Patients' Selection Behaviour of Healthcare Service Channels in the Context of Online and Offline Integration

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Recommended Citation

Wei, Yuhan; Yan, Xiangbin; and Zhang, Tingting, "Patients' Selection Behaviour of Healthcare Service Channels in the Context of Online and Offline Integration" (2022). *WHICEB 2022 Proceedings*. 76.
https://aisel.aisnet.org/whiceb2022/76

Short Research Paper

Patients' Selection Behaviour of Healthcare Service Channels in the Context of Online and Offline Integration

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Abstract: Online healthcare service platforms have received abundant attention and application in recent years. Patients can easily seek healthcare service provided by healthcare service providers from various regions via these online platforms. Alternatively, they can also choose to visit local hospitals or hospitals from other regions in person. Previous studies have discussed patients' use of online healthcare services and the change from online healthcare service to offline or vice versa. However, our understanding of the mechanism underlying patients' choice of healthcare service resources from different channels is still limited. Thus, based on the S-O-R model, this study proposes a research model to understand the influencing factors of patients' channel selection behaviour. The key factors include the complexity and compatibility of channels, perceived reliability and interaction attitude. A web-based questionnaire is under development to collect data for the empirical evaluation of the research model. This study explores patients' selection behavior of healthcare resources across different channels from the perspective of individual patient. Findings of this research will contribute to the literature on online-offline integration in the healthcare service filed. The results of this research may be used by online healthcare service platforms and healthcare service providers to improve patients' satisfaction and promote the integration of online and offline healthcare services.

Keywords: online healthcare service platform, channel selection behaviour, online-offline integration

1. INTRODUCTION

The disparity of healthcare resources among different regions is a serious problem that the world faces today. Regions with higher economic development level often have more high-quality healthcare institutions and resources, which leads to the phenomenon that patients tend to travel to regions with high-quality healthcare resources to seek healthcare services. As hospitals with high-quality healthcare resources often gather a large portion of local high-quality doctor resources and have advanced service facilities, patients are inclined to go to these hospitals for healthcare services. Consequently, hospitals with high-quality healthcare resources have to serve surging patients, resulting in many problems such as overcrowding in hospitals and patients having difficulty in receiving healthcare. In recent years, the emergence of online healthcare service platforms has provided great help to alleviate hospitals' pressure on patients' onsite visits and reduce patients' costs of traveling across regions for healthcare services. Online healthcare service platforms gather doctor resources of various hospitals to meet different healthcare needs of patients by providing online consultation, follow-up prescription and other services. Especially, due to the outbreak of COVID in 2019, online healthcare service platforms have gained a lot of attention and application because of the abundance of healthcare resources available and their convenience to use.

Online healthcare service platforms provide abundant healthcare opportunities and high service efficiency for patients from regions with limited healthcare resources, which makes that online healthcare service platforms and offline hospitals are both complementary and substitutional in providing healthcare services for patients. Meanwhile, patients face the selection of online or offline channels when seeking healthcare services. According to different characteristics of channels, their own needs and other factors, patients make decisions in choosing between

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online and offline healthcare service channels, which may lead to various situations such as the switching behaviour between different channels. Therefore, for online healthcare service platforms and offline hospitals, it is important to make full use of the advantages of both sides to achieve integrated development through dual channels. On the one hand, it is vital to promote online healthcare service platforms to be widely used. On the other hand, it is necessary to clarify the pros and cons of the two channels to guide patients' channel selection behavior, which might help solve some of the problems faced by offline hospitals due to surging patients and improve patients' healthcare service experience.

The online healthcare service platform has attracted the attention of a large number of scholars. Some scholars have investigated patients' behaviors of continuous use and their willingness to use online healthcare service platform [1], [2]. Some studies regarding online and offline channel integration in the healthcare field mainly focused on the behavior and performance of doctors while few studies based on the perspective of patients [3], [4]. Currently, researches on users' online or offline channel selection behavior are mainly conducted in the field of marketing. Consequently, the purpose of this paper is to investigate patients' selection behavior of healthcare resources in different channels and its influencing factors to reveal the interaction between different channels. The results will enhance the literature on patient decision-making behavior from the perspective of online and offline integration and the development of dual channel integration in the healthcare field. The findings are expected to be helpful to alleviate some of the problems faced by offline healthcare providers with high-quality healthcare resources and improve patients' healthcare experience.

The rest of the paper is organized as follows: Section 2 reviews related literature; Section 3 demonstrates the research model; Section 4 explains the research methodology; and Section 5 concludes the paper with potential contributions.

2. LITERATURE REVIEW

2.1 Channel selection behavior

A large number of scholars have explored and studied channel selection behavior in different fields, such as retailing and online communities, which results in the emergence of different concepts related to channel selection, such as channel migration, channel conversion, continuous use, and etc. In the retailing field, channel conversion [5] and channel migration [6] are often used to describe the transfer process of consumers from online (offline) channels to offline (online) channels, which can be reflected in different stages of the same purchase process or multiple purchase behaviors of consumers. In the field of online community, a large number of studies focus on users' continuous use of a particular online community [1].

Based on the existing literature, channel selection behavior mostly refers to consumers' selection behavior of different channels, mainly between online and offline. Channel selection behavior is considered as a broad concept because channel migration, channel conversion and continuous use can be regarded as different options in channel selection. In the current research, the channel selection behavior refers to the patients' selection of healthcare resources provided via online and offline channels to meet their healthcare service needs.

2.2 Online healthcare service platform and patient selection behavior

Prior studies on patients' continuous use and channel conversion behavior found that patients' e-health literacy, trust in doctors, perceived platform information, self-efficiency, outcome expectation, system quality and service quality can affect users' willingness to continue to use online healthy communities. Existing literature on patients switching between online and offline healthcare consultation suggested that the subjective and objective information about doctors on online health community and patients' willingness to continue online consultation can affect patients' decision to switch from online to offline consultation [7], while patients' high satisfaction with offline healthcare experience hinders their awareness of online healthcare service which then

affects their willingness to adopt online healthcare service [8].

However, the understanding of the impact of different initial choices on subsequent channel choices in the same situation is still limited, which deserves further study.

2.3 Influencing factors of channel selection behavior

Existing research concerning user channel selection behavior have explored the influencing factors of user channel selection behavior in healthcare, retailing, knowledge community and other fields from different perspectives by adopting various theories. For example, based on the Innovation Diffusion Theory and Use and Gratifications Approach, it was found that satisfaction, comparative advantage, compatibility usability and subjective norms can positively affect users' willingness to continue to use. Other scholars used channel characteristics, individual self-efficiency, perceived trust and other factors to describe users' cognitive phenomena, and took the sense of social existence and community identity to describe users' feelings to explore users' willingness to continue to participate in the online community. Zhang [8] integrated user satisfaction and habit with the Innovation Diffusion Theory to investigate the intention of patients' behavior from offline to online health community. By adopting the valence framework, Xiao [9] examined the impact of social risk, social support value, convenience value and utilitarian value on consumers' channel conversion behavior.

In summary, the channel selection behavior of users or consumers is affected by factors of various aspects, which can be divided into five categories: internal factors from individuals (such as self-efficiency, individual experience, individual motivation, etc.), perceived factors from individuals (such as perceived risk, perceived value, perceived trust, etc.), characteristic factors from channels (such as reliability, complexity, information disclosure, comparative advantage, etc.) and situational factors from the environment (such as time conditions, physical conditions, task complexity, etc.). In different research fields, the effects of factors are also different. For example, in the retailing field, the characteristic factors from commodities (such as commodity price, category, etc.) are usually included.

3. RESEARCH MODEL

3.1 Stimuli-organism-response model

The Stimuli-Organism-Response (S-O-R) model explains that the individual in a certain environment may be influenced by various stimulus factors that come from psychological factors and external environment, which affect the individual's cognition, emotion or motivation, and promote the individual to make behavioral response.

S-O-R model has been widely used to investigate the influencing factors of users' or consumers' behavioral intention, such as consumers' purchase intention in live broadcast environment, continuous use intention of social e-commerce, knowledge exchange and sharing of users in virtual academic community and so on. Researchers often describe stimulus factors from the aspects of external channel characteristics, environmental characteristics and individual perception. As an organic element of intermediary, Organism has been described as perceived usefulness and perceived interest, self-efficiency and perceived channel conversion cost to reflect individual cognitive or psychological response factors in the prior literature.

This study aims to demonstrate patients' selection behavior of healthcare resources between online and offline channels, which is affected by different factors. S-O-R model points out that the stimulating factors affecting individual cognition and behavior can come from all aspects. Therefore, this study uses S-O-R model to explore patients' selection behavior of healthcare resources based on different channels.

3.2 Perceived satisfaction and channel selection behavior

It has been found that user satisfaction has a positive and significant impact on users' intention of sustainable system use. Baker Eveleth [10] confirmed that user satisfaction can significantly affect users'

sustainable using intention. On the contrary, when satisfaction does not meet the requirements, users may have other selection behaviors to seek services. Therefore, patients' perceived satisfaction is expected to affect their subsequent healthcare selection behaviors. It is proposed that:

Proposition 1 (P1): Perceived satisfaction with one channel negatively affects patients' subsequent selection of medical resources from other channels.

3.3 Channel characteristic, perceived experience and perceived satisfaction

Zhang [8] used the Innovation Diffusion Theory to explain the path of patients from offline to online healthcare service and found that high satisfaction with offline healthcare experience could hinder patients' cognition and adoption of online healthcare service. Following Zhang's study, the current research adopts compatibility and complexity from the Innovation Diffusion Theory where compatibility refers to the coexistence of online and offline channels with patients' needs, values and past experiences. When offline healthcare experience is consistent with patients' needs, beliefs and experiences, patients will be likely to have high satisfaction. Oppositely, patients may think about the compatibility of online healthcare service platform to make subsequent healthcare choices, where complexity refers to the complexity of online and offline channels in the process of healthcare treatment. By going through the entire process, patients could generate perceived satisfaction, which affects their subsequent healthcare selection behaviors. Thus, it is proposed that:

Proposition 2 (P2): Compatibility positively affects patients' perceived satisfaction.

Proposition 3 (P3): Complexity negatively affects patients' perceived satisfaction.

Reliability and interaction attitude are regarded as two important aspects to describe users' experience. The physical level (convenience and appearance), reliability (correctness and commitment), and interpersonal interaction (self-confidence and politeness) are considered as important factors explaining the retailing service quality [11]. The Justice Theory divides users' perceived trust into four dimensions: distributive justice, procedural justice, interactive justice and informational justice. Chang [12] illustrated that interactive justice and informational justice can affect patients' willingness to continue online consultation and offline service by affecting patients' trust in doctors. In this study, reliability refers to the correctness of the consultation results given by the doctor during the healthcare service, and interactive attitude refers to the perceived degree of politeness and respect by the doctor during the consultation. Previous studies have shown that reliability and interactive attitude mainly affect patients' perceived experience of healthcare service, which further affects patients' perceived satisfaction. Consequently, it is proposed that:

Proposition 4 (P4): Reliability positively affects patients' perceived satisfaction.

Proposition 5 (P5): Interactive attitude positively affects patients' perceived satisfaction.

3.4 Moderating effect of disease risk degree

Jin [13] considered that patients with different diseases have different cognitive needs and involvement. As a result, patients with different levels of disease risk have different needs for healthcare resources. Patients with high-risk diseases have urgent demand for high quality healthcare resources, so when such patients' satisfaction with healthcare experience is low, they are likely to make other choices to seek healthcare experience that meets their expected quality. This leads to the following proposition:

Proposition 6 (P6): Disease risk degree has a positive moderating effect on the relationship between patients' perceived satisfaction and channel selection behavior.

Based on the S-O-R model, this paper proposes a research model, as shown in Figure 1. The model takes channel characteristic (complexity and compatibility) and perceived experience (reliability and interactive attitude) as external stimuli (S), and individual perceived satisfaction as an organism of internal cognition (O), which is a psychological response to stimuli, thus affecting users' selection behavior of healthcare resources based on different channels (R). The impact of perceived satisfaction on users' selection behavior will also be
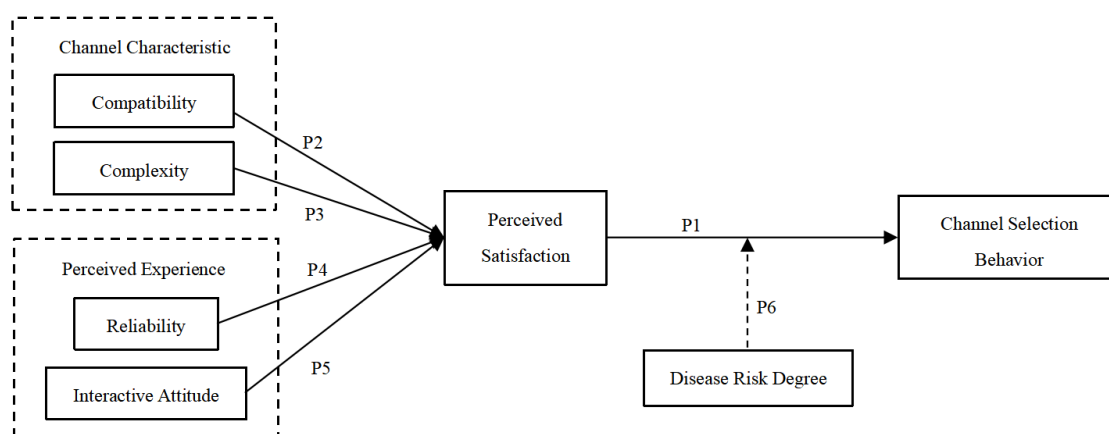
moderated by the degree of disease risk.

Figure 1.   Research model

4.   RESEARCH METHODOLOGY

In order to evaluate the research model from the patients' perspective, empirical data of individual dimension of patients will be collected through questionnaires with various situations. By using the seven-point Likert scale and instruction of skipping question, questionnaires based on different situations will be designed. The end of the questionnaire will also include demographic issues, such as gender, age, location, healthcare experience of using online healthcare service platform in the past, etc. At the beginning of the questionnaire, the objectives of this study, the protection of participants' privacy, confidentiality, anonymity, the plan of using survey results and the filling instructions of the questionnaire will be stated to obtain the trust of participants to ensure the effectiveness of data.

Before sending out survey invitations, experts in related fields will be invited to evaluate the questionnaire and a questionnaire distribution test will be conducted. For formal data collection, a web-based survey will be used, because it can achieve a wide range and fast speed of spread. Also, with the help of web-based survey tools, the integrity of the collected data can be ensured, the participants can be guaranteed to complete all the questions that need to be answered, and the automatic identification of legitimate questionnaires can be realized when sorting out the data in the later stage. The dissemination scope of the questionnaire will be expanded as much as possible to collect answers from participants of different ages and identities.

Upon completion of data collection, the proposed research model will be verified by the data collected using the structural equation model method, because it can simultaneously test the reliability and validity of the measurement scales and estimate the relationship between the constructs.

5.   DISCUSSION AND CONCLUSION

The increasing use of online healthcare service platforms raises a large number of attentions from scholars regarding patients' willingness to continuously use online platform and from the industry to promote the sustainable development of online healthcare service platform. Nevertheless, at present, there is little research on patients' selection of healthcare resources in the context of online and offline integration. Drawing on the S-O-R model, this study proposes a research model to explain patients' selection of healthcare resources based on different channels in the process of transferring from offline to online consultation. The research model proposes that patients' channel selection behavior is influenced by perceived satisfaction, which is affected by channel characteristic and perceived experience, including complexity and compatibility, reliability and

interaction attitude respectively. The research model will be empirically evaluated using survey data to better understand the relationships between the identified factors and patients' selection channel behavior of healthcare resources.

The potential theoretical contributions of this study are three-fold. Firstly, this study will enrich the literature on patients' decision-making behavior in the context of online and offline integration. While some existing studies focused on patients' choice and use of healthcare service channels and the flow of healthcare resources via online platforms, this study focuses on the impact of patients' different initial choices on subsequent channel choices in the same situation. Secondly, in the proposed research model, perceived satisfaction is used as an intermediate organism to explain the relationship between external stimuli and patients' selection behavior. Thirdly, this empirical study is carried out from the perspective of individual patient to discuss the selection behavior of patients in the process of switching between different channels.

This study also has three possible practical implications. Firstly, the interaction between online and offline healthcare service channels can be identified by the actual decision-making behaviors of patients to provide suggestions for the integrated development of online and offline channels in the healthcare field in the future. Secondly, the results of this study may provide useful suggestions for designers and operators of online healthcare service platforms to develop convenient and thoughtful service functions for patients to improve their acceptance of online platform. Thirdly, the findings might help healthcare service providers with the collaborative application of online and offline dual channel so as to improve the service efficiency of doctors and alleviate the problems caused by surging patients visiting offline hospitals.

ACKNOWLEDGEMENT

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