



Does information overload prevent chronic patients from reading self-management educational materials?



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ABSTRACT

Background: Self-care management is becoming an important part of care for chronic patients. However, various kinds of self-management educational materials which government or healthcare institutions provide for patients may not achieve the expected outcome. One of the critical reasons affecting patients' use intention could be patients' perceived information overload regarding the self-management educational materials.

Purpose: This study proposed an extended model of the Theory of Planned Behavior (TPB), which incorporated perceived information overload, to explore if information overload will prevent chronic patients from reading educational materials for self-care management. The independent variables are attitude, subject norm, perceived behavior control and perceived information overload while the dependent variable is behavior intention to use the self-management educational materials. Perceived information overload is also referred to as an antecedent variable which may have impacts on attitude and perceived behavior control.

Methods: The cross-sectional study interviewed newly diagnosed chronic patients with coronary artery disease, who are the potential users of the self-management educational materials, in a medical center in Taiwan. Data were analyzed using descriptive statistics of the basic information distribution of the respondents, and structural equation modeling to study the reliability and validity for testing hypotheses. **Results:** A total of 110 respondents were enrolled in this study and successful interview data were collected from 106 respondents. The result indicates that the patients' perceived information overload of self-management educational materials was validated to have impacts on attitude and perceived behavioral control constructs of the TPB as well as contributing a direct impact on patients' intentions to use self-management educational materials. Besides, subjective norm and perceived behavioral control constructs were validated to have significant impacts on behavioral intentions, whereas the attitude construct was not. Finally, the relationships between information overload and attitude, information overload and intention, subjective norm and intention, as well as perceived behavioral control and intention varied significantly between highly- and less-educated respondents. Differing self-management educational materials for respondents of various educational levels could be formulated to substantially boost the use of self-management educational materials.

Conclusions: This study demonstrated a comprehensive framework, which extended perceived information overload into the TPB model, to predict patients' behavioral intention of using self-management educational materials. We expect the results of this study will provide useful insights for studying self-management educational materials usage and information overload from the perspectives of academia, governments, and healthcare providers.

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1. Introduction

With an aging population, the treatment of chronic disease and care issues are increasingly important. Based on statistics from the Ministry of Health and Welfare in Taiwan over the years, the top ten causes of death are directly or indirectly related to chronic diseases, such as coronary artery disease, diabetes, high blood pressure, etc.

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Promoting self-care management (SCM) is thus an important part of the integrated care for chronic patients [1]. Although healthcare professionals are the most reliable and important source of medical knowledge [2], the SCM treatments for chronic diseases is usually conducted outside of hospitals where healthcare professionals cannot observe or offer guidance all the time. Therefore, healthcare institutions should offer various health educational materials for patients (or the primary home carers) to take home for further guidance. Many of the self-management educational materials (hereafter “SMEM”) do not achieve the expected effects due to poor readability [3]. Prior literatures point out that SMEM for patients often consist of too much or too difficult health educational themes and content, which patients find hard to understand and thus give up [4,5]. The main cause for this phenomenon lies in the limits of time and information-processing abilities of individuals [6]. When information becomes excessive, individuals will feel pressure and confusion, even anxiety, which leads to difficulties in decision-making, namely so-called “information overload” [7,8]. Bawden [9] argued that information overload occurs when information received becomes a hindrance rather than a help when the information is potentially useful.

Coronary artery disease is a common chronic disease, and is the main killer in the developed countries of Europe and America. As per the statistics of the World Health Organization, about 17 million people die of cardiovascular disease every year. In recent years, coronary artery disease has increased significantly, along with economic and social modernization, life anxiety and an aging population. The 2013 statistics for the causes of death from the Ministry of Health and Welfare of Taiwan [10] show that heart diseases are the second leading cause of death for Taiwanese residents, of which coronary artery disease accounted for the majority. Not only is the number of coronary artery disease deaths increasing year by year, but also the people who have caught this disease are younger. However, self-care in conjunction with educational knowledge is expected to bring practical value for managing coronary artery disease. However, patients with coronary artery disease believe that their need for SMEM is not being satisfied [11].

The Theory of Planned Behavior (TPB) [12,13] is one of the most important theories used to predict individual behavior. The TPB posits that the willingness of individuals to execute a certain behavior is affected by attitude, subjective norm and perceived behavioral control. In addition to the wide application of the TPB in the fields of marketing and consumer behavior for researches, some scholars adopt or extend the TPB to explore healthcare behavior (such as smoking, diet and healthcare technology adoption) [14–19], showing that the TPB is also appropriate for the context of this study. Therefore, by including the construct of information overload, this study extends the original TPB to explore the influential factors on coronary artery disease patients’ willingness to use SMEM, which will contribute to our knowledge concerning SCM.

1.1. Information overload

From the 1990s, the Internet and the World Wide Web have even opened the floodgates for tremendous information. Scholars estimate that the volume of information from a newspaper today is much more than the life-long requirements of information for ordinary English civilians [20]. Undeniably, large amounts of information can make peoples’ daily lives, work, and academic studies, more convenient, fast and efficient. However, without the necessary appropriate assistance to dilute the ever-incoming information, there could be undesirable consequences resulting from providing individuals with “too much” information [7,21].

Information overload is at first a term popularized by Alvin Toffler in his famous book “Future Book” that refers to the difficulty a person can have understanding an issue and making decisions

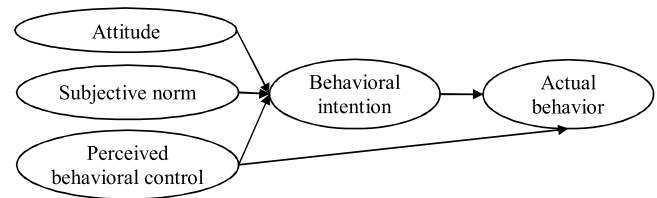


Fig. 1. The Theory of Planned Behavior.

that can be caused by the presence of too much information [22]. The meaning of information overload conveys a simple concept: the receipt of too much or too difficult information. Wilson [23] pointed out that information overload is a personal subjective feeling about the information and that it makes people feel pressure or a decline in their working efficiency. Bawden [9] believes that information overload is the condition that individuals cannot effectively deal with related information. Long-term exposure to information overload can lead people to suffer from stress, anxiety, sleep disorders, unhappiness, physical fatigue and depression, etc., which can even further jeopardize their interpersonal relationships [20,24,25].

1.2. The theory of planned behavior

The Theory of Planned Behavior, extended from the Theory of Reasoned Action (TRA) [26], was proposed by Ajzen in 1985 [12]. The TRA is widely adopted to interpret and predict the behavior of individuals, as proposed by Fishbein and Ajzen in 1975 [26], which originated from the perspective of social psychology. The TRA believes that the attitude and subject norm of individuals will affect their behavioral intentions, which in turn influences their actual behaviors. However, the TRA interprets the relationship for individuals’ intentions and behaviors from the perspective of total volitional control by individuals and ignores the impact of an objective environment or resources, such as time, money or techniques. Therefore, it may be not easy to predict involuntary behavior of individuals. To dissolve this limitation, Ajzen [12] included the construct of perceived behavior control to the framework of the TRA, namely the so-called the TPB. The relationships among constructs of the TPB are illustrated in Fig. 1 [13].

Attitude refers to an individual’s positive or negative feelings on specific behavior [26]. In words, attitude is the evaluation of whether an individual’s behavior is beneficial to him/her or an individual likes it. When individuals have a more positive attitude, their behavioral intentions will also be higher. On the contrary, when individuals have a more negative attitude, their behavioral intentions will be lower.

Subject norm, a societal factor, refers to whether social pressure affects individuals to conduct a specific behavior [26]. In some scenarios, individual behavior is affected by outside social pressure, which mainly comes from the important people they believe in, such as peers, family, health care personnel, and supervisors, etc.

Perceived behavioral control refers to the possible interference or obstacles that individuals perceive with in undertaking specific behavior based on their past experiences [12]. When individuals have more resources and more chances (i.e., higher perceived behavioral control), they are more willing to undertake specific behavior.

Behavioral intention refers to the subjective probability for undertaking specific behavior by individuals [26], and also refers to whether or not individuals have strong motives to conduct this behavior. The higher motivations they have, the higher the probability of executing certain behavior [13].

Previous literature asserted that our understanding of behavioral intention will be limited through merely using monolithic beliefs such as attitude, subjective norm, and perceived behavioral

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