INFLUENCE OF HEALTH SOCIAL NETWORKING SITE USE ON USER HEALTH BEHAVIOR

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ABSTRACT

Recently, owing to the rising social media, more and more people have used Social Network Sites (SNSs) and obtained the health information from them. They actively share and talk about the health information on these sites, and in turn, this information influences their treatment decisions. This study investigates what important factors affected the website user's medical decision-making. Through the review of Social Capital Theory, Social Cognitive Theory and related studies, we built the research model and verified it empirically. An online survey was conducted to 10 health social networking sites. Eventually, 298 usable responses were collected. The results indicate that (1) the constructs of social capital, including trust, identification, and reciprocity, affect the social support or health behavior self-efficacy indirectly; (2) the user's health behavior self-efficacy affects the health behavior directly, and indirectly influences the health behavior through the outcome expectations and the self-regulation; (3) the outcome expectations influences the health behavior directly, and indirectly influences the health behavior through the self-regulation; (4) the self-regulation affects the health behavior directly; (5) and the social support which the users receive indirectly influences the health behavior through the self-efficacy and the outcome expectations. Finally, implications and the directions for future research are also discussed.

INTRODUCTION

Since the onset of the Internet, people can easily get any information they need from the Internet, especially, the medical information and knowledge which were held in the hands of medical personnel in the past. Recently, due to the rise of social media, more and more people have used SNSs, and treated SNSs as the first selection for gathering information and incubating their own ideas. SNS is now spreading to the area of health care, and spawning many applications, such as, clinic care, emergence service, public hygiene and disease control [11]. People can share medical information, interact with others and get social support from others via SNSs [24]. As a result, they can make better medical decisions and display better health behaviour [17]. Many previous studies tried to identify what important factors reside in social media which influence people's medical decisions, and affect their actual health behaviour. Many factors were found, such as, perceived sympathy [25, 28, 29], information seeking effectiveness [23], perceived emotional support [26], health consciousness, and informational social support [21]. Though these studies shed light on the topic, a clear picture of social media influences members' health behaviour is still lacking. This study has combined Social Capital Theory, Social Cognitive Theory, and related studies to propose a comprehensive model to investigate the important factors. Considering the characteristics of SNS, three factors are introduced from Social Capital Theory: trust, identification, and reciprocity. As to the interactions of members in SNS, five variables derived from Social Cognitive Theory are included in the model: self-efficacy of health behaviour, social support, outcome expectations, self-regulation, and actual health behaviour. The model

is used to answer the following questions: (1) Is a member's actual health behaviour influenced directly by his self-efficacy of health behaviour? (2) Is a member's actual health behaviour influenced directly by his self-regulation? (3) Is a member's actual health behaviour influenced directly by his outcome expectations? (4) Do trust, identification and reciprocity influence a member's actual health behaviour indirectly through his self-efficacy of health behaviour and outcome expectations?

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Social Capital Theory

The term "social capital" has been used for a long time, but was widely used in late 1990s. Bourdieu [9] defined it as the aggregate of the actual or potential resources. It originated from a long and stable relationship with which members understood and accepted mutually. Social capital is owned by all of the members. A member can access these resources through his relationship ties with others [22]. Three important factors can maintain these relationships. First, trust can build and maintain the relationship for exchange [8]. People are willing to engage in exchange and cooperation based on the relationship of trust [22]. Thus, trust plays an important role in the sustainability of websites [31]. Trust is a direct antecedent of self-efficacy [10, 20, 27]. As a result, it leads to the first hypothesis:

H1: A member's trust in SNS is positively related to his self-efficacy of health behaviour.

Second, identification is a process by which a group member takes himself as being a part of the society [22]. In a virtual environment (e.g. SNS), values of the group are an important factor to create identification. Members with the same values will perceive higher belonging and identification [3, 13, 18], increase the chance of exchanging resources, and get more support from other members [16]. Hence, the second hypothesis is proposed.

H2: A member's identification with SNS is positively related to the social support he gets.

Third, reciprocity is a social capital which is produced during the process of social exchange [8]. A member expects that he will acquire the needed knowledge if he has contributed his own to others [34]. The more knowledge exchanged, the more social support he will get [30]. Thus, social support is built on the foundation of reciprocity. Therefore, we propose:

H3: The reciprocal behaviour between members is positively related to the social support he gets.

Social Cognitive Theory

Badura [5] posited that one possible driving force to generate or strengthen self-efficacy is verbal persuasion. It is a positive verbal encouragement that comes from others [12]. This persuasion influences a member's judgment about his self-efficacy. Social support refers to the communication and exchange of emotion, information and message in verbal and non-verbal form [7]. It is provided from friends, neighbours, family and relatives to help those people who are under pressure [32]. In sum, social support is viewed as a positive verbal encouragement from others. Therefore, the fourth hypothesis is proposed.

H4: Social support that comes from SNS is positively related to a member's self-efficacy of health behaviour.

Badura [6] noted that the outcome expectations of health behaviour take several forms, i.e. physical outcomes, social reactions and self-evaluative reactions. Among them, social reactions refer to the social approval or disapproval that the health behaviour produces in interpersonal relationships. Therefore, a member of SNS will be prone to positive health behaviour if he gets more social support in the interactive processes. Thus, we propose fifth hypothesis.

H5: Social support that comes from SNS is positively related to a member's outcome expectations of health behaviour.

According to the proposition of Badura [6], self-efficacy influences individual's goal and aspiration. The stronger self-efficacy an individual perceives, the higher the goal he sets for himself, and the firmer his commitment to the goal. Therefore, those individuals with higher self-efficacy have a better outcome expectation. This argument leads to the sixth hypothesis.

H6: A member's self-efficacy of health behaviour is positively related to his outcome expectations of health behaviour.

Self-efficacy is also important in a self-regulation system [5]. Self-regulation refers to the adjustment process in the mind during a definite period. Self-efficacy reflects the degree of confidence an individual's needs in the period to attend his behaviour and desired goal. Thus, an individual's self-efficacy influences his own self-regulation positively [1, 2, 5].

H7: Member's self-efficacy of health behaviour is positively related to his self-regulation.

Based on the former discussion, self-efficacy has a direct impact on self-regulation. Besides, higher self-efficacy produces a better outcome expectation, resulting in higher self-regulation. Hence, we propose the eighth hypothesis.

H8: A member's outcome expectations of health behaviour are positively related to his self-regulation.

Self-efficacy is a very important construct in Social Cognitive Theory [6]. It influences health behaviour directly. Besides, it also influences behaviour indirectly through other variables. People could not keep on their behaviour while facing a difficult situation, unless they believe that they can get the desired outcome through their behaviour. Thus, ninth hypothesis is proposed.

H9: A member's self-efficacy of health behaviour is positively related to his health behaviour.

Self-regulation is adjusted by the self-evaluation of the desired behaviour. Inspiring by the goal, one sets up a higher standard for oneself [6]. Self-regulation mechanism coordinates the paradox between the actual behaviour and the desired goal. Simply put, self-regulation controls the actual behaviour.

H10: Member's self-regulation is positively related to his health behaviour.

The third type of outcome expectations considers the positive and negative self-evaluative reactions to health behaviour [6]. This means that members are prone to those health behaviours when they anticipate better outcomes. Avoidance of those health behaviours results in bad consequences. Therefore, the final hypothesis is proposed.

H11: A member's outcome expectations of health behaviour are positively related to his health behaviour.

RESEARCH METHOD

Measurement development

The measurements used in this study were adapted from previous research. Items of all variables were measured using a 5-point Likert's scale. Some minor modifications were made to fit for the scenario. To assure the content validity, three medical professors and three doctoral students were invited to review

the content of questionnaire. Afterward, the questionnaire was sent to 25 experienced users to complete and check. According to their opinions, the questionnaire was modified again.

Subjects and survey

After the pre-test and pilot test, the questionnaire was posted on a survey website – www.MySurvey.tw. The respondents were recruited from 10 health social societies of Facebook in Taiwan. The topics discussed in these web sites included cancer, immunity disease, nutrition, sports and diets. All participants had experiences with health SNSs. In order to encourage their participation, some incentives, such as, iPad Air, and coupons were provided. The recruitment lasted for seven weeks. Finally, there were 381 respondents. After screening incomplete and invalid respondents, 298 usable respondents remained. The valid rate was 78.22%.

RESULTS

Demographic Statistics

The majority of the respondents were female (N=171, 57.38%), most of them were between 21 to 30 years old (N=192, 64.43%). Their educational level was bachelor or higher (N=276, 92.62%), and their major occupational backgrounds were student (N=77, 25.84%), self-employed (N=50, 16.78%), and service (N=39, 13.09%). The frequencies of accessing health websites were "at least one time per week" (N=94, 31.54%), "at least one time per day" (N=80, 26.85%), and "at least one time per month" (N=73, 26.50%).

Reliability and Validity

The results of the reliability tests indicated that Cronbach's α values of all variables were between 0.777 to 0.887, all were higher than 0.7. This indicated a good reliability. As regards the content validity, IS professionals were invited to do the pre-test, and 25 experienced users were invited for the pilot test. The results of KMO (Kaiser-Meyer-Olkin) test and the Bartlett Test of Sphericity showed that they were suitable for factor analysis. The sample was tested by the PCA and the Varimax method for discriminant and convergent validity. The loadings of all items were higher than 0.5 and distributed appropriately. These results demonstrated good construct validity.

Hypotheses Testing

Before conducting this analysis, some fundamental assumptions had been tested, i.e. the normal distribution of the sample, multicollinearity, homoscedasticity, and the independence of the residuals. The results showed that no serious problems existed. Next, the study used SmartPLS 3.0 to conduct Structural Equation Modelling (SEM) analysis. All hypotheses are supported by evidence. The total explanation power of the research model was 48.9%. The path coefficients are as follow: trust – self-efficacy (0.228**); identification – social support (0.429***); reciprocity – social support (0.303***); social support – self-efficacy (0.185**); social support – outcome expectations (0.140*); self-efficacy – outcome expectations (0.542***); self-efficacy – self-regulation (0.450***); outcome expectations – self-regulation (0.295***); self-efficacy – health behaviour (0.542***); self-regulation – health behaviour (0.119*); and outcome expectations – health behaviour (0.115*). The R square of each dependent variable is social support (0.396), self-efficacy (0.131), outcome expectations (0.360), self-regulation (0.445), and health behaviour (0.489). (Remark: *: p<0.05, **: p<0.01, ***: p<0.001)

DISCUSSION

According to the analytical results, all hypotheses were supported. First, trust is positively related to self-efficacy. In a trustworthy web site, members feel comfortable to discuss, share and exchange their information, idea and experiences. They acquired more confidences and abilities through these processes [33]. As a result, they gain more self-efficacy. Next, when a member identified himself with the SNS, he took himself as a part of the SNS. He began to care about the activities and development of the SNS, share and discuss actively with others, and experience reciprocal help. Consequently, he gained more social support from other members of the SNS [16, 19]. Reciprocity among members also increases the degree to which a member gained social support from others. A member expected that he would gain the knowledge that he needed after he had contributed his own knowledge to others [34]. This reciprocal phenomenon promoted the information and emotion exchange among members of the SNS, result in higher social support. The higher social support then strengthened the member's confidence and ability to engage and sustain his positive health behaviour. In other words, higher social support brings higher self-efficacy. Thus, H4 is supported by the sample. Higher social support also brings higher outcome expectations. Following the former discussion, higher social support increase a member's confidence and ability, thus, he should have a higher expectation of his health behaviour. Therefore, the results supported H5. Following the same school of thought, a member with higher self-efficacy should have a higher outcome expectation of his health behaviour. H6 was validated in this study, and is coincident with the results of previous studies [2]. H7 pointed out the relationship between self-efficacy and self-regulation. According to Bandura [6], higher self-efficacy of health behaviour implies that a person has higher confidence in sustaining and persisting in his positive health behaviour. Then, higher standard for health behaviour is set up and when his health behaviour does not meet this standard, he will adjust his behaviour automatically. Therefore, self-efficacy of health behaviour is positively related to self-regulation. This is verified by the evidence. Bandura [6] also argued that outcome expectations have a positive impact on self-regulation. He pointed out that self-efficacy has not only a direct impact on self-regulation, but also an indirect influence on self-regulation via outcome expectations. This argument is identified with prior research [1] and confirmed in the study. Self-efficacy also has a direct influence upon health behaviour. This relationship had been found in prior studies, such as, intake of low-fat [14], and athletics behaviour [15]. It was verified by the data again in this study. H10 assumes that self-regulation has a positive impact on health behaviour. People with higher self-regulation in mind had a stronger inspiration to sustain their health behaviour. Thus, H10 was verified. Finally, outcome expectations influenced health behaviour positively. People with higher outcome expectations are prone to sustain their health behaviour more than those with less outcome expectations. As we had anticipated, it was also verified in this study.

CONCLUSION AND IMPLICATIONS

This study combined Social Capital Theory, Social Cognitive Theory and related studies to propose a comprehensive model and tested it empirically. The results showed a clear picture to understand how SNS influences its member's health decision-making and behaviour. It also demonstrated the importance of self-efficacy in the health information seeking and exchange in the social network. While in interaction with other members in SNS, identification is also an important factor. The more an individual

identifies with the SNS, the more social support he acquires. These findings point the way to another school of thought and provide a stepping-stone for future research.

Based on the findings, the following implications and recommendations are provided for practitioners. For medical services providers, SNS provides them with a platform to improve mutual understanding, and help people identify actual requirements and problems. People can acquire correct medical concepts and information to carry out disease prevention. Thus, the manager of SNS should provide a friendly environment which is trusted and identified by the members. Then, people can get social support from others in the SNS, and increase their confidence. Eventually, they can get better medical decisions and behaviour control.

Last, although this study was conducted elaborately and carefully, some limitations must be noticed. First, the participants were recruited from the Facebook in Taiwan. Members of other social media were not included in the sample. Second, due to the limitation of time, the user's perception of the difference between pre-use and post-use is not compared in this study. Finally, in order to improve the generalization of this study, future studies on other social media are needed.

Due to the page limitation, some of references are omitted. Please feel free to contact the corresponding author if you need them.

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