

THE INFLUENCE OF INFORMATION-SEEKING BEHAVIOR ON INFORMED DECISION-MAKING: MEDIATING EFFECTS OF COPING STRATEGIES AND INFORMATION MANAGEMENT

Shamim Akhter¹, Muhammad Naushad Sabzwari²

School of Information Management, Minhaj University, Lahore, 54700, Pakistan.

Abstract

Information-seeking behavior helps chronic patients obtain relevant health information, enabling better disease management and informed health decisions. This study investigates the influence of information-seeking behavior on informed decision-making. It also examines the effect of health information management and coping strategies in this relationship. This pilot study adopted a quantitative research design and included a sample of 100 participants selected from a population of chronic patients, were not part of the main study. A structured questionnaire was administered to patients with diabetes, hypertension, and chronic heart disease to collect data. Partial Least Squares-Structural Equation Modeling (PLS-SEM) v.4.1.1 was applied to test the proposed model by using descriptive analysis. The findings showed that information-seeking behavior is a significant predictor of informed decision-making. Moreover, health information management and coping strategies mediate this relationship in part, which underscores the significance of these two aspects in bringing information-seeking activities to successful decision-making. The research has practical implications for healthcare providers striving to enhance patient empowerment and self-management in chronic illness.

Keywords: *Information-seeking behavior; Health information management, informed decision-making, chronic disease.*

Introduction

Health information behavior is defined as the process of engaging individuals in seeking health information (ISB), preventing misinformation, and managing the relevant information (Broekhuis et al., 2022). The ISB is the intention to seek information to minimize uncertainty and improve the outcomes (Longo et al., 2010). It is one of the determinants to obtain information and take measures to ensure improved quality of life (Kilicarslan-Toruner & Akgun-Citak, 2013).

The ISB is necessary for chronic patients to remain updated about the disease. It is a key factor in determining health management and overall health results (Zhou et al., 2022). The capability to arrange, analyze, and use health-related information effectively is known as health information management (IM) (Park et al., 2020). IM plays an important mediatory role in this process. IM is the systematic organization, assessment, and utilization of health data to aid in decision-making, adherence to treatment, and other lifestyle changes (Ahmad et al., 2023). Effective IM among chronic patients is based on informed decision-making. It is essential to access relevant health information and interpret it to make well-informed decisions (Jung, 2014).

Another important mediating element in this process is coping strategies (CS). CS involves behavioral attempts to resolve the stressful situations caused by illness. With the proper management of information and implementing CS, patients convert their knowledge into practical decisions on treatment, lifestyle change, and disease management (Sheth et al., 2023). Although the importance of these variables has been recognized, few studies have been done in this regard (Zimmerman & Shaw, 2020). Addressing this gap, the goal of this study is to investigate the direct effect of ISB on IDM. The study investigates the mediating role of IM and CS in this relationship. IM ensures that information-seeking activities are transformed into actionable knowledge that

improves the IDM process. A quantitative design with Smart PLS analysis is employed to test these relationships and adds an empirical contribution in the prior literature on health information behavior and chronic disease management.

Prevalence of chronic diseases

Prolonged care and slow progression are the defining features of chronic diseases (Isa et al., 2020). Cardiovascular diseases (e.g., hypertension, coronary artery disease, stroke, and heart failure), some types of cancer, and diabetes are the most prevalent chronic diseases (Lee et al., 2020). World Health Organization (WHO) states that chronic diseases cause the highest number of deaths in the world (over 79.0 percent of all deaths). Besides, the number of patients with diabetes have increased to 830 million in 2022, and the prevalence rate is growing faster in low and middle-income countries compared to high-income countries (Kazmi et al., 2022). Moreover, it is estimated that there are 1.28 billion hypertension patients, two-thirds of whom live in low- and middle-income areas (Elahi et al., 2023). Cardiovascular diseases are a cause of death in 17.9 million people in 2019, or 32% of all deaths worldwide. It is important to note that 85 percent of these deaths were caused by heart attacks and strokes (Virani et al., 2021). An estimated 3.87 million premature deaths are expected to be registered in Pakistan by 2025, with severe economic implications (WHO, 2018).

Prior literature on health behavior investigated the impact of Chronic diseases on various dimensions of health, such as physical, psychological (Alshelleh et al., 2022), and emotional (Dekker & de Groot, 2018). Chronic illness can impact a patient's social life by limiting their ability to engage in social activities. Many chronic patients are unable to participate in social gatherings, which can lead to isolation and strain their family life. (Brown, 2021). Moreover, the financial burden of chronic disease (e.g., treatment costs, medication, and lost income due to illness) adds another layer of complexity to patients' lives. It significantly affects their financial stability (Strong et al., 2005). However, this study specifically examined ISB and IDM. It also explored the mediating roles of IM and CS in shaping health-related behavior. The results indicated that patients who actively seek health information can control health conditions. ISB helps patients prevent complications and improve decision making process. Therefore, understanding patients' ISB is crucial for effective interventions to manage chronic diseases effectively.

Theoretical framework

This study integrates the behavioral and cognitive components of the Social Cognitive Theory (SCT) into the health information behavior concept in chronic patients. The theory focuses on the fact that the behavior of individuals is shaped by the interplay between personal thoughts and behavioral patterns (Tsai, 2014). Informed decision-making captures cognitive factors, including knowledge, beliefs and the decision-making process, whereas information-seeking behavior and health information management represent the behavioral factors. Therefore, Social Cognitive Theory can be employed as a valuable framework to understand the interactions between cognitive and behavioral mechanisms that mediate the impact of these factors on health-related behaviors (Reisi et al., 2021).

In applying this view to the current research, ISB is a critical behavioral response that is used to comprehend and cope with health conditions. Chronic patients usually feel unsure and emotionally stressed about their disease. This leads to finding the applicable health information in different sources. The performance of such behavior is determined by the approach patients take to arrange and apply the information they receive.

The concept of IM is also incorporated in the study in making personal health decisions. Proper IM helps patients to get a more appropriate idea of treatment opportunities, medical guidance, and retain control over their health-related choices. Moreover, CS are a mediator in the relationship between information behavior and decision-making. The CS assist a person in coping with the emotional pressures of illness. The adoption of positive coping mechanisms by patients helps them to process information and make healthy use of it in their health management.

Lastly, informed decision-making is the outcome variable of this research as it constitutes the capacity of people to make health-related decisions based on precise information and the critical assessment of the existing selection. Patients who are actively engaged in the quest of health information, properly manage it, and apply the relevant coping mechanisms have a higher likelihood of making rational health decisions.

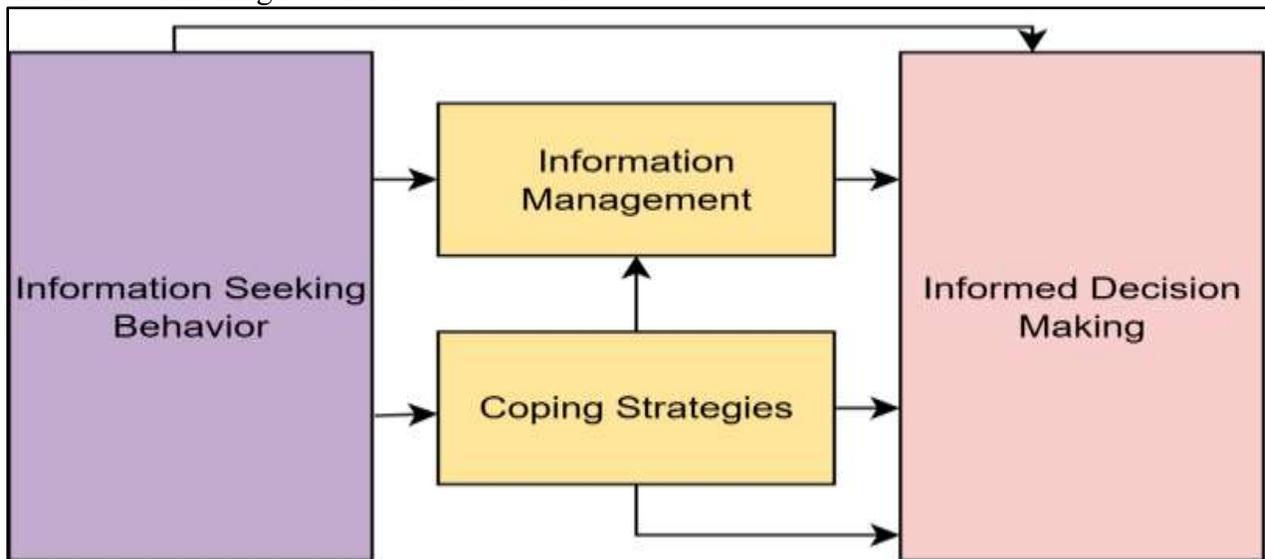


Figure 1: *Proposed Hypothetical Model based on Social Cognitive Theory (Devi et al., 2017).*

The proposed hypothetical model based on social cognitive theory is shown in figure 1 suggested that ISB has a direct and indirect relationship in the context of information management and CS in influencing IDM. The framework combines behavioral and cognitive approaches, thereby offering a holistic explanation of patient's cognitively process health information and utilizing it in making decisions about their health and treatment.

Methods

This research is a pilot study based on quantitative research design to investigate the relationship between ISB and IDM. The study investigated the influence of IM and CS. A survey-based method is used to collect data from patients with chronic conditions such as diabetes, hypertension, and heart disease. In the pilot study, the sample was chosen to test the research instrument with patients who were not included in the main study samples. To make sure that the pilot respondents were not part of the actual study population, these respondents were recruited in clinics, through friends, and community circles. This strategy assisted in testing the level of clarity, reliability, and appropriateness of the questionnaire prior to the actual data collection.

Measures

The measurement items were based on previously validated scales and evaluated by a five-point Likert scale with 1 (never) on the one hand, and 5 (always) on the other. The instrument had four

sections, ISB, which evaluated the frequency of patients seeking health-related information; one of the items was adopted from Tarannum & Mondal, (2022) and four were self-constructed. IM tested participants on their capacity to organize and use health information. CS assessed to manage stressors associated with chronic illness (Hamby, S.; Grych, J.H. and Banyard, 2013). IDM assessed how much the participants had made a decision regarding health-related issues using full information and knowledge.

Demographic variables, including gender, age, monthly income, type of disease, education level, and household size, were also included in the questionnaire. Before data collection participants were assured of privacy and confidentiality. Data collection took place over five weeks.

Statistical Analysis

Smart PLS SEM for structural equation modeling and SPSS were used to analyze the data. Direct effects of information-seeking behavior on informed decision-making and the indirect effects mediated through health information management and CS were examined.

Results

Demographics.

The study was conducted on chronic cardiac, hypertension, and diabetes patients. A total of 100 individuals participated in the study.

Measurement Model Assessment.

The validity and reliability of the constructs were determined by testing the measurement model shown in Figure 2, Figure 3 and Figure 4. Internal consistency reliability was assessed using Cronbach's alpha and composite reliability, both of which had values greater than the suggested threshold of 0.70. Additionally, convergent validity was established because the average variance extracted (AVE) was greater than 0.50, indicating that these indicators had sufficient power to account for the variance.

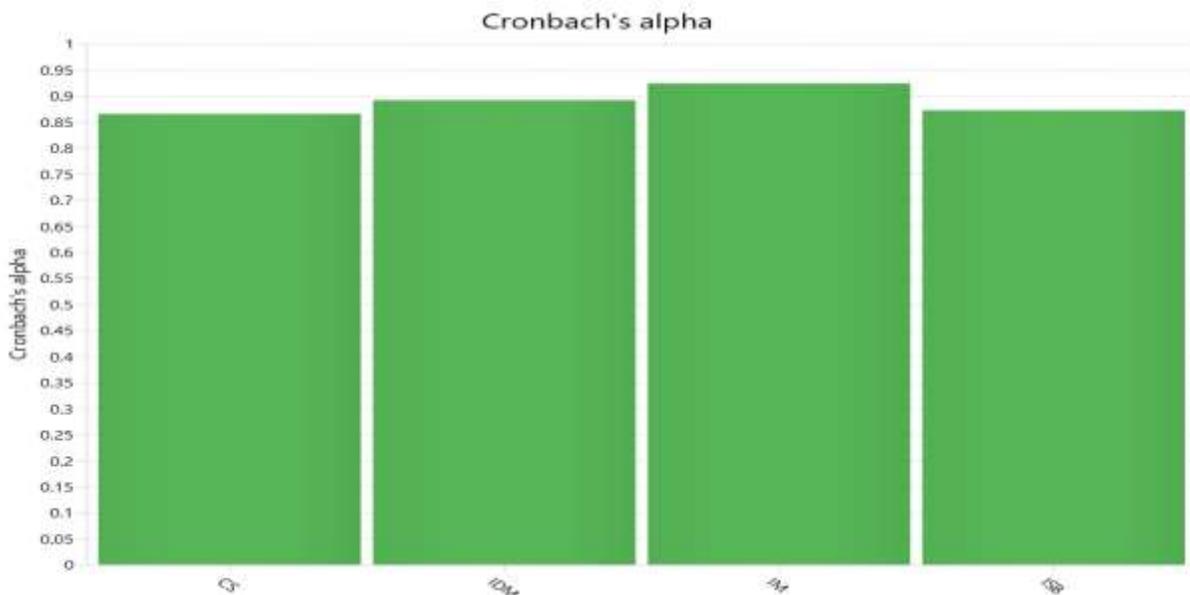


Figure 2: Cronbach's alpha of the proposed model

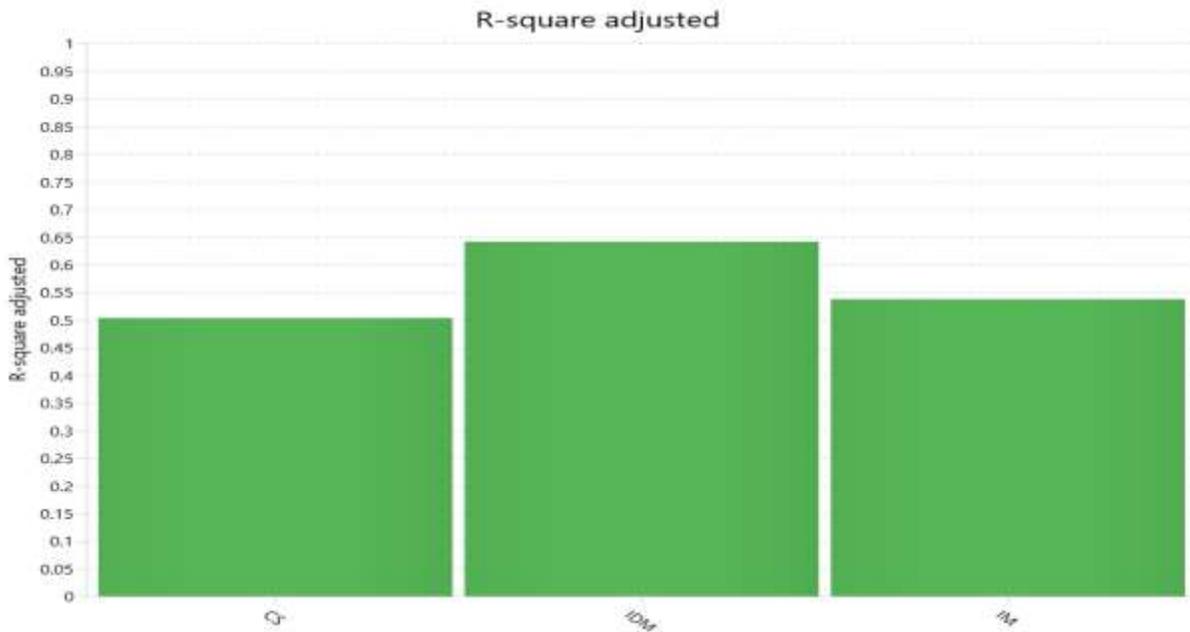


Figure 3: R-Square Adjusted of the proposed model

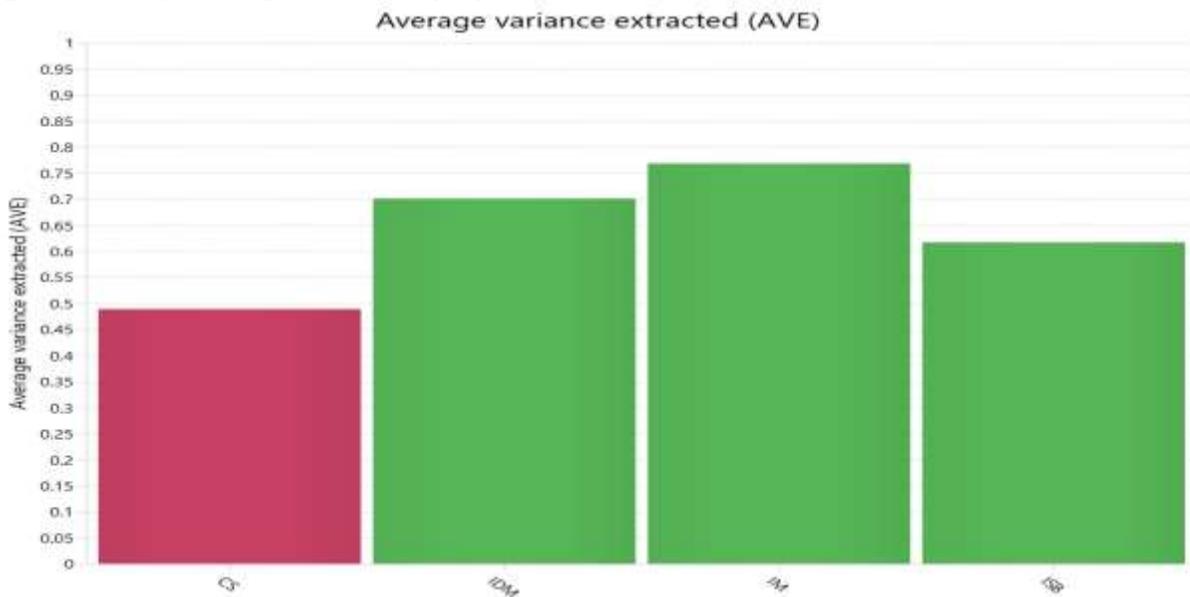


Figure 4: Average Variance Extracted (AVE) of the proposed model

The results shown in graphs, Cronbach's alpha and composite reliability values for each construct were greater than 0.70, indicating the existence of internal consistency. AVE values greater than 0.50 suggest that the indicators are sufficient to explain their underlying constructs and concur with the validity of construct-convergent. This makes the measurement model reliable to analysis structure. The high factor loadings and AVE values propose that the indicators sufficiently capture their particular latent constructs, supporting the robustness of the model in explaining the relationships among ISB, IM, and IDM in chronic patients.

Table

1

HTMT0.85 ratio (Discriminant validity)

Construct	CS	IDM	IM	ISB
CS				
IDM	0.766			
IM	0.778	0.850		
ISB	0.805	0.727	0.719	

The table 1 displays the HTMT0.85 ratio evaluating the discriminant validity. The diagonal values indicate the square root of the AVE of each construct, whereas the off-diagonal values indicate correlations between constructs. The findings reveal that the square root of AVE of the constructs (CS = 0.766, IM = 0.850) tends to be larger than other correlations to the constructs. This implies that the constructs are different enough between each other and discriminant validity is achieved within the model.

Structural Model Results.

The structural model tested the hypothesized relationships among the health information seeking behavior, IM, CS, and IDM. Its results demonstrated that ISB significantly affected IM positively. There was a positive relationship between information management and CS, which demonstrated that effective management and use of health information could result in informed decision-making.

In the Figure 5, the findings of the structural model reveal that ISB is important in the development of coping mechanisms and in chronic patients.

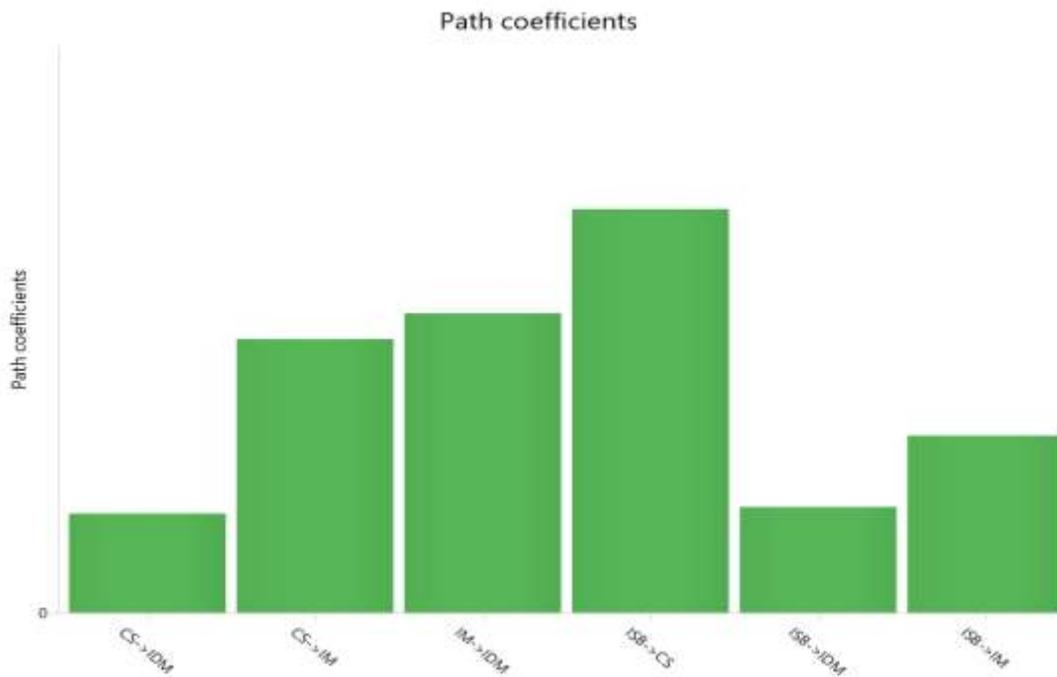


Figure 5: Path Analysis Direct Effect of the proposed model

Table 2

Path analysis direct effect

Hypothesized path	β	T statistic	P value
CS -> IDM	0.175	0.109	0.108
CS -> IM	0.483	0.105	0.000
IM -> IDM	0.529	0.098	0.000
ISB -> CS	0.713	0.061	0.000
ISB -> IDM	0.187	0.129	0.150
ISB -> IM	0.313	0.121	0.010

Note. β = path coefficient; ISB = Information seeking behavior; IM = Information management; CS = Coping strategies; IDM = Informed decision making.

In particular as shown in table 2, the positive impact of ISB is quite high and statistically significant in on CS ($\beta= 0.713$, $p < 0.001$), which indicates that the active seeking of health information among patients has a high likelihood of developing effective CS. ISB also has a significant impact on information management ($\beta = 0.313$, $p=0.010$), which means that patients are more willing to seek and use health-related information. Nevertheless, ISB does not contribute a major positive impact to the decision-making process ($\beta =.187$, $p=.150$), which means that even the acquisition of information is not always converted into making better health choices.

Table 3

Indirect Effect mediation analysis

Hypothesis	Path	β	T statistics	P values	Effect size
H1	ISB -> CS -> IM	0.125	3.707	0.000	Significant
H2	ISB -> CS -> IM -> IDM	0.182	3.477	0.001	Significant
H5	CS -> IM -> IDM	0.345	4.161	0.000	Significant

Note. β = path coefficient; ISB = Information seeking behavior; IM = Information management; CS = Coping strategies; IDM = Informed decision making

According to table 3, the mediation analysis, all the indirect effects within the model are found to be important. The mediating role of the CS in the indirect relationship between ISB and IM is also important (0.125, $p < 0.001$). Also, the serial mediation route (ISB -> CS -> IM -> IDM) can also be considered important ($\beta=0.182$, $p = 0.001$), implying that ISB facilitates coping mechanisms, which in turn improve IM and finally result in more IDM.

Discussion

The findings showed that the survey instrument is accurate and reliable regarding wide use during administration. The results also suggest that information-seeking and coping styles may have a positive impact on decision-making. The findings justify the hypothesis that informed decision-making in chronic patients cannot take place without proactive information-seeking behavior. The findings indicated that CS are also the best predictors of IM ($\beta = 0.483$, $p = 0.001$), which proves that patients with better coping skills can better manage the health information. CS does not have a direct impact on informed decision-making ($\beta = 0.175$, $p = 0.108$), which means that the

correlation is not statistically significant. Conversely, the positive impact on informed decision-making is very strong and significant ($\beta = 0.529$, $p < 0.001$) and, therefore, IM can be denoted as a very important determinant of the capacity of patients to make informed health decisions. Also, the indirect impact of CS on IDM using IM is strong and significant ($\beta = 0.345$, $p < 0.001$). Therefore, the results support the fact that IM is a major mediating factor whereby information-seeking behavior and coping strategy should aid informed decision-making among patients with chronic conditions. On the whole, the results imply that IM is an important process whereby information-seeking behavior and coping mechanisms play a role in making informed decisions. But it is not enough to just seek some information without being able to control it and use it properly. IM allows patients to analyze and use information, and CS allows adaptation of the psychological and behavioral context in order to apply knowledge in making decisions.

Study Limitations

The research has a few limitations. As an example, the study was limited to chronic patients who were identified with diabetes, heart disease, and hypertension. This could lead to the conclusion that the findings cannot be applied to patients with other chronic conditions (e.g., cancer, kidney disease, or respiratory disease), which might imply other health information behaviors. The research was geographically restricted to Punjab (Lahore), Pakistan, and the sample was taken of 100 patients.

A structured survey-based questionnaire was used to collect the data. Although such an approach is easier to standardize and quantify, it might not adequately describe the richness and complexity of patient health information behavior as qualitative methods would.

Finally, the study design is cross-sectional and limits causal relationships between the variables under study.

Conclusion

The current study investigated the connection between information-seeking behavior, CS, IM, and informed decision-making in chronic patients. The results indicate that information-seeking behavior contributes notably to the improvement of the coping ability of patients in seeking health information. Active patients who pursue health information are more likely to have stronger coping mechanisms, and thus have better ability to organize, evaluate, and make use of health related information.

The findings also show that IM is one of the major determinants of IDM. Though ISB and CS do not have direct effects on informed decision-making, they indirectly impact such decisions via better management of information. The mediation analysis also verified that IM and CS play a significant mediation role in the relationship between information-seeking behavior and informed decision-making. This underscores the fact that in order to make informed health decisions, there is a need to have the capacity of managing and processing health information appropriately. In sum, the research concludes that seeking health information, as well as the capacity to manage illness and handle health information appropriately is the key to effective health information behavior in chronically ill patients. Empowering patients with coping skills and enhancing their IM skills can thus be important in promoting IDM and eventually improving health-related outcomes.

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