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Usage of Mobile Phone Applications for Dietary Benefits: Perceptions among Dietetics Professionals and Clients in Saudi Arabia

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Abstract

Mobile applications offer a basis for improving diet-based health outcomes and the study sought to investigate the usage of dietary mobile applications as perceived among dietetics professionals and clients. Results identify a moderate level of usage of the applications, despite the benefits that clients and dietetics professionals perceive. Addressing the associated limitations of applications can improve usage and is recommended for promoting the health benefits of the applications through informed dietary behavior.

Background

The Self-Care Deficit Theory of nursing identify the roles of individuals in the delivery of care as well as the nursing role in promoting self-care through such factors as the use of technology. Orem's Theory of dependent care establishes the need for dependence on help in the realization of the desired quality of health [1]. The help can come from people in a patient's social environment or from a nurse. The Theory Self-Care, however, focuses on the deliberate and continuous actions for the self-reliance in the realization of care goals. The Theory of Nursing Systems further identifies the need to bridge self-care gaps and agency gaps through different levels of nursing care. The supportive-educative system, which involves the empowerment of patients towards the capacity to bridge experience deficits in the delivery of care is an example of the nursing systems [1]. Technology, according to the Locsin's model of Technological Competency as Caring in Nursing, offers one of the bases for bridging the possible self-care deficit in the delivery of care [2]. Technology, based on the model, can function to enhance nursing roles or to undertake roles of nurses [2]. Such technologies as mobile phone applications for dietary benefits, as a result, can be used to facilitate care needs under the partially compensatory nursing system or the supportive-educative nursing system for improved care outcomes, especially with the emerging role of nutrition in the quality of health [3]. The ability of mobile applications to design diets and remind people of schedules also establishes the possible application of applications for improving care outcomes under the supportive-educative nursing system [4].

The use of mobile applications for such healthcare goals as dietary benefits, therefore, is important and

should be the focus of care professionals. Existing literature, however, identifies poor use of mobile applications in meeting care needs. Mobile applications, for example, exist for the use in promoting physical activity and healthy lifestyles, but the usage of the application remains poor. Performance in athletics depends on physical fitness and health, but a majority of runners, based on results from the study by Dallinga, et al. [5] does not use mobile applications to inform their physical fitness and lifestyles. Only 736 male runners of the 16 km race, who participated in the study, used mobile applications in their training while 830 male participants in the race did not use the applications. The number of users of mobile applications in training was also lower for male and female athletes who participated in the 6.4 km race than was the number of non-users of the applications. Users of the applications, however, were more than non-users among female participants in the 16 km race [5].

A high dropout rate from a launched mobile application among pregnant women in a low socio-economic context supports the low rate of use of mobile applications. An intervention for the use of a developed application, the Health-e Babies app, suffered a dropout rate of 76 percent and factors such as the inability to download the application and loss of the app through a change to new phones explain the non-usage of applications [6]. Factors such as perceived usefulness of an application, enjoyableness of an application, social norms, and people's level of innovativeness have also been associated with effects on the usage of the applications [7]. Perceived lack of benefits from using an application, the lack of fun in using an application, inconsistencies between the use of an application and social norms, and low levels of innovativeness, as a result, can undermine the usage of a mobile application.

The non-usage of mobile applications undermines the potential benefits of the application to self-care initiatives under the supportive-educative system of the delivery of care. The non-usage of mobile applications, therefore, is a concern that should be addressed. A dearth of empirical literature, however, exists on the use of mobile applications in Saudi Arabia's care setting, especially in nutrition and dietetics. This study seeks to bridge the gap by investigating the use of mobile phone applications for dietary benefits in the Kingdom. The following research questions are addressed.

- What is the perception of the usage of mobile applications for dietary benefits in Saudi Arabia?
- Does the perception of the usage of the mobile applications differ between dietetics professionals and clients?

Methods

The mixed research method, based on its freedom of integrating the best applicable research approaches, was used [8]. The method integrated the quantitative method's survey design and the qualitative method's phenomenology design. Patients, who used an online system to obtain healthcare information in the Kingdom of Saudi Arabia and professionals in the field of nutrition in the Kingdom, at the time of data collection, formed the population of the study and a sample of 423 patients and 19 dietetics professionals was used.

A survey questionnaire was administered to the sample of clients on an online data collection platform while interviews were conducted with the professionals, based on their experience with the use of dietary mobile applications. An online platform, from which the clients sought information, was used to recruit the segment of participants, from which a random sample was obtained. The sampled group was then informed of the scope of the study and was advised to participate only if they understood the scope and were willing to be involved in the study. A link to an online platform from which the data was collected was then sent to the sampled group and 12 days were allowed for completing the questionnaire. The care professionals were sampled conveniently, based on the ease of access to their care facilities, and informed consent was obtained before interviews were conducted within the professionals' facilities. Autonomy and anonymity were the significant ethical issues to the study and the provision for informed consent, the respect of participants' views, and the restricted scope of the targeted data to personally non-identifiable information addressed related concerns to the issues.

Results

The study sought to investigate the usage of dietary mobile applications, as perceived among dietetics professionals and clients in the Kingdom of Saudi Arabia, and data from a survey and interviews were used. Four hundred and twenty-three clients, 47.52 percent of which was male, completed the questionnaire. The age of the participants ranged from 18 years to 65 years, though a majority was aged 18 to 29 years (49.41 percent) and 30

to 39 years (31.68 percent). Participants aged 50 to 59 years only accounted for 5.44 percent of the sample and those aged 60 to 65 years accounted for 0.71 percent of the sample. Nineteen dietetics professionals participated in the interviews. The professionals were from different areas of specialization and a range of years of experience. Three of the participants had less than a year of experience in dietetics, six of the participants had one to two years of experience, three of the participants had three to four years of experience, and two had five to six years of experience. Five of the professionals had more than seven years of experience.

Usage of Dietary Mobile Applications

Responses from the clients identify a moderate level of usage of dietary mobile applications. 47.52 percent of the respondents reported the use of the applications occasionally (23.17 percent) or when needs arise (24.35 percent). A majority of the users (50.42 percent) also reported usage for at most a year to identify an increasing pattern of adoption of the applications. Users of technology reported perceived effects of the application on improving health (62.18 percent), efficacy in availing information (67.23 percent), the reliability of the applications (48.74 percent), and effectiveness (85.72 percent). Non-users of the applications also reported effectiveness (50.57 of non-users) and reliability (28.98 percent of non-users) of the applications in providing the required information. The inability to use the application, however, was reported among a majority of the non-users (70.45 percent).

The dietetics professionals reported patients' "enthusiasm" in the use of the applications and the effectiveness of the applications in promoting health. Limitations such as the low level of usefulness of the Arabic versions of the applications, inappropriateness of the applications to patients who need "face-to-face interviews," the narrow scopes of the applications, and possible inaccuracies of the applications were also reported. The professionals, however, have mixed support for the applications, though a majority support the use.

Perceived Usage across Professionals and Clients

The reported enthusiasm in the use of the applications, among professionals, is consistent with the growing trend in the use of the applications as identified among clients. Both clients and professionals further identify mixed support for the use of the applications and the identified positive features and limitations of the applications support the mixed positions.

Discussion

The results identify the perceived a moderate level of usage of dietary mobile applications with enthusiasm among clients who use the applications. The usage is still growing the strengths and limitations characterize the applications. The results are consistent with the theoretical need for technology towards an increased level of self-care [1,2]. The moderate use of the applications among the clients, in which only 47.52 percent report usage, is further consistent with the reported poor usage of the application [5,6] identify poor usage of the applications among athletes who could enjoy the benefits of the applications on their performance through informed dietary behavior. Dalton, et al. [6] also reported poor usage of the applications among pregnant women who could derive health benefits from the technology. The reported strengths and limitations of the applications, among clients and the professionals, are further consistent with the existence of positive and negative application-related and user-related characteristics that determine the usage of the applications, such as perceived usefulness [7] and anxiety [6].

The results of the current study, based on the established consistency between the perceptions of the professionals and clients and the consistency with existing literature on the usage and factors to usage, are credible. Dietary mobile applications, therefore, offers benefits to clients towards self-care and addressing the experienced limitation could promote usage of the applications towards improved diet-related health outcomes. The subjective scope of the study is the major limitation but the consistency of the responses between the patients and the professionals addresses its significance.

Conclusion

The study sought to investigate the usage of dietary mobile applications in Saudi Arabia, as perceived among dietetics professionals and clients. Results identify a moderate level of usage, with a growing pattern in the adoption of the technology. Efficacy of the applications explains enthusiasm among users while limitations exist

and explain the non-usage among some clients. Addressing the limitations can promote the usage towards improved health outcomes.

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