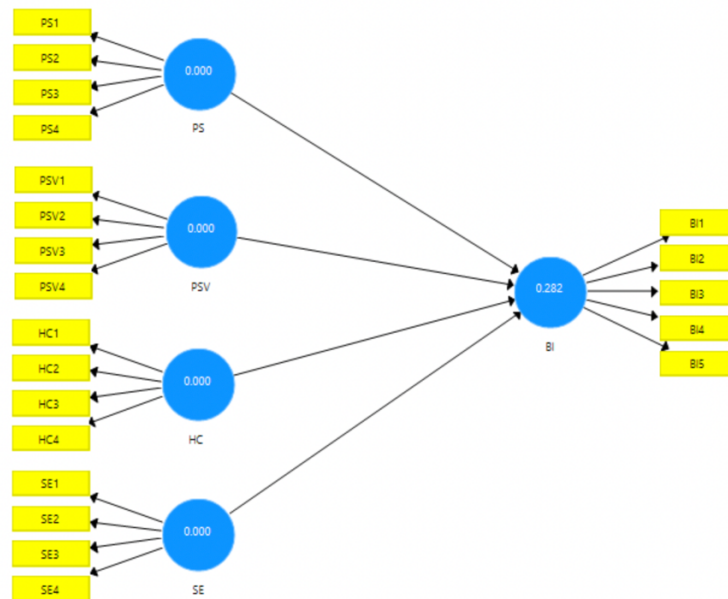
5.2 Structural model assessment

Following the obligatory evaluation of the measurement model, the researchers carried out a structural model analysis in the second stage. The structural model analysis evaluates the underlying assumptions of the study. During hypotheses testing, the researchers tested the direct effects of PS, PSV, HC, and SE on BI. Using the Bootstrap technique with 5000 resamples (Ringle et al., 2005), the researchers evaluated the significance of direct paths and standard errors. Table 3 shows the test findings of the hypotheses proposed for direct relationships.

Table 3: Findings for structural model path coefficient (direct relationships)

Hypothesis	Relationship	β (Path Coefficients)	(STDEV)	T Statistics	P Values	Decision
H ₁	HC -> BI	0.137	0.043	3.166	0.002	Supported
H ₂	PS -> BI	0.011	0.044	0.256	0.798	Not supported
H ₃	PSV -> BI	0.089	0.045	1.959	0.050	Not supported
H ₄	SE -> BI	0.570	0.045	12.719	0.000	Supported

The overall results suggest hypotheses (H₁ and H₄) of the current study were supported while (H₂ and H₃) were not supported.



7. RESULTS AND DISCUSSION

6.1 Principal Findings

The findings highlight a substantial positive impact of HC on BI (β 0.137, $t = 3.166$, $p = 0.002$). Therefore, H_1 is supported. This finding implies that health consciousness significantly influences the intentions of Ugandan women to look for online health information on the Internet. This finding aligns with previous empirical studies where health consciousness correlates positively with the behavioral intention to seek online health information (Ahadzadeh et al. 2015; Chan et al. 2016).

However, the results indicate PS is not significant in influencing BI (β 0.011, $t = 0.256$, $p = 0.798$). Hence, H_2 was not supported. This finding implies that women in Uganda do not perceive themselves as susceptible to chronic illnesses. The survey highlighted that women disagreed and strongly disagreed with having a family member with a chronic disease (53%), the likelihood of catching an illness in the future (64%), the possibility of catching chronic diseases due to improper such as drinking (59%), and the likelihood to contacting chronic diseases (69%).

This study's quantitative finding is contrary to previous studies where perceived susceptibility influences behavioral intention, for instance, Jiang et al. (2021) and Rayani et al. (2021). However, this quantitative finding is not surprising. Since the study sample included young women without a family history of chronic illnesses, they did not perceive themselves as susceptible to chronic diseases. Therefore, the findings explain the lack of significant impact of perceived susceptibility on behavioral intention.

The results also indicate no correlation between PSV and BI (β 0.089, $t = 1.959$, $p = 0.050$). Thus, H_3 was not supported. This finding implies that perceived severity impacts women in Uganda's intention to seek health information online. Considering that Ugandan women in the study sample were free from chronic diseases explains

this finding. This result implies that while women in Uganda dread chronic diseases and the severe consequences they might impose on them, their intentions to find online health-related information are not impacted by the perceived severity of such illnesses.

This result draws attention to the previous finding in H2. This finding from the present study is contrary to results from past empirical research by Jiang et al. (2021) and Rayani et al. (2021), where perceived severity positively influenced behavioral intention for online health-related information-seeking.

Lastly, the findings indicate a significant effect of SE on BI (β 0.570, $t = 12.719$, $p = 0.000$). Thus H4 was supported. This result implies internet navigation skills substantially influence Ugandan women's intentions to seek health-related information from the Internet. This finding validates previous findings regarding confidence facilitating behavioral intention to seek online health information (Pourrazavi et al., 2022; Jiang et al., 2021; Nangsangna & Vroom, 2019). This result can further be explained by the educational background of the study's participants, where most of them were educated to a minimum of a bachelor's degree, which calls for fundamental computer and internet searching skills. However, contrary to the present study's findings, Link et al. (2021) 's research revealed a lack of significant influence of internet self-efficacy on OHISB.

8. CONCLUSION

This paper finds that health consciousness and self-efficacy significantly influence women's intention to seek health-related information from the Internet. This finding implies that health is the primary reason most women in Uganda search for health-related information on the Internet. Health consciousness in this study highlights the use of online health-related information to manage one's health. Self-efficacy also played a significant role in affecting women's intentions to seek online health-related information. This element was highlighted by women's confidence in their Internet searching skills.

The paper attempted to explain other health belief concepts, perceived susceptibility, and severity, which did not influence the women's intention to seek online health-related information. This finding implies that the perception of susceptibility to chronic illnesses and their severity does not influence Ugandan women's intention to seek online health-related information.

This model would be believed to guide policymakers in understanding the health belief factors affecting online health information-seeking intention behaviors among women in Uganda and correspondingly design fitting intervention programs.

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