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Exploring Hepatitis B and C Patients' Information Needs in a Post-Pandemic Era: A Case Study of Ngwelezane District Tertiary Hospital, KwaZulu-Natal, South Africa

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Abstract

This study aimed to gain insight into hepatitis B and C patients' information needs to establish appropriate guidelines for meeting patients' information needs in a post-pandemic era. The objectives were to identify patient information needs, seek the opinion of healthcare givers and recommend policies for meeting patient information needs. A mixed-methods approach was used to collect qualitative and quantitative data. The researcher interviewed individual Hepatitis B and C patients that consented and availed themselves to participate in the study until data saturation was reached at eighteen interviews at Ngwelezane Hospital, KwaZulu-Natal, South Africa. The opinions of eighteen doctors and twenty-three nurses that consented and availed themselves were sought based on an 85% confidence interval (CI) regarding patient information needs on HBV and HCV using a self-administered questionnaire. Findings revealed that patients' information needs are determined by the craving to survive, the expectation to receive new or better healing treatment, and the need to prevent diseases. From the perspectives of doctors and nurses, patients' information needs can be met through regular support by the hospital management and the provision of accessible sources of HBV and HCV-related information through which patients' information needs could be gratified. Recommended guidelines include a large-scale awareness campaign to enable the government, hospital management, civil society, and non-governmental agencies to fight the disease. Understanding hepatitis B and C patients' information needs can help improve information provision by health professionals. The findings can help improve patients', doctors and nurses' levels of communication and information provision for better outcomes.

Keywords: *Hepatitis B and Hepatitis C; Patients Information Needs; Healthcare Provider; Post-Pandemic Era; Mixed-Methods Approaches*

1. Introduction

Awareness of patients' information needs, specifically in a post-pandemic era such as COVID-19, is critical (Lowenstein et al., 2019, p. 1; Chimonas et al., 2019, p. 632; Tran et al., 2019,1; Edlin et al. 2005, p. 276). The authors noted increasing demand for patients' information needs concerning dangerous diseases such as HBV and HCV because of the epidemic nature of the illnesses (Lavallee et al., 2019; Reid et al., 2010, p. 682; Lazarus et al., 2007, p. 426). The call for national political leaders to address hepatitis B and C as a public health issue in many countries worldwide has also been noted (Lazarus et al., 2007, p. 426). Several studies emphasised the importance of assessing patients' information needs to determine how best to improve health conditions (Lee et al., 2021; Su et al. (2021, 1; Smith et al., 2019, 1; Case and Given, 2016, 6; Ford, 2015, p. 35). Dervin (1999, 727) described "information needs as a recognition that knowledge is inadequate to satisfy a set goal". In that instance, an effort is needed to seek knowledge to fill the vacuum created by the knowledge gap on HBV and HCV patients' information needs. Ford (2015, 35) agreed that information is needed to solve a particular problem to achieve a specific goal, while Dervin (1999, 727) maintained that the value of information could be considered concerning bridging the knowledge gap in any possible context.

Investigating patients' information needs in hepatitis B and C is essential given the challenges faced with stigmatisation as a significant barrier preventing patients from speaking out to doctors, nurses, friends, parents, and neighbours within the community. There is variation in the data reported based on the spread of the disease globally, specifically in Africa. Some authors reported threats to global public health posed by the spread of HBV and HCV (HBV 257 million – 2 Billion people worldwide), primarily in China, South East Asia, sub-Saharan Africa, and the Amazon basin of South America, where healthcare resources are most limited (Adjei et al., 2018, p. 1; Nwokediuko, 2011, p. 786). The effect includes "acute and chronic liver disease", cirrhosis and hepatocellular carcinoma, and liver failure (WHO, 2020, p.1). In some developing countries, management of HBV and HCV illnesses were challenging due to limited resources, lack of accurate prevalence data, absence of a surveillance program, and lack of political will of governments and health policymakers, especially in resource-poor countries, to implement effective measures to control the disease (Nwokeduiko, 2011, p. 786). Some researchers admitted that HCV infection is preventable if preventive health information is intensified along with the use of vaccination as an effective tool for eradication (WHO, 2020, p.1; Thomas, 2013, p. 850).

Moreover, the report shows that the coronavirus disease 2019 (COVID-19) pandemic had many negative impacts on patients and caregivers due to fear of stigmatisation, COVID-19 protocols and reduction in testing rates within the period of the pandemic compared to the previous years (Picchio et al., 2020; Boettler et al. 2020, p. 1). The pandemic brought many challenges to healthcare systems in healthcare services provision and treatment for HBV and HCV patients (Boettler et al., 2020,1). Boettler et al., 2020, 1) revealed that older patients and those with preexisting chronic medical conditions were identified as populations at risk of a severe disease course, which eventually prevented free access to medical treatment, specifically among patients suffering from advanced liver disease and liver transplantation. Assessing information needs is essential to enable individual patients to live in a healthy community and a clean environment free from HBV and HCV infections (Maphumulo & Bhengu, 2019, p. 1; National Department of (Health,2012: 4).

2. Statement of the Problem Statement of the Problem

The incidence of HBV and HCV in adults and children living in African regions, specifically in the KwaZulu-Natal province of South Africa, are well-known (WHO, 2021; Prabdial-Sing *et al.* 2021, p. 229; Hung *et al*. 2021, 1701; Ladep *et al*. 2019, p. 4). HBV and HCV information are critical to enabling patients and healthcare services consumers better understand the widespread nature of HBV and HCV in Africa, especially in the KwaZulu-Natal region in South Africa (Sonderup *et al*., 2021, p. 703; Kungoane, 2018, p. 68; Semugoma *et al*. 2017, p. 1116). Unfortunately, essential health information that could help reduce the spread of the disease within the communities and among rural dwellers in Ngwelezane, KwaZulu-Natal, South Africa, is lacking (Maphumulo & Bhengu, 2019, p. 1; National Department of Health 2012:4). Understanding HBV and HCV infections remain a significant problem among patients and healthcare workers in Ngwelezane Tertiary Hospital, KwaZulu-Natal, South Africa (Atlaw *et al*., 2021, p. 1; Escobar *et al*., 2021, p. 704; Sonderup *et al*., 2021, p. 783).

Health information is essential to patients and every cadre of healthcare professionals, and the need for effective communication practices between patients and caregivers, especially during the pandemic. According to Paunović (2008, 72), the need for health information is universal because healthy individuals make a healthy community. In turn, a healthy community makes a healthy nation and a healthy society. The need to investigate the patients' information needs and seek caregivers' opinions to ascertain the critical information needs of patients is vital. Health information-seeking behaviour was previously examined in contexts different from HBV and HCV in South Africa (Lowenstein et al., 2019, p. 1; Chimonas et al., 2019, 632; Tran et al., 2019, p. 1; Lavallee et al., 2019; Reid et al., 2010, p. 682; Wilson, 2000, p. 51).

Understanding the strategies for pain management and risks by caregivers, treatment strategies by healthcare professionals regarding patients' adherence to drugs and medications, treatment adherence, and decision-making are among the essential needs that must be catered for (Smith *et al*., 2019, p. 1). Unfortunately, studies addressing HBV and HCV patients' information needs at Ngwelezane tertiary hospital still need to be included (Kamran *et al*., 2015, p. 15). Studies addressing the challenges faced by hepatitis B and C patients are yet to consider the specific types of information needed by the patients to establish the opinion of healthcare providers on HBV and HCV patients' information needs or recommend guidelines for meeting patients' information needs. Besides, several studies applying uses and gratification and expectancy theory have been applied to studies in various contexts. Still, they have not applied social-psychological needs of uses and gratification and expectancy theory to the context of this study to suggest guidelines and strategies for meeting patients' information needs, especially during the COVID-19 pandemic, where patients find it challenging to access and use tertiary health facilities. Empirical studies addressing HBV and HCV patients' information needs must be improved. There is a crucial need for a survey to explore hepatitis HBV and HCV patients' information needs in a post-pandemic era to inform the best strategies to meet patients' information needs.

3. Theory Underpinning the Study

Scholars have widely used different theories to examine objectives in information behaviour studies (Kraus *et al*., 2003, p. 708; Astone *et al*., 2003, p. 107; Wilson, 2000, p. 51). Uses and gratification and expectancy theory have been applied to studies in other contexts (Kraus *et al*., 2003, p. 708; Wilson, 2000, p. 51). UGET has been tested and proved very reliable in measuring the objectives of studies in health contexts. UGET is considered suitable to investigate the information needs of HBV and HCV patients and investigate the opinion of caregivers within hospital facilities. According to Wilson (2000:51), information needs are not fundamental needs such as food, clothing, shelter, or needs for sustenance but secondary needs that arise from the desire to satisfy primary needs. An individual may seek information due to a perceived gap in secondary needs and then take steps to bridge the gap. In the context of HBV and HCV patients' information needs, patients' education needs are critical, as reported by many researchers. The epidemic nature of the disease and the need for treatment require that patients are educated through various means, such as national education programmes, effective communication methods, and the mass media (Astone *et al*., 2003, p. 107).

Due to the prevalence of psychiatric disorders, particularly stigmatisation and depression as a result of the effect of HBV and HCV diseases on patients, researchers must identify the gaps caused by the impact of the illness and bridge the gaps to gratify the social and psychological needs of patients, based on the principle of UGET (Kraus *et al*. (2003:708). Healthcare workers and patients need effective communication to prevent or protect themselves from occupational hazards (Azodo, 2010, p. 364). In turn, patients must be aware of information disseminated through media sources.

The disease's epidemic nature among school children calls for awareness and preventive measures through patient education (Barati *et al*. (2005:249). The need for therapeutic education for patients helps to improve patient's quality of life (Boyer & Faillebin, 2013, p. 41). In addition, there is a need for disease control of HBV and HCV to reduce patients' and health service providers' knowledge gap through mass media and other effective means of communication (Buller-Taylor *et al*., 2018, p. 1095). UGET has been used in different contexts: students' learning experiences, social media, social networking, internet use, improvements in customer relations and customer behaviour, guiding health-related studies associated with sources of health information and contextual factors. However, it has yet to be applied to identify health information needs, access and use by HBV and HCV patients, policies and resources supporting the provision, and information by HBV and HCV patients.

UGET has variables that can measure the information needs of HBV and HCV patients and their information use. Despite criticisms by previous authors, uses and gratification and expectancy theory (UGET) have been efficiently used to examine previous studies in the health contexts (Kuang & Wilson, 2017, p. 378; Hogan & Brashers, 2015, p. 61; Miller, 2014, p. 233; Rains 2014, 1296; Brashers, 2007, p. 201), this study adopted the variable of UGET to measure the objectives of this study. The study applied the UGET paradigm of social and psychological origin of needs to examine the information needs of HBV and HCV patients. The experiences that patients encountered with stigmatisation led to depression and social and psychological disorders as a result of HBV and HCV diseases on patients. Researchers must address the effect caused by the disease's effect and bridge the information and knowledge gaps to gratify patients' social and psychological needs based on the principle of UGET (Kraus et al., 2003, p. 708).

This study was built on the principles of the social and psychological origin of the needs of UGET (Katz et al., 1974). The principles of social and psychological origin of the needs of UGET were adopted to guide HBV, and HCV patients' information needs because stigmatisation is linked with social and psychological related problems, which need to be addressed with the availability, accessibility and use of credible, qualitative and reliable information for practical implications (Case 2012, 194; Katz et al., 1974). The variable was applied to determine HBV and HCV patient information needs. In contrast, the suggested guidelines from patients and caregivers were used to design proposed policies that enable healthcare providers, policymakers in healthcare management, and information specialists to meet patient information needs effectively. This paper improves on UGET by identifying the types of patient information needs, opinions of healthcare providers regarding patient information needs, and guidelines for meeting patient information needs. Figure 1 illustrates the theoretical framework for HBV and HCV patients' information needs.

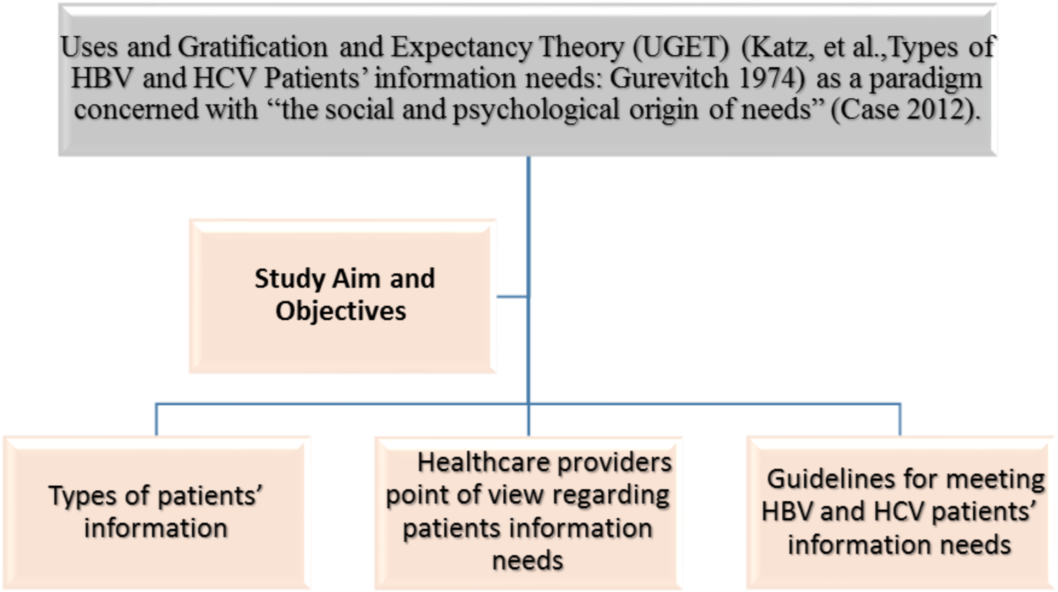

Figure 1: Theoretical framework for HBV and HCV patients' information needs
Source: Developed by the researcher from other theories and models in the literature.

Based on UGET, the theoretical framework for information needs to explore the study's general aim and objectives. The researchers examine the research objectives set out in the study to achieve the purpose of the study. This study was conducted to investigate the information needs regarding the types of information needed by patients, the opinion of doctors and nurses, and guidelines for meeting patient information needs. Based on UGET, the theoretical framework for information needs to explore the study's general aim and objectives. The researchers examine the research objectives set out in the study to achieve the purpose of the study.

4. Purpose of the Paper

This paper explores the information needs of HBV and HCV patients at a tertiary health institution in South Africa. The following are the research questions answered by this current study:

- What health-related information is needed to improve hepatitis B and C patients' health conditions?
- What is the opinion of healthcare providers on HBV and HCV patients' information needs?
- What guidelines can healthcare providers adopt for meeting HBV and HCV patients' information needs?

5. Methodology

The study location is one of the most extensive tertiary healthcare facilities and a referral hospital providing services to District, Regional, and Tertiary Services and communities from Uthungulu, Umkhanyakude, and Zululand Districts in South Africa. This study was grounded in the idea of pragmatic researchers, given that interpretivism and positivists' ideas using mixed methods in the collections of qualitative and quantitative data is crucial to determine patients' information needs, the opinion of the healthcare givers (doctors and nurses) regarding types of information needed and essential for patients, as well as the recommended guidelines for patients information provisions by both patients, doctors and nurses to improve patients well-being. A mixed-methods approach was used for this study. Qualitative data was collected from HBV and HCV patients, while quantitative data was collected from doctors and nurses working at Ngwelezane District Tertiary Hospital. The study context was Ngwelezane District tertiary Hospital involving HBV and HCV patients and doctors and nurses working in the selected department providing therapy for patients in the hospital. The independent variables in this study are the types of patient information needs and the opinion of doctors and nurses regarding patient information needs.

Table 1.1. Sample size calculation, study participants according to four confidence intervals (CI)

Category	Total number	Sample size calculation in four Confidence Intervals (CI)				Actual participants
		CI 95%	CI 90%	CI 85%	CI 80%	
Nurses	620	237	61	22	10	23(85% CI)
Doctors	102	81	40	18	9	18(85%CI)
Total						41

Source: Statistically generated by the researcher

5.1. Population and Sampling

The study population included the entire HBV and HCV patients receiving treatment at the Ngwelezane Tertiary Hospital and doctors and nurses providing treatment. Qualitative data were collected from HBV and HCV patients using purposive sampling. The researcher interviewed individual Hepatitis B and C patients that consented and availed themselves until data saturation was reached at eighteen interviews. Others that declined should have been included in this figure. Quantitative data were collected from doctors and nurses that consented and availed themselves using the probability cluster sampling technique. Eighteen doctors were used at an 85% confidence interval (CI), and twenty-three nurses at an 85% confidence interval (CI). The researcher adopted a probability random sampling technique to recruit the respondents for quantitative data collection, seeking the opinion of doctors and nurses based on patients' information needs, given that the idea of healthcare providers is crucial in validating patients' information needs. Doctors and nurses that declined to respond were not included in this figure. Table 1 illustrates the sample size calculation of the study participants and respondents.

5.2. Procedure for Data Collection

The researcher's data collection procedure in this paper involved (1) recruiting participants for qualitative and quantitative data in Ngwelezane District Hospital, KwaZulu-Natal, South Africa, between November 2020 and **October** 202**1**. The researcher and the research assistant collected the data and briefly discussed the purpose of the study with the patients, doctors and nurses who are participants in the study. The HBV and HCV patients that consented and availed themselves were recruited for the qualitative data collection every clinic day to enable the researchers and the research assistant to meet with each patient for an interview. To avoid bias, the researchers applied inclusive and exclusive criteria to ensure that only patients suffering from HBV and HCV diseases were recruited for the interview. Those patients that have associated infections such as tuberculosis, HIV, and others and patients below the age of 18 years were not recruited.

Meanwhile, at the time of data collection, the total number of registered HBV and HCV patients was unavailable. Enquiries were made regarding available records of the registered patients based on specific diseases; consequently, particular data were unavailable. Initially, semi-structured interviews recruited nine patients between 16th November and December 2020. The data collection process was challenging due to Covid-19 restrictions and protocols that must be observed within hospital facilities. Therefore, the researcher returned to the field to recruit additional participants until data saturation was reached at 18 interviews between September and November 2021. Despite challenges, the interview was conducted in English and isiZulu. All covid-19 protocols were observed before the interview with patients who consented and availed themselves to participate in the study and during the administration of the questionnaire with the doctors and nurses.

The Hospital Medical Ethics Committee approved all surveys and interviews. A written and printed informed consent was therefore explained. In contrast, a printed copy was provided to each participant that consented and availed themselves to participate in the interview and the survey. The signed informed consent was kept in safe custody for future reference, while the confidentiality policy of patient information use was duly followed. Also, 15 minutes of the presentation was provided to caregivers immediately after their early morning briefing. Patients were reassured that non-participation in the interview had no consequences because it was voluntary, and they were free to withdraw their participation if they wished. Other participants that declined were excluded.

An open-ended questionnaire was used to collect quantitative data from doctors and nurses. The procedure for quantitative data collection was self-administered questionnaires to doctors and nurses at the duty post and immediately after the morning briefing. An open-ended section (section A) of the questionnaire was used to seek the opinion of the doctors and nurses in the hospital and their perspectives on the information needs of the patients. A purposive sampling technique was used to gather qualitative data from HBV and HCV patients in an interview.

5.3 Ensuring Integrity of the Data Collection Instruments

A chi-square difference test was used to evaluate the discriminant and convergent validity of survey data collection instruments related to the opinion of healthcare providers on HBV and HCV patients' information needs. This test allows the comparison of two models, one in which the constructs are correlated and the other in which they are not. The questionnaire has been widely used in social science research, health sciences research, and other allied sciences (Aslam *et al*., 2020, p. 97; Marshall *et al*., 2013, p. 11).

Models were chosen according to both categories of the research subject theme, namely, (1) the opinion of healthcare providers on HBV and HCV patients' information needs and (2) guidelines for meeting HBV and HCV patients' information needs. One variable was selected in the first category, while four were considered in the second category. Variables were then coupled to test the convergent and discriminant validity. Each model presented a value for Chi-square and degrees of freedom.

Convergence and divergence of variables are reported at a 95% confidence interval. The degree of freedom (Df), the Chi-square value (X-square), and the statistical parameter (p-value) are given for each comparison. The p-values of the considered variables were 0.5222, 0.5076, 0.0947, and 0.6505. All these values were, therefore, more significant than 0.05. According to Franke (2015, 496), if the chi-square difference is non-significant or the confidence interval includes 1.0, then the discriminant validity of the two scales is in doubt. In other words, the convergent validity is verified.

Consequently, the single variable emanating from the first category of the study (opinion of healthcare providers on HBV and HCV patients' information needs) is statistically convergent with four categorical variables originating from the second category of survey (guidelines for meeting HBV and HCV patients' information needs). This finding implies that the hypothesis of independence of the Chi-square test was verified. We can conclude that the variables are independent and that there is no statistical relationship between the categorical variables. The convergent validity is therefore proven. Consequently, the data collection instruments used in this study were appropriate to verify the expected hypothesis of convergence of "*healthcare providers' opinion"* on patients' information needs.

5.4 Data Analysis

Quantitative data analysis was performed to support and test the results of the qualitative data. The qualitative aspect of the data was analysed using thematic analysis. The qualitative data were proofread, organised and interpreted according to the theme of the objectives set for the study and related to the study's theoretical framework. It is also essential that data collected are safely stored in PDF files, and Google drives with a password for safe custody. The codes from the generated data were stored in a computer file for safety (Creswell & Creswell, 2018, p. 182; Gray, 2009, p. 179). Quantitative data in this study were analysed descriptively using Fisher's Exact Test Calculation (FISHER) (Fisher's Exact Test Calculation, 2019:4) and the Chi-square test to describe the relationship between different modalities of ages of doctors and nurses.

5.5 Ethical Clearance

The required ethical clearances were obtained from the University of Zululand, KwaZulu-Natal, South Africa (UZREC171110-030PGD2020/8; dated 2/09/2020), and additional support was provided on 15th November 2021 respectively. The ethical approved and provided by the committee of Ngwelezane district hospital, KwaZulu-Natal province, South Africa, and ethical clearance from the health research and knowledge management unit of the Department of Health, KwaZulu-Natal Province (NHRD REF.KZ-220-004; dated 13/11/2020), South Africa to ensure the compliance of the research practices to the ethical standard.

6 . Result

Section A: Qualitative Data Analysis, Presentation and discussion (HBV and HCV Patients)

Based on the qualitative data collected from HBV and HCV Patients that consented and availed themselves for an interview focusing on HBV and HCV patients' information needs in a post-pandemic era at Ngwelezane District Tertiary Hospital, KwaZulu-Natal, South Africa. Table 2.1 illustrates the bio-data of the participants for the qualitative interview. The data collected were coded and analysed as it is.

Table 2.1: The bio-data of the participants for the qualitative interview

Participants	Participants Per Gender		Economic Status		Age Group	
HBV and HCV Patients	Male	Female	Employed	Not Employed	20-29	1
	8	10	3	15	30-39	5
					40-49	6
					50-59	6
Total	8	10	3	15		18

Table 2.1 above shows the bio-data of the participants using the interview as means of data collection from the population group. Findings revealed that out of eighteen (18) participants in the in-depth interview, the majority of the HBV and HCV participants were female (*n*=10; 55.6%), and others

were male (*n*=8; 44.4%). The purpose of gender distribution in this study enabled the researcher to identify the gender group that consented to and participated in the survey at Ngwelezane Hospital KwaZulu-Natal.

Findings based on patients' **economic status** revealed that most of the patient participants were not employed (n-=15; 83.3%), against few employed (n=3; 16.7%). The percentage of unemployed patients was higher (n-=15; 83.3%) than the few who were employed (n=3; 16.7%) (see Table.2).

Age Range: The majority of qualitative in-depth interview participants were between 40 – 49 years (*n*=12; 66.7%), followed by 30 – 39 (*n*=5; 28%) and 20 – 29 (*n*=1; 5.6%).

Patient's Health Status: The same trend was observed in the frequency distribution of patients' health status. All the recruited patients were suffering from HBV and BCV. Therefore, regarding the above, patients' expectations regarding the need for information would not be affected by the type of hepatitis involved. The following are the developing themes.

Objective 1: Health-Related Information Needed to Improve Hepatitis B and C Patients

Table 2.2: Types of Health Information Needed by HBV and HCV Patients

Research Question	**Patients Responses**
Research Question *1* *What type of health-related information do you think is needed to improve your health condition?*	*"I need information for the treatment of my health problem. I need the information to prevent infection in my body. I need the information to identify the mode of contracting the infection. Yes, I know the Health information is good but I am unsure if I need it. Am not sure. I need the information to know the danger involved in getting infected".* *"Yes, I need the information to have the general knowledge of the disease". "I need the information to identify the good type of diet for me". Yes, I need the information to prevent the disease". "I need information just to know about the disease". " I need the information to general knowledge of the disease. "I need information about the type of medication good for my health". "I need the information to know the type of good treatment for me".* *"I need to know about the new treatment". "I need the information to prevent getting infected with diseases". "Yes, I need the information to help prevent me from getting an infection from the disease". "I need the information to get appropriate diets for my health".*

Patients: The participants were asked; *what type of health-related information they think is needed to improve their health condition.* The in-depth qualitative interview revealed that most participants needed the information to prevent infections in their bodies. Others said they needed the information to identify the mode of contacting infections. Based on the findings, patients were eager to respond to questions related to patients information needs with the hope that the information could improve patients' health (Table 2.2).

Discussions*:* The employment status of the patients was unfairly distributed with the health status, which is somehow the true reflection of the trend reported in the literature. The most affected age group was patients between 40 and 49 years and patients aged 30 and 39. Consequently, the unequal distribution of patients' health status is not a factor that can influence the results of this study. This result is validated by the WHO (2020) report, which estimated that in 2016 alone. About 27 million people (10.5% of all people estimated to be living with HBV) were infected.

In 2016, about 399 000 people were said to have died from HCV infection (WHO, 2020). In contrast, 4.5 million (16.7%) of the people diagnosed were on treatment against an estimated 71 million people with chronic HCV infection. At the same time, an estimated 887 000 deaths occurred in 2015, mostly from cirrhosis and hepatocellular carcinoma (primary liver cancer) due to infections and complications from HBV. Besides, according to WHO (2020) key facts reports, HCV is the most severe and common type of hepatitis worldwide. Therefore, it is possible to have a higher representation of patients suffering from HCV during the researcher's random selection for this study. Besides, both HBV and HCV attack the liver, and the conventional treatment protocols are the same.

Findings based on HBV and HCV patients' information needs. Case and Given (2016:6) emphasised the importance of the need assessment of patients in various study contexts to determine how best to provide relevant information to meet their information needs. Knowledge is inadequate if it cannot satisfy the need of the one seeking health-related information (Dervin, 1999, p. 727). Ford (2015:35) generally acknowledged the importance of acquiring relevant health-related information to solve existing health problems. Findings indicated the need for patients to acquire information related to health and general problems related to diseases affecting them. Such information can help them understand the best strategies to adopt for treatment, pain management, and the need for risk assessment or decision-making. They will also evaluate the benefits of treatment strategies employed by their doctors, nurses or therapists, especially the types of drugs needed and adherence to treatment choices (Smith *et al*., 2019, p. 1).

Other participants acknowledged that they needed information to know the danger involved in getting infected; some noted that they needed the information to have a general knowledge of the disease and to identify the type of diet that is good for them. In contrast, others needed to know how to prevent the disease. The findings from the above information can be a helpful infrastructure that underpins society's effective and efficient operation (Table 2.2).

> *"I need the information to know about the new treatment". "I need the information to prevent getting infected with diseases". "Yes, I need the information to help prevent me from getting an infection from the disease". "I need the information to get appropriate diets for my health".*

Due to the impact of HBV and HCV disease on victims, findings show that the victim or patient about new treatment and further prevent them from other associated diseases such as TB and gather the information that could help them live better. The prevalence of HBV and HCV diseases has become a threat to human existence in many countries worldwide, given the possibility that infected individuals "develop cirrhosis, hepatic decompensation, and hepatocellular carcinoma" (HCC) (Mast *et al*., 2006, p. 1; Bosch *et al*., 2005, p. 191).

> *"I need the information to know the new treatment methods. I need the information to know when to go for medical check-ups. I need the information to get myself a proper diet. I need the information to get some new treatment up-dates".*

Given the epidemic nature of HBV and HCV in many countries, the need for adequate information regarding the impact of the spread of the disease must be communicated to the patients and the public. This is to create awareness about the health, social, psychological and economic implications" of the continuous spread of the disease (Winter *et al*., 2008:66). Despite the value of information in the life of patients and caregivers, remarkably, many authors have reported a lack of information and awareness of the modes of transmission (Adebayo, 2019; Olayinka, 2018; Hours *et al*., 1991, p. 255). The need for preventive measures, access to testing and diagnostic centres, and vaccination centres for the prevention of the persistent infection of the disease (Caballero *et al*., 2012, p. 1547) and with the rates of complications that are capable of leading to liver cancer and mostly hepatocellular carcinoma (WHO, 2018, p. 1; Ward *et al*., 2000, p. 277).

> *"I need the information to help prevent me from disease infections". "I need the information to know the new treatment methods". "I need the information to know about the new treatment".*

Notably, a poor understanding of the complications of the disease and poor knowledge of the value of testing and treatment regarding HBV and HCV may be responsible for the refusal of treatment and medication and awareness regarding "prevention and treatment of the disease" (Cacoub *et al*., 2008, p. 6195). The above understanding is in line with the information from the world health organisation (WHO, 2019, p. 1), which has become imperative for patients to have access to information and communication regarding the mode of contact of the disease and the prevention and management strategies.

More so, considering the socio-psychological, emotional, and health impact of the disease on the general populace (WHO, 2018, p. 1; Patel, 2015, p. 20), information communication regarding the effect of the disease on the patients, caregivers, and the general public is crucial (Shimakawa *et al*., 2017, p. 688).

Objective 3A: Suggested Guidelines for Meeting HBV and HCV Patients' Information Needs

Table 2.4: Guidelines Recommended for meeting HBV and HCV Patients information needs

Research Question *In your own opinion, what guidelines would you recommend for the hospital management to follow in providing disease information for patients as the way forward?*	*Hospital management to improve on information provision to patients. "Hospital management staff should make information available to patients about their health problems. Doctors and nurses must be patient and nicer to their patients".* *"In my own opinion, patient care is good, but I think we also need to avoid delays on the line. The doctor-patient relationship should be improved. Hospital staff should provide health information, especially about the disease. In my opinion, patients' queries should be attended to without delay".* *"I don't have any recommendation. Hospital staff should provide enough information to patients. Doctors always explain the risk of disease infection to patients, no matter how bad. Doctors and nurses are to ensure the privacy of patients' information and make information available to them".* *"Doctors are always to make information available and discuss the risk involved in spreading diseases. Hospital staff are to provide the necessary information and make it accessible to patients".* *"I have no suggestion because I am well treated. Doctors and nurses are to make information available to patients to improve communication and understanding".*

Based on table 2.4, patients were asked: *In your opinion, what guidelines would you recommend for the hospital management to follow in providing patient disease information as the way forward?*

Findings based on the guidelines recommended for the information provided for HBV and HCV patients revealed that the majority of the patients suggested that hospital management staff should make information available to patients about their health as well as improve the information for patients. Some indicated that the doctor-patient relationship should be improved, and others indicated that patients should have access to information.

> *Hospital management to improve on information provision to patients. "Hospital management staff should make information available to patients about their health problems. Doctors and nurses are to be patient and nicer to their patients".*

The hospital management needs to establish and enforce patients' information policy, including privacy policies, to ensure confidentiality and allow patients and doctors to access their clinical information for personal awareness (Chao *et al*., 2010, p. 98). In support of findings from Chao *et al*. (2010:98), there is a need to improve general awareness policy about HBV transmission to abolish discrimination against chronically infected individuals."

> *"In my own opinion, patient care is good, but I think we also need to avoid delays on the line. The doctors-patients relationship should be improved. Hospital staff should provide health information, especially about the disease. In my own opinion, patients' queries should be attended to without delay".*

In the context of HBV and HCV patients, the first step in preventing the spread of such diseases is encouraging them to search for health-related information (Lalazaryan & Zare-Farashbandi, 2014, p. 193).

> *"I don't have any recommendation. Hospital staff should provide enough information to patients. Doctors are to always explain the risk of disease infection to patients no matter how bad. Doctors and nurses are to ensure the privacy of patients' information but also make information available to them".*

Lambert and Loiselle (2007:1006) emphasised on availability of health information as "a key coping strategy in health-promotion activities and psychosocial adjustment to illness".

> *"Doctors are to always make information available and discuss the risk involved in spreading diseases. Hospital staff are to provide the necessary information needed and make it accessible to patients". "I have no suggestion because I am well treated. Doctors and nurses are to make information available to patients to improve communication and understanding".*

The perspectives of healthcare professionals (doctors and nurses) are among the first significant factors to be considered regarding patients' information needs and preferences before providing health information to them (Ilogho et al., 2020). It was imperative to seek the opinion of doctors and nurses regarding the specific health information needed by patients, specifically for patient use. As healthcare providers, it is only reasonable and essential that the primary health information emanates from doctors and nurses to understand the information needs of their patients (Ilogho *et al*., 2020). It is equally important that health professionals guide patients to reliable health information sources to avoid making mistakes.

Section B: Quantitative Data Analysis, Presentation and Discussion: Doctors and Nurses

Based on the sample size (Table 1), 50 questionnaires were self-administered to doctors and nurses: 25 questionnaires were administered to doctors and twenty-five administered to nurses. However, 22(22%) questionnaire was returned from doctors, and out of the 22 questionnaires returned from doctors, only 18(82%) were considered valid, while four were invalid. Of the 25 questionnaires administered to nurses, 23 (were returned filled). Table 1.2, [R] below illustrate the demographic distribution of the HBV and HCV patients, doctors, and nurses.

Table 1.2: Cluster distribution of doctors and nurses selected at Ngwelezane Teaching Hospital, Kwazulu-Natal, South Africa

Cluster of participants	Senior Doctors		Medical Practitioners		Interns			Total
Participants	4		4		10			18
Distribution	3 male	1 female	2 female	2 male	6 male	4 female		
Category of Participants	Nursing Assistants		Professional Nurses		Staff Nurses			
Participants	5		13		5			23
Gender Distribution	1 male	4 female	3 male	10 female	1 male	4 female		

Based on table 1.2, the finding showed that the majority of the participants that filled out the questionnaire were nurses 23(56%), while the remaining participants were doctors 18 (44 %) that filled the questionnaire. The majority of the nurses that responded to the questionnaire were female nurses (78%, n=18) and male nurses only 5(22%).

On the other hand, the majority of medicals that fill the questionnaire were male doctors (61%, n=11), while female doctors were 7(39%) in number. The distribution of professional qualifications (doctors and nurses) per work experience revealed that the majority of work experience groups for doctors and nurses were between 1-5 years and 6-10 years. Doctors and nurses with more than ten years of working experience were few. All work experience groups were represented by doctors, while patients without work experience groups were represented between 31 and 35 years. About 25(60%) of doctors and nurses were between 20 and 39 years old. The age distributions per qualification were nearly equitable, but doctors had one representation in the largest age group (60-80 years old), unlike patients.

Objective 2: The Opinion of Healthcare Providers on HBV and HCV Patients' Information Needs

Healthcare providers: *What is the opinion of healthcare providers on HBV and HCV patients' information needs?* From the healthcare provider's point of view, findings indicated that the majority of them agreed that patient information needs included preventive care information 26(63%), but only a few among them disagreed (Figure 2.1A). The majority (n=29;71%) of the participants strongly agreed that patients need information regarding the mode of transmission of HBV and HCV diseases (Figure 2.1B). On the other hand, the majority, 24(58.8%), agreed that patients must be able to locate specific healthcare centres locations and take necessary vaccines (Figure 2.1C & D).

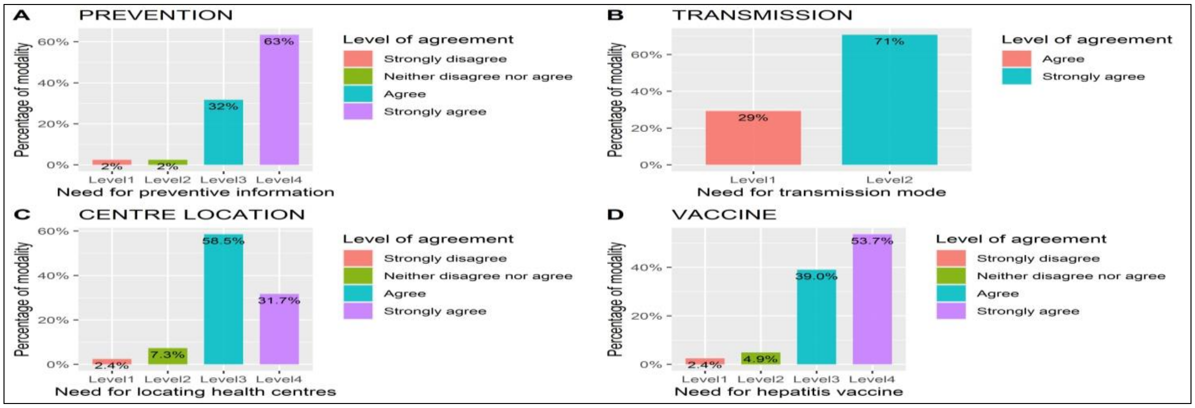

Figure 2.1: Doctors and Nurses' Points of View about the Need for information by Patients Regarding Prevention, Transmission, Centre Location and Vaccine
Source: Generated by the researcher

Figure 2.2 illustrates the healthcare providers' point of view about patients' information needs on diet, routine checks, coping strategies, and medication. Findings revealed that most healthcare givers (n=22:54%; 16:39%) indicated that diet information is crucial for HBV and HCV patients' health, respectively (Figure 2.2A). Other essential information needs include routine check-ups (2.2B), coping strategies (Figure 2.2C), and regular medication (Figure 2.2D).

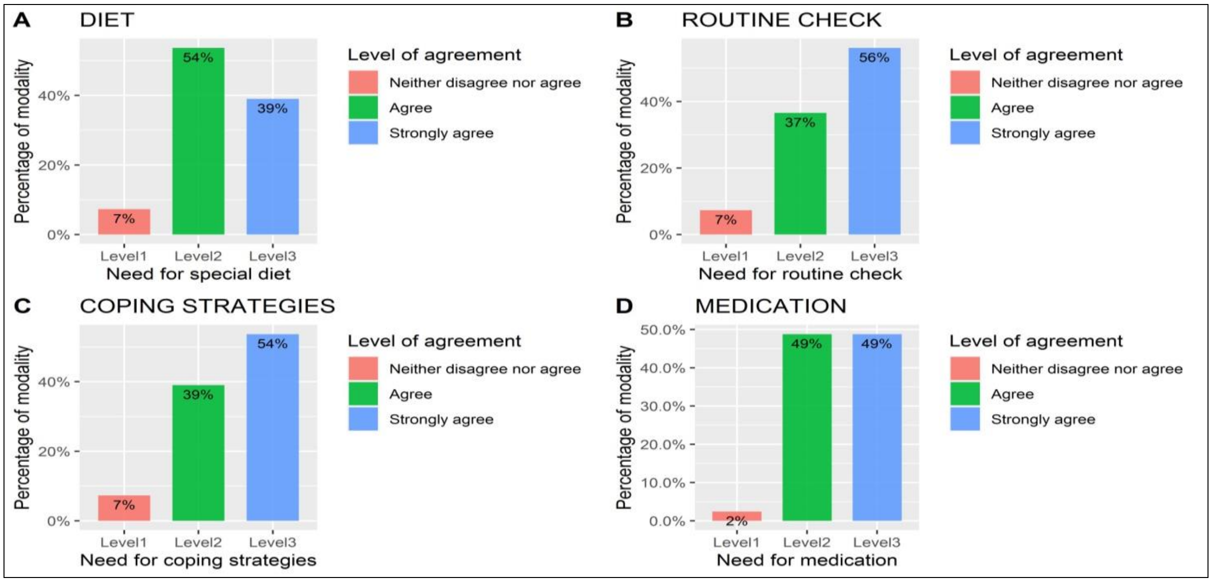

Figure 2.2: Doctors and nurses' point of view about patients' information needs on diet, routine checks, coping strategies, and medication
Source: Generated by the researcher

Furthermore, findings show that most healthcare providers strongly agreed that patients' information needs include proper healthcare support(n=23:56%). Other information needs include health facility location (n=21:51.2%) and counselling units (46%) within the hospital facilities. Figures 2.3A, B, and C illustrate the opinions of healthcare providers regarding patients' information needs.

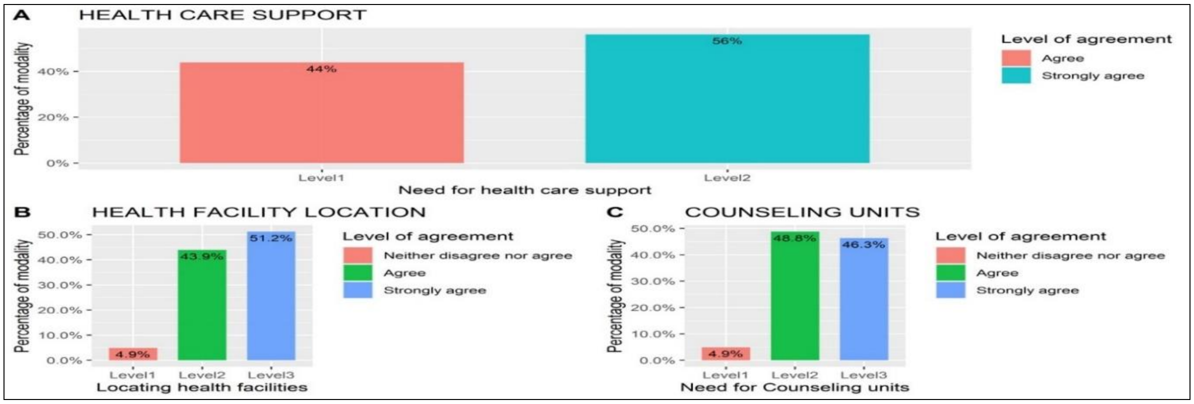

Figure 2.3: Views of Doctors and Nurses on Patients' Information Needs
Source: *Generated by the researcher*

Objective 3B: Suggested Guidelines by Doctors and Nurses for Meeting HBV and HCV Patients' Information Needs

Healthcare Providers: *What guidelines can healthcare providers adopt for meeting HBV and HCV patients' information needs?*

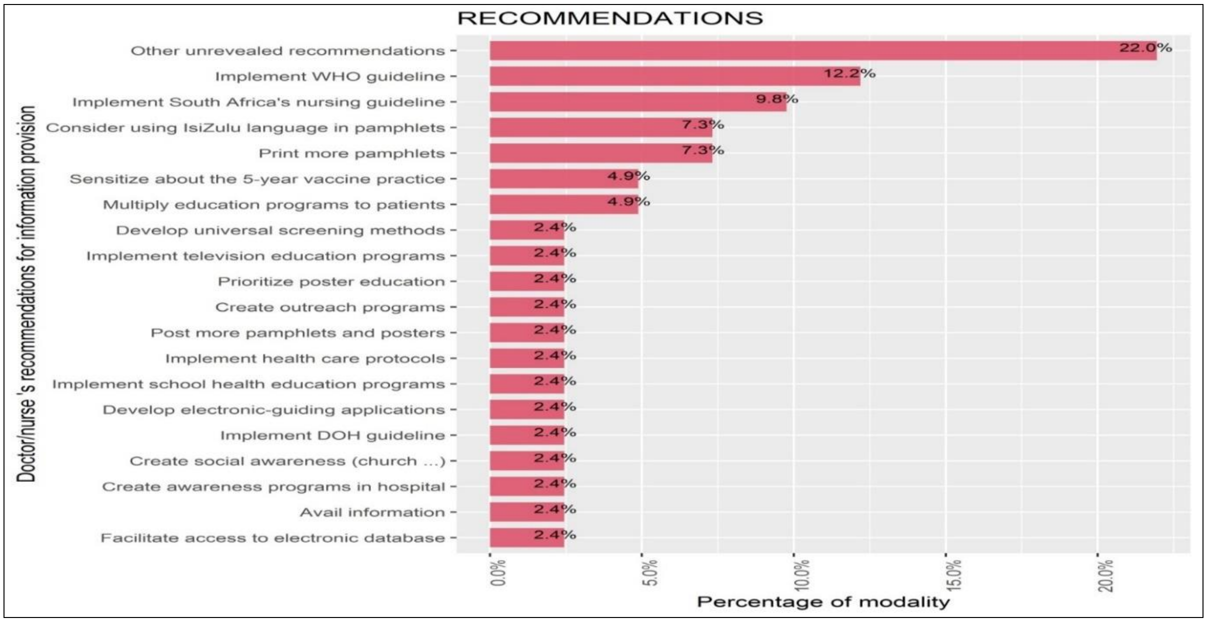

Figure 2.4A: Suggested guidelines for Meeting Patients' Information Needs, Improving Information Provision and Use

From the perspectives of the doctors and nurses, the majority indicated that WHO guidelines should be followed, followed by South Africa's nursing guidelines (9.8%). Some considered producing pamphlets (7.3%) in the local language (isiZulu) essential to reduce the language barriers and constraints in the information provision for patients and communication with patients. Others indicated that Department of Health guidelines on hepatitis is followed, implementation of health-related education programs, creation of social awareness, the result of electronic databases, creation of awareness programs in the hospital and churches and encouraging individuals involved to speak out respectively (Aslam et al., 2020, p. 97). Figure 2.4A illustrates suggested guidelines for meeting patients' information needs and improving information provision and use.

7. Discussion of Findings

This study found variations in the information needed by HBV and HCV patients from the perspective of the patients and the doctors and nurses providing treatment for the patients. From the patients' point of view, findings have indicated that to improve the patient's health conditions, treatment and preventive information are patients' most needed health-related information. From the healthcare provider's point of view, the majority agreed that patient information for preventative care is crucial. The finding is consistent with results from similar studies that emphasised the importance of acquiring patients' health information needs about general wellness and specifically regarding the disease affecting them to understand the best strategies to adopt for treatment, pain management, the need for risk assessment and evaluating the benefits of treatment strategies employed by their doctors and nurses or therapists, especially the types of drugs needed and methods of adherence as well as treatment choices or decision making (Lowenstein et al., 2019, p. 1; Chimonas et al., 2019, p. 632; Tran et al., 2019, p. 1; Lavallee et al., 2019; Reid et al., 2010, p. 682; Smith et al., 2019, p. 1).

Findings revealed that doctors and nurses provided some guidelines to sustain patient information and facilitate access and use. Among the recommended guidelines provided by the medical was implementing the World Health Organization guideline for the provision, use, and access of information (n=5; 12.2%). Access to quality healthcare information on HBV and HCV is critical, especially during infectious diseases such as COVID-19. Timely information can effectively curtail the spread of disease and feelings of anxiety. The medical further suggested implementing South African nursing guidelines to access and use information (n=4; 9.8%).

Further findings revealed that 7.3% (n=3) of the medicals recommended the "*production of pamphlets in the local language*" (isiZulu) to solve language barriers and constraints in patient information provision. This recommendation confirmed the findings by Kershaw *et al*. (2017:) who earlier posited that an effective communication pattern, specifically in the local language, between patients and healthcare professionals increases health promotion and disease prevention and better the healthcare of healthcare individuals patients. Other recommendations included implementing the Department of Health guidelines on hepatitis (n=1; 2.4%).

The government of South Africa's health guidelines support access to vaccines to save lives and reduce the morbidity and mortality of infectious diseases, including hepatitis B and C (Department of Health, South Africa, 2020). More medical studies suggested the multiplication or implementation of health-related education programmes (n=2; 4.9%). The findings confirmed the guidelines for information provision for HBV and HCV patients to address individuals' education and treatment needs, including patients with HBV and HCV (Terrault *et al*., 2015, p. 1). Strategies for educating patients must include the appropriate HBV and HCV medication use, improving medication adherence, and coordinating care provided by the interprofessional team.

Social awareness is essential to reduce the spread of dangerous diseases within an online community. The creation of social awareness formed 2.4% (n=1) of the guidelines suggested in the study. The awareness programme through social media platforms: Facebook, Twitter, Instagram or WhatsApp, must be used to feature the mode of transmission, prevention measures, management, and treatment strategies to eradicate the spread of HBV and HCV diseases (Dehghani et al., 2019, p. 15). In addition, awareness programmes can highlight and promote positive attitudes towards receiving a vaccination for prevention purposes (Napolitano et al., 2019, p. 2070). Other suggestions included the creation of electronic databases (n=1; 2.4%) to encourage the use of electronic information sources, the creation of awareness and sensitisation programmes in the hospital and communities (n=1; 2.4%) and churches (n=1; 2.4%), and the development of electronic guiding applications, among others (Figure 5.21).

Koshimoto *et al*. (2019:3394) considered nutritional counselling an essential aspect of patients' psychological health during treatment for chronic diseases. The study further suggested that "nutritional counselling for patients is essential healthcare providers should provide information and counselling in a multifaceted and flexible manner, "the supply of the information (*n*=2; 4.9%). Information supply through a health information system is a valuable strategy for information provision to patients and medical. This finding is supported by Ludwick and Doucette (2009:22) that adopting health information systems is a method of bridging the widening healthcare demand and supply gap. Bridging the information gap by adopting a health information system can assist physicians in tracking patient medical history, interventions, encounters, lab test results, and managing allergies and drug contraindications (Ludwick & Doucette, 2009, p. 22).

Medicals suggested the development of a web-based communication system (2.4%). Ross *et al*. (2004:12) maintained that "it is possible to provide patients with secure access to their medical records through a web-based electronic communication system. However, such access may assist patients in the self-management of chronic diseases related to HBV and HCV. Therefore, addressing language barriers, communication problems, and illiteracy is critical to enhancing patients' information. The organisation of training sessions in the hospital (2.4%), among others, will improve the use of information systems by the medicals, patients and other health workers to provide efficient healthcare services. Meanwhile, the applications of the social psychological paradigm of UGET are appropriate to reveal that the fear of a positive diagnosis, which might lead to severe anxiety, frustration and depression or psychological disorder, prevented many of the patients from going for a test or getting treatment (Jones et al., 2014, p. 204). However, the suggestions provided so far by the medicals complemented those of the patients, thereby bridging the information gap.

Conclusion

Based on the findings of this study, the study concluded that patients' information needs were determined by the desire to survive and the expectation to hear about new healing treatments. In contrast, the need for treatment was as critical as the need to prevent diseases. The findings of this study revealed that patients need information for survival from chronic diseases, current information about new healing treatments, and the need for treatment, as well as disease prevention, is critical from the doctors' and nurses' point of view; patients' needs, HBV and HCV-related information for prevention and mode of transmission and support. It can be concluded that making information available to hospital management and staff is essential to help improve patients' understanding of health. Therefore, to meet patients' information needs, implementing WHO guidelines, Department of Health guidelines on hepatitis, South Africa's nursing guidelines, and production of pamphlets, especially in the local language (isiZulu), very essential to reduce the language barriers with patients. Strategies for meeting patients' information needs also include introducing health-related education and programs, creating social awareness, creating electronic databases, creating awareness programs in the hospital and churches and encouraging individuals involved to speak out, respectively. In support of the UGET theory of social and psychological theory, information provision at the right time helps to reduce anxiety, frustration and depression or psychological disorder, which might prevent many patients from going for a test or receiving treatment.

Recommendations

- ❖ This paper further suggests that the policymakers should set priority to ensure that strategies for information provided include the following:

- A large-scale awareness campaign and sensitisation program must be introduced to fight the disease the government in collaboration with hospital management, civil society, and non-governmental agencies, supported by adequate funding for effective implementation.
- Community awareness and Community/local engagement must be introduced.
- Encouraging the patients to talk to healthcare providers, friends, and relatives about the disease.
- Patients' information must include identification of symptoms, mode of transmission, prevention method, testing centres, vaccination, required therapy, and medication.
- When given follow-up treatment appointments by doctors or nurses, the appointments must be kept.
- The healthcare provider must provide v Diet information strictly followed by the patient.
- Proper health education and health promotion must be provided to ensure that hepatitis B and C are eliminated in the continent of Africa by the year 2030.
- Therefore, the author suggested "an urgent need for further studies to explore barriers to counselling behaviour and how nurses and their managers can address these."

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