

An Integrated Structural Equation Model of eHealth Behavioral Intention

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ABSTRACT

eHealth offers promising tools and services to manage and improve the quality of health as well as the potential to provide accessible health information all over the world. The relatively low adoption rates among eHealth users motivates us to develop an integrated model to explain the learning process and provide essential antecedents of eHealth behavioral intention. The integrated model is empirically tested by using different structural equation modeling (SEM) methods, including partial least squares SEM (PLS-SEM), PLSc, and covariance-based SEM (CB-SEM). The model successfully explains the learning process and provides essential antecedents of eHealth behavioral intention. The findings support the interplay of social, cognitive, and personal factors that impact 18-30-year-old users' learning process related to eHealth behavioral intention. The results empirically show that these three types of SEM techniques provide consistent results with respect to path coefficients and coefficients of determination. The findings indicate that CB-SEM and PLS-SEM provide adverse consequences of interaction-term path coefficients.

KEYWORDS

Covariance-based Structural Equation Model, eHealth Behavioral Intention, Partial Least Squares, Social Cognitive Theory, Structural Equation Modeling

1. INTRODUCTION

The acquisition of real-time, on-demand health information from traditional health channels (e.g., hospitals, clinics, and primary care physicians) is costly and inconvenient for most health information and service seekers (Zhang et al., 2017). To fulfill health information needs in a timely and convenient manner, many users are seeking health information and services through other channels. Internet venues offer real-time accessibility for young users to immediately search for health information, exchange health information effectively, and can simultaneously fulfill the needs of a large number of users (Prybutok et al., 2014). In general, online health information has great potential to boost the quality of personal healthcare and the use of preventive health behaviors by users (Hsieh, 2016).

According to the World Health Organization (WHO), eHealth is a relatively new term reflecting the adoption of "information and communication technologies (ICT) for health" (WHO, 2017). In other words, eHealth involves the delivery of health-related information and services through the Internet and related technologies (Prybutok, 2014). Users can access the Internet to learn more about their health issues, obtain a basic knowledge of their diseases and treatments, and get relevant

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and reliable health information when making health-related decisions (Zhang et al., 2017). Many health practitioners build online health platforms that store patients' health information, such as health insurance and electronic medical records (EMR). The online platform allows more efficient interactions among health providers and users (Hsieh, 2016). Zhang et al. (2017) showed that eHealth improves the user's health status by providing effective professional and social support to improve personal health management and decision making. eHealth provides an effective venue for timely and on-demand access to online health resources with little effort. WHO (2016) showed that eHealth is a useful tool and service to manage and improve the quality of healthcare and is a promising solution for making health information accessible across the world. Individuals and health practitioners use online health venues and services to complement traditional face to face and print health information channels and to encourage healthy lifestyles or proactive health behaviors (Prybutok et al., 2017). Thus, eHealth can benefit both individuals and society as a whole (Yi et al., 2013).

Although eHealth is a promising tool and a future-oriented source of health information and communication, online health information venues still have a relatively low visit rate (Zhang et al., 2017). The low intention to use eHealth and the paucity of the related literature lead to the necessity to build an integrated model to examine how 18-30-year-old users' social, cognitive, and personal factors influence eHealth Behavioral Intention. From a practical standpoint, understanding why users adopt eHealth and how such adoption is incorporated into their decision-making process allows healthcare practitioners to develop effective promotional strategies to maximize user adoption and improve the positive impact of eHealth on personal health management. Furthermore, from the social cognitive perspective, this study expects that users' eHealth behaviors related to online health information and services will be a function of the users' cognitive judgment about their ability to adopt and implement activities recommended by online health information sources and services.

This study is the first to simultaneously examine the effects of a personal motivational factor (Health Information Orientation), a cognitive factor (Attitude toward eHealth), a personal skill factor (eHealth Literacy), a personal behavioral factor (Online Health Behavior), and a social factor (Need for Online Social Interaction) on the eHealth Behavioral Intention of 18-30-year-old users. The constructs, definitions, and sources are presented in Table 1.

The eHealth literature suggests that disparate factors drive eHealth Behavioral Intention with respect to the population of 18-30-year-olds, who are the most active group of Internet users (Pew Research Center, 2017). Guided by well-established theories including Social Cognitive Theory (SCT) (Bandura, 1986), the Theory of Reasoned Action (TRA) (Ajzen & Fishbein, 1980), and the Theory of Planned Behavior (TPB) (Ajzen, 1985), the authors develop a new model capturing the most important antecedents of eHealth Behavioral Intention for this population. SCT considers the social cognitive determinants together with the personal determinants and suggests that learned experiences, social environment, and behavioral capability are the main driving factors of the learning process (Bandura, 1998). TRA and TPB provide the theoretical foundation for the proposed relationships among Health Information Orientation, Attitude toward eHealth, eHealth Literacy, and eHealth Behavioral Intention. The model not only substantially contributes to the eHealth literature but also has value for health providers and educators. Understanding the health-related behaviors of 18-30-year-old users enables health information professionals and eHealth system administrators to improve users' personal health management and the use of preventive health measures delivered via the Internet to this user population.

To empirically test the research model, the authors surveyed 3,064 18-30-year-old college students enrolled at a state university in the southwestern area of the United States and, after data cleaning, analyzed 1,432 valid responses using partial least squares structural equation modeling (PLS-SEM), PLSc, and covariance-based structural equation modeling (CB-SEM) methods. While the PLS-SEM approach seeks to maximize the explained variance value R^2 of the endogenous (dependent) latent constructs using a regression-based ordinary least squares estimation, the CB-SEM approach uses a maximum likelihood estimation to reproduce the theoretical covariance matrix (Hair, Hult, Ringle,

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