

Hepatitis B and C Patients' Information Seeking at a Selected Tertiary Health Institution in South Africa

Irewole D. Ibinaieye

<https://orcid.org/0000-0001-9737-4639>
Department of Information Studies,
University of Zululand, South Africa
docibi@yahoo.com

Glenrose V. Jiyane

<https://orcid.org/0000-0002-2856-3695>
Department of Information Studies,
University of Zululand, South Africa
jiyaneg@uniizulu.ac.za

Abstract

Much has been reported about information-seeking behaviour in health contexts, specifically related to chronic diseases, however, little is known about the methods and purpose of information seeking regarding hepatitis B and C patients, given the epidemic nature of the disease. This article aims to examine information-seeking behaviour of hepatitis B and C patients using a comprehensive model of information seeking at a tertiary health institution in South Africa. A qualitative research design was used for this article. Nine patients were recruited for an interview at the Ngwelezane district hospital in KwaZulu-Natal using a convenient sampling technique at a 95 per cent confidence interval rate to collect qualitative data. The qualitative data were descriptively analysed using the “ggplot2” package of R-software and a bivariate correlational chart, generated using grid and lattice packages incorporated in the R-development platform. The majority of the participants preferred seeking information directly from health professionals about their health challenges, whereas others preferred watching television programmes on health, and reading up on hepatitis-related information regarding getting better treatment, staying safe, getting informed and increasing their chances of survival. The comprehensive model of information seeking was applied to hepatitis B and C participants' information seeking by investigating the frequency of their information seeking, their methods of information seeking, and their purpose of information seeking. This study provides insight into the preferred methods of information seeking by the participants to enable them to make informed decisions and to achieve better outcomes.

Keywords: hepatitis B and C, information seeking, comprehensive model of information seeking, South Africa

Introduction

Hepatitis B (HBV) and hepatitis C (HCV) are two of the leading causes of acute and chronic liver diseases, hepatic decompensation, hepatocellular carcinoma (HCC), cirrhosis, and primary liver cancer worldwide (Chonco and Rangiah 2019, 65; WHO 2021a, 2021b). According to Waheed et al. (2018, 4959), “over 300 million people are living with viral hepatitis globally, with approximately 1.3 million deaths per year.” Ishizaki et al. (2017, 129) noted that the challenges faced by HBV and HCV patients include “limited community awareness and information about viral hepatitis”. This implies that an increased community awareness of HBV and HCV disease-related information is required to reduce the spread of the diseases or to witness their total elimination globally by the year 2030. The World Health Organization (WHO) in 2020 launched a new programme focusing on the theme “Hepatitis-Free Future” to promote the importance of preventing mother-to-child transmission of HBV, by calling on domestic and international programming and funding to expand access to prevention, testing and treatment services to achieve the 2030 elimination targets (WHO 2021a, 2021b). It is therefore essential that studies examine patients’ information-seeking behaviour to enable the researchers, patients, and healthcare providers to better understand or predict factors influencing patients’ information seeking behaviour, and to inform the best way of providing HBV and HCV disease-related information for use.

In general, patients’ information seeking has been examined in various contexts regarding risks, illnesses information, and protective behaviours (Lalazaryan and Zare-Farashbandi 2014, 193; Lambert and Loiselle 2007, 1006; Marchionini and White 2007, 205; Stonbraker et al. 2017, 1588). Su et al. (2021, 1) emphasised communication practices, especially during the pandemic. Recent research into human information-seeking behaviour has focused more on: (a) the frequency of health information among organisational peers (Case and O’Connor 2016, 649; Myers et al. 2018, 30; Sin 2016, 1793); (b) the use of social media and the problematic everyday life information seeking in the areas of health (Sin 2016, 1793); and (c) measuring the frequency of studies’ information outcomes (Case and O’Connor 2016, 649). The multivariate relationships among social media use, individual differences, and problematic informational outcomes have yet to be studied in depth. In a broader concept, information seeking requires strategies for locating information, which may include searching relevant information sources or databases using a variety of search tools, perhaps browsing, monitoring, or avoiding some irrelevant sources (Ford 2015, 23). The knowledge and understanding of patients’ information-seeking behaviour can improve access to and use of information that is beneficial to the health of the patient (Ford 2015, 246). On the other hand, understanding the methods of information seeking of patients can add value to the effective role of information professionals and healthcare professionals in providing health information for patients (Ford 2015, 8).

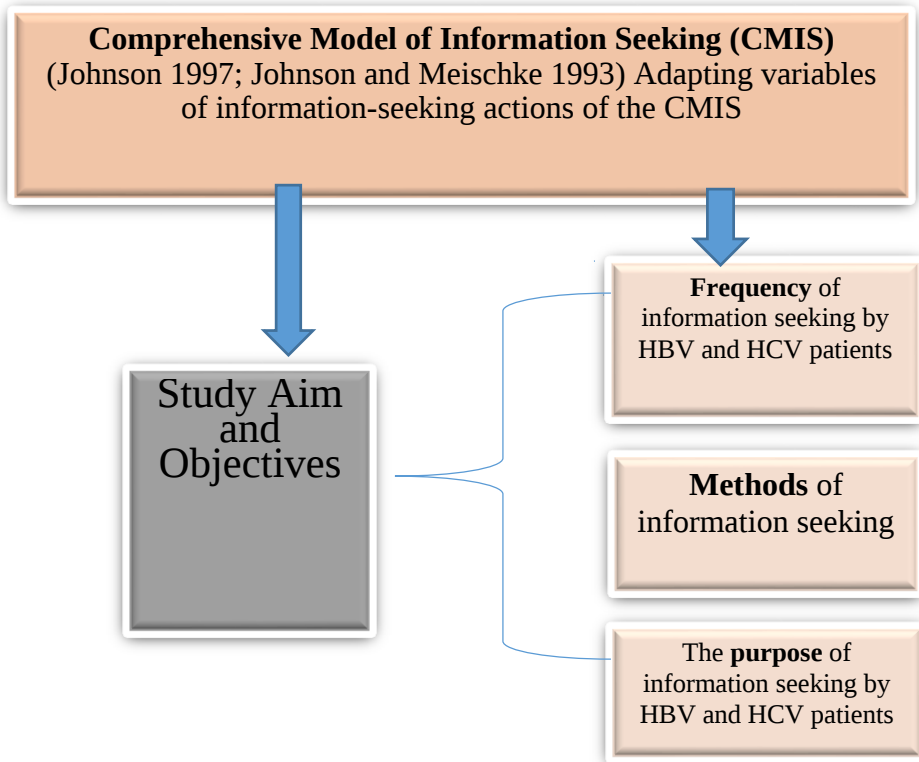
Scholars believe that information seeking, particularly regarding health issues, involves activities that individuals must engage in to find good health, avoid health risks, obtain

illness information, and to protect lives (Ibinaie 2021, 6; Lalazaryan and Zare-Farashbandi 2014, 193; Lambert and Loiselle 2007, 1006; Marchionini and White 2007, 205). Marchionini and White (2007, 205) argued that the first step in information seeking is the recognition of a need for information, followed by the actions of individuals to fulfil this need, figuring out the nature of the need, using a search system, and examining the results of the search. In the context of HBV and HCV patients, the first step in preventing the spread of such diseases is to encourage the patients to search for health-related information (Lalazaryan and Zare-Farashbandi 2014, 193). Knowledge of patient information-seeking behaviour is important in maintaining good health (Lambert and Loiselle 2007, 1006). Lambert and Loiselle (2007, 1006) maintain that seeking information about one's health is a key coping strategy in health-promoting activities and psychosocial adjustment to illness. Seeking health information is important, however, seeking credible information is equally important given that information behaviour scholars support credible information, authoritativeness, and accuracy of information sources because these factors influence the perceptions of information seekers (Case and Given 2016, 151; Lee and Kim 2015, 285; Robson and Robinson 2013, 174; Wilson 2000, 52).

Research has shown that there are many theories and models supporting health or human information seeking as examined by authors in previous studies (Brashers 2007, 201; Hogan and Brashers 2015, 61; Kuang and Wilson 2017, 378; Miller et al. 2014, 233; Rains 2014, 1296). Given that the quality of a theory is measured by its ability to predict the relationship among variables of a given phenomenon (Case 2012, 134), it is appropriate that a qualitative model be applied in this context to predict the method of information seeking, purpose, and frequency of information seeking by HBV and HCV patients. A comprehensive model of information seeking (CMIS) was selected to guide the study. The CMIS was considered appropriate to determine the information-seeking behaviour of HBV and HCV patients. The CMIS is characterised by seven variables grouped under three factors, namely, antecedent factors (demographics, experiences, salience and beliefs), information carrier factors (characteristics and utility), and information-seeking actions (strategies or methods) (Case and Given 2016, 157; Johnson and Case 2012, 40). CMIS factors concentrated on the antecedent factors, information carrier factors, and information-seeking factors that are relevant to the context of this study.

This article depicts the information-seeking actions of the CMIS model by Johnson and Meischke (1993, 343) given that the information-seeking action variable measured the objectives outlined for this article, in other words to guide HBV and HCV patients' information seeking. CMIS variables were selected to predict the purpose of information-seeking actions by patients, and the frequencies of information seeking which might likely guide patients' information-seeking actions. The CMIS has been empirically tested in health communication studies and other health-related contexts (Basnyat et al. 2018, 563; Bernadas and Jiang 2019, 7; Han et al. 2010, 367; Kim, Powell, and Bhuyan 2017, 1; Ruppel 2016, 208; Sheng and Simpson 2015, 96), and can

therefore also be applied in the context of this article. Information-seeking factors as part of the variables of the CMIS has been applied to determine the information-seeking actions of HBV and HCV patients. This article improves on the variables of the CMIS by adding the purpose of information seeking, the methods of information seeking and the frequency of information seeking. Figure 1 illustrates the theoretical framework for HBV and HCV patients' information-seeking behaviour.



Source: Developed by the researcher from other theories and models in the literature.

Figure 1: Theoretical framework for HBV and HCV patients' information-seeking behaviour

Based on the CMIS, the theoretical framework for information-seeking behaviour explored the general aim and objectives of the study. The researchers investigated the research questions set out in the study to achieve the purpose of the study. This study was conducted to investigate the information-seeking behaviour of HBV and HCV patients, regarding the methods of information seeking, the purpose of information seeking and to determine the frequency of information seeking by patients at a tertiary health institution in South Africa.

Purpose of the Study

The purpose of the study was to determine HBV and HCV patients' information-seeking behaviour regarding the methods, the purpose and the frequency. The following are the specific objectives of the study:

- establishing the methods of health information seeking used by HBV and HCV patients at a tertiary health institution in South Africa;
- establishing the purpose of information seeking by HBV and HCV patients at a tertiary health institution in South Africa; and
- determining the frequency of information seeking by HBV and HCV at a tertiary health institution in South Africa.

Methodology

A qualitative approach was used for this study. Qualitative data were collected from HBV and HCV patients at the Ngwelezane district hospital. Semi-structured interviews were conducted with each patient to obtain in-depth information on the health information method, purpose and frequency of information seeking. The target population was all HBC and HCV patients taking medication in the family medicine and internal medicine section at the Ngwelezane hospital. A total of nine HBC and HCV patients participated. These patients were sampled using a convenient sampling technique, based on the 95 per cent confidence interval (CI) (see Table 1). Convergent and discriminant validity was reported at a 95 per cent CI. The *p*-values of the considered variables were larger than 0.05. The qualitative data were analysed using the “ggplot2” package of R-software and a bivariate correlational chart, which was generated using grid and lattice packages incorporated in the R-development platform.

Table 1: Sample size calculation and the number of study participants according to four CIs

Category	Total number	Sample size calculation in four CIs				Actual participants
		CI 95%	CI 90%	CI 85%	CI 80%	
Patients (per month)	10	9	8	7	5	9 (95% CI)
Total						9

Source: Statistically generated by the researcher.

The HBV and HCV patients from this particular hospital were chosen because the hospital provides district, regional and tertiary services to communities in the Uthungulu, Umkhanyakude and Zululand Districts in South Africa. The hospital is situated in the Ngwelezane suburb which is five kilometres from Empangeni. The

Ngwelezane hospital is about 20 kilometres from the Richards Bay industrial area, harbour and beaches and airport (KwaZulu-Natal Department of Health 2019, 1).

Procedure for Data Collections

The procedure for data collections by the researchers in this study involved firstly the data collection between 16 November 2020 and 2 December 2020. The researcher and the research assistant briefly discussed the purpose of the study with the patients who participated in the study. A written and printed informed consent was explained and provided to each participant who agreed to participate in the interview. The signed informed consent forms were kept in safe custody for future reference, and the policy of confidentiality of using patients' information was duly followed. In addition, a 15 minute presentation was provided to doctors immediately after their early morning briefing. Second, the recruitment of participants for qualitative data was done in the Ngwelezane district hospital, KwaZulu-Natal, South Africa. The HBV and HCV patients were recruited for the qualitative data collections on their clinic days, to enable the researchers and the research assistant to meet with each patient for an interview. Face-to-face interviews were used to collect data from the HBV and HCV patients. A convenient sampling technique was used to gather qualitative data from HBV and HCV patients in the face-to-face interviews.

Data Analysis

The qualitative data were analysed thematically using a descriptive method for the bio-data section and R-software and bivariate correlation chart.

Ethical Clearance

The required ethical clearances were obtained from the University of Zululand, KwaZulu-Natal, South Africa (UZREC171110-030PGD2020/8, on 2 September 2020), the ethical committee of the Ngwelezane district hospital (on 6 November 2020), KwaZulu-Natal, South Africa, and the Health Research and Knowledge Management unit of the KwaZulu-Natal Department of Health, South Africa (NHRD REF.KZ-220-004, on 13 November 2020) to ensure that the research practices comply with the ethical standard.

Findings

Based on the sample size (Table 1), the researcher along with the research assistant conveniently interviewed nine participants (95%), according to their schedule on their clinic days, until the level of saturation was reached.

Demographic Distribution of HBV and HCV Patients

The demographic distribution includes the patients' gender, employment per age group, and health status. Demographic factors are part of the antecedent variables of the CMIS. The purpose of the demographic data in this study is to predict the way in which

patients' information needs and pattern of information seeking among each group are influenced by age, gender, economic status or health status or environmental factors (Figure 2).

Gender Information

The gender information in this study allowed the researcher to determine the way in which gender influences patients' information needs and information-seeking actions. The findings in this study indicate that the majority (5, 55.6%) of the participants in this study were male and four (44.4%) of the participants were female.

Employment per Age

The findings reveal that the majority (three) of the participants were between the ages of 40 and 49 years, three were between the ages of 50 and 59 years, and two were aged between 30 and 39 years. The only self-employed participant was between the ages of 50 and 59 years old. When the participants were asked about their employment status per age group, eight (88.8%) indicated that they were unemployed and one (11.2%) indicated that they were self-employed. Figure 2 illustrates the employment status per age group of HBV and HCV patients.

Health Status

The findings indicated that the majority (7, 77.7%) of the participants were HCV positive, whereas only two (22.3%) participants were HBV positive. The demographic information on HBV and HCV patients will enable the healthcare providers to determine the target population of patients who require vaccination or therapy for the prevention of infectious diseases (Kim and Goldie 2008, 821).

Methods of Information Seeking by HBV and HCV Patients

The participants were asked: "Do you independently seek health-related information on hepatitis B and C through any source?" The findings revealed that 88.9 per cent independently sought hepatitis-related information. The researchers further asked, "What method do you normally use when seeking information on hepatitis B and C?" The findings revealed that the majority of the participants agreed that they sought health information through "counselling from medical professionals" (44.5%; $n = 4$), followed by "watching health-based television programmes" (11.1%; $n = 1$), through "advice" (11.1%; $n = 1$), "consulting a doctor" (11.1%; $n = 1$), "reading books" (11.1 %; $n = 1$), and "asking questions" (11.1%; $n = 1$) (Figure 2).

Purpose of Information Seeking by HBV and HCV Patients

The participants were asked about their purpose for seeking information on HBV and HCV: "What is your purpose of seeking health-related hepatitis B and C information"? The result shows that the majority (44%; $n = 4$) of the participants indicated that their purpose for information seeking was to discover better treatment. Other purposes

include staying safe (11.1%; $n = 1$), getting informed, increasing the chances of survival, getting healed, and finding hope (see Figure 2).

The Frequency of Information Seeking of HBV and HCV Patients

The participants were asked to indicate the frequency with which they sought information. The result indicated that the majority of the participants (44.4%, $n = 4$) sought health-related information in a non-rhythmic frequency. Only two (22.2%) of the participants sought health-related information weekly. One (11.1%) patient sought health-related information weekly. One (11.1%) patient sought health-related information for a full month. The results are presented in Figure 2.

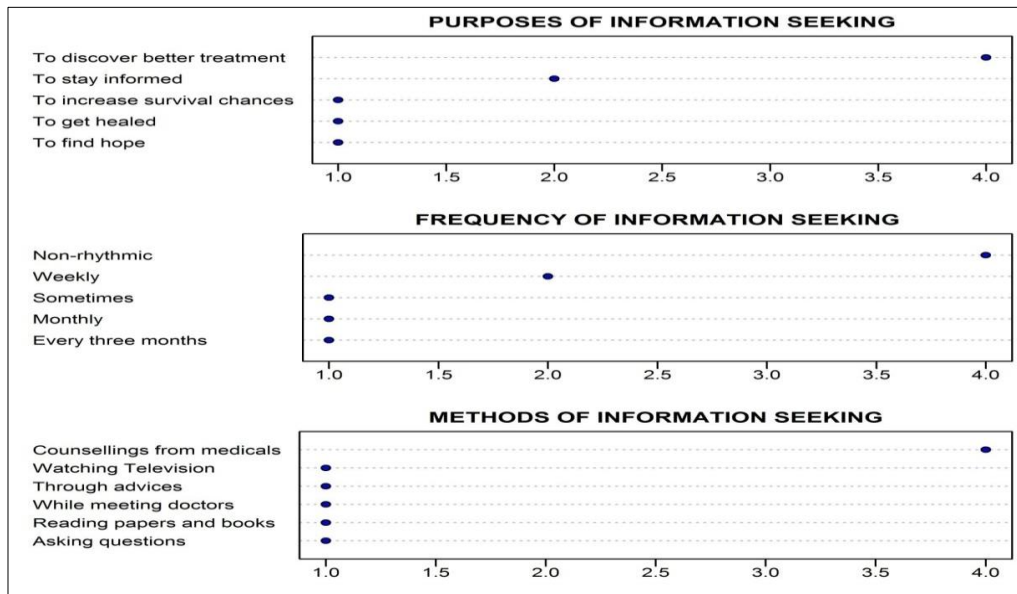


Figure 2: Distribution of purpose, frequency and methods of information seeking

Figure 2 illustrates the distribution of purposes, frequency, and methods of information seeking. In a comparison of what was found in the section of information needs, treatment remains the outstanding motivation that the participants have in mind when seeking health-related information. To establish the independence of patients' information seeking, the researcher asked how independent the participants were when seeking information. The results show that eight (88.9%) participants independently sought health-related information on HBV. Only 11.1 per cent of the participants sought information in a constrained way. The results are presented in Table 3.

Table 3: Importance and independence of health-related information seeking

Variables	Modality	Frequency of Modality	Percentage	Total Percentage
Seeking health-related information will assist patients	Yes	9	100	100
Independency of health-related information seeking	Yes	8	88.9	100
	No	1	11.1	
Importance of health-related information	Stay informed	6	66.7	100
	Discover better treatment	2	22.2	
	Increase survival chances	1	11.1	

Discussion of Findings

This study examined HBV and HCV patients' information seeking at a selected tertiary health institution in South Africa by applying the CMIS variables of information-seeking actions to the context of the study. The findings, based on the antecedent of demographic factor (health status), revealed that the majority of the participants were HCV positive, and a few participants were HBV positive. This indicated that the health status can predict the type of therapy needed by the patients. The healthcare providers can also determine the target population of patients who require vaccination and the specific type of vaccine to acquire and administer for the prevention of infectious diseases (Kim and Goldie 2008, 821). In addition, the findings revealed that the majority of the participants were male. A similar study by Rutten, Squiers, and Hesse (2006, 150) posit that "males were less likely to be information seekers than females with a greater likelihood of cancer information seeking among females". Manierre (2015, 151) maintained that "there is a persistent sex gap in searching for health information in some contexts".

A study in another context revealed that it is also possible that men seek specific health information on topics such as prostate cancer or testicular cancer more than women, depending on the type of health information, whereas women seek information on breast cancer more than men (Warne and Procaccino 2007, 787). The majority of the participants who participated in the interviews were between the ages of 40 and 59 years. This finding is substantiated by the report by the WHO (2021a) which estimated that "Hepatitis B prevalence is highest in the WHO Western Pacific Region and the WHO African Region, where 6.2% and 6.1% of the adult population is infected respectively" and "globally, an estimated 71 million people have chronic Hepatitis C virus infection". In addition, the findings regarding "the purpose of information seeking by HBV and HCV patients" indicated that the majority of the participants said they search for information purposely "to discover better treatment". Other patients indicated

that their purposes include: “staying safe, getting informed, increasing the chances of their survival, getting healed, and to find hope.”

The findings corroborated with those of a study by Lalazaryan and Zare-Farashbandi (2014, 193) which posit that the first step for preventing the spread of chronic disease is to encourage patients to search for disease or health-related information to acquire preventive knowledge. Searching for HBV- and HCV-related information for prevention was earlier emphasised by engaging in activities such as screening for transmission, risk behaviour, testing, vaccination against various types or groups of viruses (Edlin et al. 2005, 276). Logically, the most prevailing wish of individuals who are sick is to get healed. Seeking information for the purpose of prevention is considered part of the instinctive reflex that comes during the remorse of having contracted the infection; although not yet scientifically ascertained, it can be part of the explanation. Regarding the diet as the second most needed health-related information, it was normal to expect that patients would consider the option of seeking the kinds of food that can help boost the healing process or that do not endanger their health conditions. A study by George et al. (2018, 307) supports the need to improve the dietary intake by patients. This forms part of the basic principles one can adhere to in order to prevent the aggravation of symptoms.

The findings regarding the participants’ information-seeking indicated that the majority (88.9%; $n = 8$) of the participants “independently sought health-related information on HBV and HCV” (see Table 3). In line with Wilson’s (2000, 49) definition of human information-seeking behaviour, the participants agreed that they independently sought HBV or HCV disease-related information. This is in line with Taylor and Taylor (1986, 184) who assert that “information gathered must be used for a purpose, either for decision making or to effect a change in knowledge of the recipient”. Some participants search information to find preventive methods for diseases, and others for the treatment and follow-up procedures. Whichever purpose it might be, searching for knowledge is important (Gerido 2019, 1).

The finding regarding the frequency of information seeking of HBV- and HCV-related information showed that the majority of the participants (44.5%; $n = 4$) frequently sought HBV- and HCV-health-related information on a non-regular basis (Figure 2). Some participants indicated that they frequently sought information “weekly” (22.2%; $n = 2$). A few participants (11.1%; $n = 1$) sought health-related information for a “month period”, “every three months”, and occasionally. This finding relates to that of the study by Baumann et al. (2020, 1) which examined parents with a child with a disability and without a disability and reported a significant difference in the frequency of seeking general health information and the use of print media. A similar study on health information behaviour noted that 60 per cent of the users frequently sought health-related information for their health (Ogbueghu et al. 2020).

The findings regarding the methods of information seeking by the participants revealed the most used methods of information seeking as “counselling from medical professionals” (44.5%; $n = 4$), followed by “watching health-based television programmes” (11.1%; $n = 1$), “advice” (11.1%; $n = 1$) (some participants said they preferred seeking information from doctors and indicated that the method looks natural), while “consulting a doctor” (11.1%; $n = 1$), “reading books” (11.1 %; $n = 1$) (some participants indicated that they were attached to reading and preferred perusing literature about hepatitis), and “asking questions” (11.1%; $n = 1$) (Figure 2) (this is simply because of the pressure that patients may feel to get healed). The frequency of seeking health-related information is dominated by an unrhythmic periodicity. Health pressure can be the only explanation for this unrhythmic periodicity.

Conclusion

Based on the findings, this study concluded that the CMIS antecedent factors of beliefs predicted the participants’ information seeking which included actively and independently requesting information from doctors and nurses. The participants’ information-seeking patterns were not influenced by the demographic factors because both male and female participants shared an almost equal percentage. Also, the majority of the participants independently sought HBV and HCV health-related information, and were not influenced by economic factors or employment factors. Rather, the majority of the participants were motivated by the desire to discover better treatment. The gender factor did not predict information seeking from male and female nurses and male and female doctors. This indicated that either of the two genders could seek specific health information independently according to the type of health information needed. Based on the findings of this study, it was established that information for survival from chronic diseases, current information about new healing treatments, and treatment and disease prevention information are essential to the participants, which in turn predict the information-seeking actions of the participants. In addition, beliefs in health information seeking from doctors and nurses’ point of view influence patients’ information seeking actions.

This study, therefore, recommends that patients be encouraged to seek preventive knowledge, and that diet information and other necessary information for regular check-ups be provided to patients at regular intervals, perhaps during their visits to the hospital. Alternatively, the hospital management needs to open an effective line of communication between health providers and patients, and improve communication skills to improve cordial relationships. An electronic application could be provided on patients’ mobile devices in the form of an alert system to remind them to punctually turn up for their routine check-ups. In support of the CMIS, the use of mobile apps can provide news alerts, appointment alerts, and check-up alerts on the patients’ mobile phones to improve or influence their information-seeking patterns.

References

- Basnyat, Iccha, Elmie Nekmat, Shaohai Jiang, and Julian Lin. 2018. "Applying the Modified Comprehensive Model of Information Seeking to Online Health Information Seeking in the Context of India." *Journal of Health Communication* 23 (6): 563–72. <https://www.tandfonline.com/doi/abs/10.1080/10810730.2018.1493058>.
- Baumann, Isabel, Rebecca Jaks, Dominik Robin, Sibylle Juvalta, and Julia Dratva. 2020. "Parents' Health Information Seeking Behaviour – Does the Child's Health Status Play a Role?" *BMC Family Practice* 21 (1): 1–9. <https://onlinelibrary.wiley.com/doi/abs/10.1111/hir.12287>.
- Bernadas, Jan Michael Alexandre C., and Li Crystal Jiang. 2019. "Explaining Online Health Information Seeking of Foreign Domestic Workers: A Test of the Comprehensive Model of Information Seeking." *Health and Technology* 9 (1): 7–16. <https://link.springer.com/content/pdf/10.1007/s12553-018-0251-5.pdf>.
- Brashers, Dale E. 2007. "A Theory of Communication and Uncertainty Management." In *Explaining Communication: Contemporary Theories and Exemplars*, 201–18. London: Lawrence Erlbaum.
- Case, Donald O. 2012. *Looking for Information: A Survey of Research on Information Seeking, Needs and Behaviour*. 3rd ed. Bingley: Emerald.
- Case, Donald O., and Lisa M. Given. 2016. *Looking for Information: A Survey of Research on Information Seeking, Needs, and Behaviour*. 4th ed. Bingley: Emerald. <https://doi.org/10.1108/S2055-53772016>.
- Case, Donald O., and Lisa G. O'Connor. 2016. "What's the Use? Measuring the Frequency of Studies of Information Outcomes." *Journal of the Association for Information Science and Technology* 67 (3): 649–61. <https://doi.org/10.1002/asi.23411>.
- Chonco, F. M., and S. Rangiah. 2019. "Susceptibility to Hepatitis B Infection, Hepatitis B/HIV Co-Infections and Hepatitis B Immunity in HIV-Positive Patients Starting HAART in Durban, South Africa." *South African Family Practice* 61 (2): 65–68. <https://doi.org/10.1080/20786190.2018.1518023>.
- Edlin, Brian R., Thomas F. Kresina, Daniel B. Raymond, Michael R. Carden, Marc N. Gourevitch, Josiah D. Rich, Laura W. Cheever, and Victoria A. Cargill. 2005. "Overcoming Barriers to Prevention, Care, and Treatment of Hepatitis C in Illicit Drug Users." *Clinical Infectious Diseases* 40 (5): S276–S285. <https://doi.org/10.1086/427441>.
- Ford, Nigel. 2015. *Introduction to Information Behaviour*. London: Facet.

- George, Argyriou, Vasilopoulos George, Mavrogianni Georgia, Toulia Georgia, Louka Aikaterini, Louka Sofia, Karagiannis Anastasios, Lazos Gabriel, Marvaki Aikaterini, and Kadda Olga. 2018. "The Benefits of Patients' Information regarding Dietary Habits before Percutaneous Coronary Intervention: A 3- and 6-Month Follow-Up." *World Journal of Cardiovascular Diseases* 8 (6): 307–19. <https://doi.org/10.4236/wjcd.2018.86030>.
- Gerido, Lynette Hammond, Xiang Tang, Brittany Ernst, Aisha Langford, and Zhe He. 2019. "Patient Engagement in Medical Research among Older Adults: Analysis of the Health Information National Trends Survey." *Journal of Medical Internet Research* 21 (10): 15035–43. <https://www.jmir.org/2019/10/e15035/>.
- Han, Jeong Yeob, Meg Wise, Eunkyung Kim, Ray Pingree, Robert P. Hawkins, Suzanne Pingree, Fiona McTavish, and David H. Gustafson. 2010. "Factors Associated with Use of Interactive Cancer Communication System: An Application of the Comprehensive Model of Information Seeking." *Journal of Computer-Mediated Communication* 15 (3): 367–88. <https://doi.org/10.1111/j.1083-6101.2010.01508.x>.
- Hogan, Timothy P., and Dale E. Brashers. 2015. "The Theory of Communication and Uncertainty Management: Implications from the Wider Realm of Information Behaviour." In *Uncertainty, Information Management, and Disclosure Decisions*, 45–67. New York: Routledge.
- Ishizaki, Azumi, Juli0 Bouscaillou, Niklas Luhmann, Stephanie Liu, Raissa Chua, Nick Walsh, Sarah Hess, Elena Ivanova, Teri Roberts, and Philippa Easterbrook. 2017. "Survey of Programmatic Experiences and Challenges in Delivery of Hepatitis B and C Testing in Low- and Middle-Income Countries." *BMC Infectious Diseases* 17 (1): 129–40. <https://doi.org/10.1186/s12879-017-2767-0>.
- Ibinaiye, Irewole D. 2021. "Applying Comprehensive Model of Information Seeking to Hepatitis B and C Patients' Information Seeking in the South African Context: A Scoping Review." *Library Philosophy and Practice* 1–32.
- Johnson, J. David. 1997. *Cancer-Related Information Seeking*. Cresskill: Hampton.
- Johnson, J. David., and Donald Owen Case. 2012. *Health Information Seeking*. New York: Peter Lang.
- Johnson, J. David, and Hendrica Meischke. 1993. "A Comprehensive Model of Cancer-Related Information Seeking applied to Magazines." *Human Communication Research* 19 (3): 343–67. <https://doi.org/10.1111/j.1468-2958.1993.tb00305.x>.
- Kim, Sun-Young, and Sue J. Goldie. 2008. "Health and Economic Implications of HPV Vaccination in the United States." *New England Journal of Medicine* 359 (8): 821–32. <https://link.springer.com/article/10.2165/00019053-200826030-00004>.

- Kim, Hyunmin, M. Paige Powell, and Soumitra S. Bhuyan. 2017. "Seeking Medical Information Using Mobile Apps and the Internet: Are Family Caregivers Different from the General Public?" *Journal of Medical Systems* 41 (3): 1–38. <https://doi.org/10.1007/s10916-017-0684-9>.
- Kuang, Kai, and Steven R. Wilson. 2017. "A Meta-Analysis of Uncertainty and Information Management in Illness Context." *Journal of Communication* 67 (3): 378–401. <https://doi.org/10.1111/jcom.12299>.
- KwaZulu-Natal Department of Health. 2019. "Annual report." <http://www.kznhealth.gov.za/2017-2018-Annual-Report.pdf>.
- Lalazaryan, Anasik, and Firoozeh Zare-Farashbandi. 2014. "A Review of Models and Theories of Health Information Seeking Behaviour." *International Journal of Health System and Disaster Management* 2 (4): 193–203. <https://doi.org/10.4103/2347-9019.144371>.
- Lambert, Sylvie D., and Carmen G. Loiselle. 2007. "Health Information-Seeking Behaviour." *Qualitative Health Research* 17 (8): 1006–19. <https://doi.org/10.1177/1049732307305199>.
- Lee, Hyun Ou, and Soyeon Kim. 2015. "Linking Health Information Seeking to Behavioural Outcomes: Antecedents and Outcomes of Childhood Vaccination Information Seeking in South Korea." *Journal of Health Communication* 20 (3): 285–96. <https://doi.org/10.1080/10810730.2014.927035>.
- Manierre, Matthew J. 2015. "Gaps in Knowledge: Tracking and Explaining Gender Differences in Health Information Seeking." *Social Science and Medicine* 128: 151–58. <https://doi.org/10.1016/j.socscimed.2015.01.028>.
- Marchionini, Gary, and Ryen White. 2007. "Find what You Need, Understand what You Find." *International Journal of Human Computer Interaction* 23 (3): 205–37. <https://doi.org/10.1080/10447310701702352>.
- Miller, Kristen, Valerie Chepp, Stephanie Willson, and Jose-Luis Padilla, eds. 2014. *Cognitive Interviewing Methodology*. Canada: John Wiley and Sons. <https://doi.org/10.1002/9781118838860>.
- Myers, Scott A., Gregory A. Cranmer, Zachary W. Goldman, Michael Sollitto, Hailey G. Gillen, and Hannah Ball. 2018. "Differences in Information Seeking among Organisational Peers: Perceptions of Appropriateness, Importance, and Frequency." *International Journal of Business Communication* 55 (1): 30–43. <https://doi.org/10.1177/2329488415573928>.

- Ogbueghu, Sylvester N., Anuli Regina Ogbuagu, Augustine Igwe Robert, Benedict Ejiofor Ugwuanyi, Chukwuma Ogbonnaya Chukwu, James Yahaya, Lambert Peter Ukanga, and Rowland C. Uwakwe. 2020. "Mobile Phone Utilisation and Health Information-Seeking Behaviour among Economics Education Students." *International Medical Journal* 27 (6): 757–60. Accessed 7 May 2021. <http://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=rzhandAN=147207305&site=eds-live>.
- Rains, Stephen A. 2014. "Health Information Seeking and the World Wide Web: An Uncertainty Management Perspective." *Journal of Health Communication* 19 (11): 1296–307. <https://www.tandfonline.com/doi/abs/10.1080/10810730.2013.872731>.
- Robson, Andrew, and Lyn Robinson. 2013. "Building on Models of Information Behaviour: Linking Information Seeking and Communication." *Journal of Documentation* 69 (2): 169–193. <https://www.emerald.com/insight/content/doi/10.1108/00220411311300039/full/html>.
- Ruppel, Erin K. 2016. "Scanning Health Information Sources: Applying and Extending the Comprehensive Model of Information Seeking." *Journal of Health Communication* 21 (2): 208–16. <https://www.tandfonline.com/doi/abs/10.1080/10810730.2015.1058438>.
- Rutten, Lila J. Finney, Linda Squiers, and Bradford Hesse. 2006. "Cancer-Related Information Seeking: Hints from the 2003 Health Information National Trends Survey (HINTS)." *Journal of Health Communication* 11 (s1): 147–56. <https://doi.org/10.1080/10810730600637574>.
- Sin, Sei-Ching Joanna. 2016. "Social Media and Problematic Everyday Life Information-Seeking Outcomes: Differences across Use Frequency, Gender, and Problem-Solving Styles." *Journal of the Association for Information Science and Technology* 67 (8): 1793–807. <https://doi.org/10.1002/asi.23509>.
- Sheng, Xiaojing, and Penny M. Simpson. 2015. "Healthcare Information Seeking and Seniors: Determinants of Internet Use." *Health Marketing Quarterly* 32 (1): 96–112. <https://doi.org/10.1080/07359683.2015.1000758>.
- Stonbraker, Samantha, Montana Befus, Leonel Lerebours Nadal, Mina Halpern, and Elaine Larson. 2017. "Factors Associated with Health information Seeking, Processing, and Use among HIV-Positive Adults in the Dominican Republic." *AIDS and Behaviour* 21 (6): 1588–600. <https://doi.org/10.1007/s10461-016-1569-5>.
- Su, Zhaohui, Dean McDonnell, Jun Wen, Metin Kozak, Jaffar Abbas, Sabina Šegalo, Xiaoshan Li et al. 2021. "Mental Health Consequences of COVID-19 Media Coverage: The Need for Effective Crisis Communication Practices." *Globalisation and Health* 17 (1): 1–8. <https://doi.org/10.1186/s12992-020-00654-4>.
- Taylor, Robert Saxton, and Robert Selby Taylor. 1986. *Value-Added Processes in Information Systems*. Greenwood: Ablex.

- Waheed, Yasir, Masood Siddiq, Zubia Jamil, and Muzammil Hasan Najmi. 2018. "Hepatitis Elimination by 2030: Progress and Challenges." *World Journal of Gastroenterology* 24 (44): 4959–61. <https://doi.org/10.3748/wjg.v24.i44.4959>.
- WHO (World Health Organization). 2021a. "Hepatitis B: Key Fact." <https://www.who.int/news-room/fact-sheets/detail/hepatitis-b>.
- WHO (World Health Organization). 2021b. "Hepatitis C: Key Fact." <https://www.who.int/news-room/fact-sheets/detail/hepatitis-c>.
- Wilson, T. D. 2000. "Human Information Behaviour." *Informing Science* 3 (2): 49–56. <http://inform.nu/Articles/Vol3/v3n2p49-56.pdf>.