Factors Influencing Physician’s Well-being Management within the Mobile Health Context: A Scoping Review

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Abstract

As the rapid advance in technology affects people's lifestyle dramatically, more and more attention has been paid to public's well-being. However, research on the physician's well-being appears to be limited. To address this gap, a scoping review of the literature is conducted in this paper based on the Knowledge-Attitude-Belief-Practice (KABP/KAP) framework. This study is a research in progress that filtered out a pool of 47 papers into a scoping review. The preliminary result indicates that this area is still in slow development whereas the KABP/KAP framework has a great potential to capture a variety of factors that influence physician's well-being within the mobile health context. Several gaps are identified and discussed. Limitation of the study and suggestions for future research are made.

Keywords

Physician’s well-being, KABP/KAP, mHealth, scoping review.

Introduction

Over the last few decades, a growing literature on health management has been developed in the area of patients' health and wellbeing (Bansal et al. 2010). However, researches have shown that the physician's well-being is also a very important contribution to the doctor-patient relationship, the quality of medical treatment and so on (Ng et al. 2009; Scheepers et al. 2015). Nevertheless, physicians’ burnout has reached epidemic levels (West et al. 2016), which has been found to be significantly associated with poor patient safety outcomes such as medical errors (Hall et al. 2016). On the other hand, mobile health (mHealth) services and applications has enabled healthcare to overcome geographical, temporal, and even organizational barriers at affordable costs (Xu et al. 2008), resulting in positive impact on areas such as physicians’ work practices (Prgomet et al. 2009), patients’ care (Carman et al. 2013), patients’ engagement in health management (Free et al. 2013; Quinn et al. 2008). Thus, the key question is whether these potential benefits of using mHealth in healthcare will bring positive impact on physician’s well-being? If yes, how? If not, why?

To address this line of inquiry, this study aims to conduct a scoping review of relevant research regarding factors influencing physician’s well-being management within the mHealth context, in pursuit of identifying any gaps in literature that could inform future research. Scoping reviews differ from systematic reviews in that the latter are used to address precise questions with defined methodologies to assess article quality, whereas the former are used to incorporate literature that encompasses a broad range of study designs, aiming at rapid mapping of key concepts within a research area (O’Flaherty and Phillips 2015).
Since this is a research in progress, this study focuses on two objectives: i) to outline the distribution of relevant literature in terms of publication year, journal, topic, and type of mHealth technology examined, and ii) to identify factors from existing IS and management literature using empirical studies and evaluate gaps in literature based on where the factors stand. To achieve the first objective, a robust set of procedures is employed to search, screen, and code the literature. To achieve the second objective, the Knowledge-Attitude-Belief-Practice (KAP) framework is applied to group and summarize the factors according to how they affect the knowledge, the attitude and belief, and the practice of physicians’ own well-being management (Li 2012).

The remainder of the paper is organized as follows: first, the theoretical background of the Knowledge-Attitude-Belief-Practice (KABP/KAP) framework is elaborated; second, the procedures for searching and screening literature are illustrated; third, preliminary results are presented and a conceptual road map is proposed to identify factors and gaps. Contributions of this study and suggestions for future studies are discussed and conclusions are drawn.

**Theoretical Background**

As mentioned earlier, the approach for the scoping review is underpinned by the KABP/KAP framework which is one of the earliest comprehensive attempts to explain healthcare behavior based on expectancy value principles (Guinea et al. 2014). It is derived from the Health Belief Model (HBM) which integrates theoretical perspectives such as the Needs Motivation Theory, Cognitive Theory and Value Expectation Theory (Xu et al. 2008). This framework has been widely applied to study all types of healthcare behavior, such as contraceptive use, diet, and exercise (Bansal et al. 2010). There are three key elements in the KABP/KAP framework: knowledge, attitude and belief, and practice. They form a chain of influence as well as a feedback loop, namely, one’s healthcare knowledge influence how his/hers beliefs and attitudes are established, which will become driving forces for one’s behavioral change that could feed back into one’s healthcare knowledge (Frank 2004; Johnston and Warkentin 2010).

The KABP/KAP framework has only used by a few IS researchers in studying the role of technology in health management behavior, e.g. Boon-Yuen Ng et al. (2009), Akhu-Zaheya et al. (2017), Kartik K et al. (2016). However, because it has integrated with a range of theoretical perspectives, this framework exerts a strong potential to serve as an overarching framework in assessing which KABP/KAP element is influenced by which factor(s), and whether it is a facilitator or barrier to shape the element towards behavioral change. As a result, it is chosen as the theoretical underpinning for the scoping review.

**Research method**

**Sources and search terms**

To ensure the review focused on the specific research area of interest, we mainly searched the two reference databases: PubMed and Web of Science. Then we narrowed down the search to these major journals in the field of Management and Medicine for the years 2002-2017, including: ISR, MISQ, MS, AER, JPE, JMIS, JMIR, DSS, AIM, JAMIA, JKE, Lancet, JAMA, HA, JMS, PLO, PLM, DTT, TJEH, IJBM, BMCP, PE, and JECP. These strike a balance between those which contain primarily health-focused articles and those which draw upon broader social science content (Mitton et al. 2009). Subsequently, references from relevant articles were scanned to identify other papers that may not have been identified (Levac et al. 2010).


**Article screening**

An initial pool of 369 literature was obtained from aforementioned main journals. These articles were reviewed by two of the authors with the help of two research assistants. Articles with obviously irrelevant titles were excluded. The remaining articles’ abstracts were retrieved, read and assessed on whether the
article has probed into any factors that influence physicians’ well-being and also the effect of mobile health technology on physicians’ well-being. Through the initial screening process, the number of articles was reduced to 103. All but 17 of these articles were retrievable and thus a total of 86 articles were reviewed.

Content analysis
The authors and two research assistants read and assessed the full text of these 86 articles. The coding sheet include the author details, publication year, journal, research type, topic, influencing factors, and mHealth technology. Among them, 39 articles that are strictly theoretical or conceptual were set aside for future research. Thus, a total of 47 articles were ultimately retained for analysis in this study. Due to the page limit, we could not list all these articles in the reference section, but their information (as well as the full list of journals used as search source) could be viewed and downloaded from here: https://pan.baidu.com/s/1YuNlaaU61BU9u57AmQ_QQ.

Results
First, all 47 articles are arranged by journal and year (Figure 1). It can be seen that prior to 2008, the amount of publications remained very low; from 2008 onwards, there has been a slight increase in the annual number of publications, reaching an annual maximum of 9 in 2014. The publications distribute widely across different journals, with a sum of 17 publications coming from IS and management journals: 2 from MISQ, 6 from JMIS, 1 from MS, 4 from DSS and 4 from ISR. Regarding to the findings from literature, these papers revealed that short message reminder, telephone follow-up, remote consultation, online health community, intelligence question-and-answer system, mobile health apps, peer support, social support, relative support have positive effect on promoting the patients’ health management.

![Figure 1. Number of Publications by Journal and Year](image)

Due to the restriction of page limit, it is not practical to report all the detailed results in this paper. Instead, we propose a conceptual road map shown in Figure 2. First, factors are divided into facilitators (in the upper part of the figure) or barriers (in the upper part of the figure). Second, the KABP/KAP framework is placed in the centerline as the overarching framework to pinpoint various factors. Third, factors are linked into to the three key elements in the KABP/KAP framework based on the relationships proposed in the literature. Fourth, emerging mobile technologies, namely the mHealth App, Chatbot, AI assistant, Wearable devices, Schedule reminding, and EMR, are listed at the top of the figure. According to literature, these technologies have shown the potential to elicit the facilitators, and hence, playing important roles in the improvement of physicians’ well-being. In a nutshell, the road map suggests how one or more factors could affect a certain element by promoting or hindering it towards the next stage of change.

Discussion and Conclusion
The distribution of literature implies several gaps that could inform future research. First, the overall number of articles remains relatively low (86 articles in a 15 years’ span), within which there is a big proportion of conceptual studies (39 out of 86), and the number of empirical studies published on IS and management journals is quite limited (17 out of 86). This implies that this area is still in slow development with the potential to apply various conceptual findings into empirical tests.

Second, although there is a balance of research focus tapping into different elements in the KABP/KAP framework, the publication years suggest that more recent articles (published between 2014 and 2017) have looked into the factors influencing the knowledge, attitudes and belief elements rather than those influencing the practice element. This calls for more evidence that could shed light on how and why physicians change their well-being management practice under the influence of mHealth.
Third, there is a lack of integrated approach to study the long-term effect of proposed factors and mobile technologies. This is reflected by the fact that most empirical studies focused on the effects of factors within only one stage of the KABP/KAP framework. Future research could expand the short-term focus into a longer one to form a big picture on our understanding of physicians’ well-being management.

To address the third gap, this paper employs the KABP/KAP framework as the theoretical underpinning to understand the current status of literature. Thus, a clear theoretical contribution is made by providing a very useful overview in capturing the effect of various factors, which suggests the need for further theoretical development in refining and operationalizing the framework.

Figure 2. The Conceptual Road Map of Factors in KABP/KAP View

Practical contributions of this paper are made through the identification of factors which could help the physicians’ well-being management from the individual, organizational, and social levels. For example, the physicians’ could make use of the Health App to check up on the well-being management knowledge that they ignored and share the knowledge with their peers. The hospital managers and the government departments could use the AI assistant, wearable devices and schedule management system to detect the signs of physician’s burnout and hence prevent such overload from happening.

However, the results reported in this paper are subject to certain limitations. First, the tight screening criteria necessarily resulted in the exclusion of large subsets of the wellbeing literature. Second, the search terms have projected potentially a very elastic concept, others might define the term in a more or less inclusive way than we have done. In addition, our classification of factors only interprets the result from KABP/KAP’s perspective, which could cause a certain degree of bias in the content analysis. Future research needs to use open coding scheme in content analysis, expand the analysis into the conceptual papers, identify the links among factors as well as the importance of them, and summarize the mechanisms and theoretical lens in existing literature.

In summary, this scoping review lays a foundation work to apprehend the current status of research on factors influencing physician’s well-being within the mobile health context. It reviewed 47 studies in the past 15 years and summarized factors in a cohesive way. As mHealth is getting more and more pervasive, this line of research calls for a wider range of investigation and a further theoretical advancement.
Factors Influencing Physician’s Well-being Management within mHealth Context

References

(Note: Due to the restriction of page limit, we’ve only listed some of the representative literature. And the full literature list https://pan.baidu.com/s/1YuNlaaU61BUn9w57AmO_QQ )


