Section A -Research paper

THE ADAPTATION OF HEALTHCARE SERVICES IN SMART HEALTH MONITORING

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ABSTRACT

Background: Smartwatch can be worn as a part of the outfit as some of it has detachable straps and could be customized depending on the user's preferences; in addition, it serves as a great factor in health monitoring built from the IT industry. In smart health monitoring, it has the capability of measuring the user's heart rate, respiratory rate, stress level, sleep patterns, activities and/or workouts, and a lot more.

Purpose of the Study: The study aims to provide the clients an improved medical efficiency and service quality of teleconsultation once the consultants and nursing professionals will enable to enhance the mHealth apps. The clients will receive better medical advices from the consultants without experiencing technical difficulties and ineffectiveness.

Research Methods: This study utilized a quantitative research design, employing a questionnaire to collect data from students and employees in different colleges and departments. The sample was selected using purposive sampling technique, and the data will be analyzed using SPSS as a statistical tool.

Conclusion: The instrument proposed a positive result leading for the study to utilize its success instead to the least users of smartwatch - the older individuals ranging from 41 to 60 years old which could also be beneficial to elderly above 60 years old.
Keywords: Smart Health Monitoring, Healthcare Services, Adaptation, Personalization.

INTRODUCTION

Wearable technology devices known as "smartwatches" are designed to work in tandem with smartphones to provide health tracking and notification access as defined by El-Masri, Al-Yafi, & Kamal (2022). The global market for wearable gadgets would generate over $34 billion, as estimated by Statista in 2019, up from the current $26 billion. In 2019, the estimated global value of healthcare and medical environments is close to $15 billion (King & Sarrafzadeh, 2018). By 2022, as expected by Homayounfar, et al. (2020), the smartwatch industry is predicted to be worth $22 billion. The rapid adoption of smartwatches and their increasing presence in people's daily lives may be seen in the fact that their growth rate has been higher than that of smartphones, tablets, and laptops. In 2019, the smartwatch industry was worth more than $20 billion, and by 2027, it is projected to be worth more than $100 billion, according to Allied Market Research. Researchers have put in a lot of time and energy over the past few years studying the technology, marketing strategies, and practical applications of this wearable device because of its perceived worth (Iftikhar et al., 2020; Kim & Shin, 2015).

New forms of wearable computers have emerged as technology has advanced over the past decade, allowing for novel forms of human-computer interaction. The smartwatch in particular has become a common accessory for many people's wrists (Zenker & Hobert, 2020). Increasing numbers of people are turning to WHDs (Wearable Health Devices) to help them keep tabs on their health, either for self-tracking purposes (via monitoring their activity and fitness levels) or for professional medical purposes (by providing more data to doctors for earlier diagnosis and treatment guidance). The revolution in miniaturization of electronic devices is allowing designers to create more reliable and flexible wearables, which is helping to bring about a shift in the way health monitoring is approached on a global scale (Dias & Cunha, 2018). In addition, King & Sarrafzadeh (2018) describe that the wristwatch is a new piece of technology that tracks your steps, heart rate, energy consumption, and overall levels of physical activity in addition to the usual smartphone functions. They can give users information that helps them keep tabs on their health, make adjustments as needed (such taking medication at the first sign of a problem) and have two-way conversations with their doctors and other caretakers. Nevertheless, limitations associated with smartwatches -such as price, wearability, and battery life - prevent its widespread implementation in healthcare and telemedicine. Despite its advantages, Takiddeen & Zualkernan (2019) stated its disadvantage in which the duration of the battery life is still a problem. The vast majority of watch apps on smartwatches are context aware.

Information systems (IS) account for only 16% of all published research and most publications on wearables focus solely on their utility as a health tracking tool. Though many articles have been written about smartwatches, the primary goal of this study is to determine whether or not this technology meets the practical and aesthetic requirements of its target audience. Wearable computing devices or "smartwatches" have been used for a wide variety of purposes, from recording biometric data and app notifications to social networking and exercise tracking (Krey, 2019). El-Masri, Al-Yafi, & Kamal (2022) added that the rising rates of adoption have brought

attention to the research gap and prompted the question of whether or not the utility features or the fashion qualities of smartwatches are the primary drivers of user choice and happiness. Different researchers have identified smartwatch in various ways; the smartwatch represents a breakthrough in the field of wearable technology (Nascimento, Oliveira, & Tam, 2018), these devices are emblematic of those that can be worn on the body and allow instant, hands-free access to information (Jeong, et al., 2017), and it has gotten a lot of interest from people in the fields of IS research and teaching, corporate management, and healthcare (Niknejad, et al., 2020). Rubin & Ophoff (2018) added that wearable technology (WT) has been on the market for customers to employ in the realm of health and fitness since the mid-2000s. It is a fitness device that is compact, lightweight, and can be worn on the body or in a pocket. Manufacturing companies have shown a growing interest in creating healthcare products in recent years, thanks in large part to the promise of WT and the accompanying technological advances.

Research Questions

How adapted is the medical field in smart health monitoring in terms of:

1. Personalization;
2. Perceived Ease of Use
3. Perceived Usefulness

Purpose of the Study

This research paper aims to provide the clients an improved medical efficiency and service quality of teleconsultation once the consultants and nursing professionals will enable to enhance the mHealth apps. The clients will receive better medical advices from the consultants without experiencing technical difficulties and ineffectiveness.

LITERATURE REVIEW

Nurse-client relationship in the mobile setting have been spurred by the increasing popularity of mobile medical consultation in the country. Development of first-rate healthcare services is impossible without this relationship, which is predicated on a high level of familiarity, trust, and contact between consultants and their clients. The general public has a more pessimistic outlook on mobile Nurse-Client Relationship despite the increasing growth in the use of mobile medical consultations. More than forty percent of doctors, according to a related industry research, find the Nurse-Client Relationship to be tense when used in a mobile setting. On a Chinese mobile consultation platform, Hao and Zhang discovered that 12% of users spoke negatively on the treatment effect, while 9% commented negatively on the service attitude of doctors. Poor Nurse-Client Relationship not only has negative effects on user health, but also has far-reaching social consequences (Yan et al., 2020). Cao et al. (2020) supported the previous study stating that having trust in someone indicates an acceptance of inherent vulnerability in exchange for assurances about that person's character and actions in the future. Beliefs in one's competence, integrity, and altruism make up trust. Users' level of trust in a service provider has been proven to significantly impact their propensity to employ that provider across a wide range of service situations. Recently, there has been a lot of talk about how important it is to have faith in the growing area of mobile health due to the emergence of mobile medicine. Patients are more likely to respect their doctors and rely on the advice they provide if they believe that the information, they receive is credible and accurate. In order to provide competent telemedicine services, Tan et al. (2020) stated that professionals need to be well-versed in digital communication, clinical

acumen, and the appropriate use of the necessary technology and equipment. From the study of Cao et al. (2022), there is strong evidence supporting the utilization of mobile technologies and mobile gadgets in public health administration. mHealth refers to the delivery of health care and public health services via mobile phones, patient testing equipment, PDAs, and other wireless devices. At the moment, the most common type of mHealth service delivery is in the form of a mobile app. There are advantages for both healthcare practitioners and patients because of the advent of mHealth apps, which have altered the traditional delivery model for medical treatment. One way in which mHealth apps are used is by doctors to manage patient data and keep tabs on their health. However, people turn to mHealth apps to have quick access to health data for self-diagnosis. Additionally, Cao et al. (2020) added that online health care is a relatively new service, thus academics have been studying its user base as they develop. Both intrinsic and extrinsic motivation for sharing will be investigated by Zhang et al. (2017) in the context of both expert and average user behavior. A variety of factors will be found to influence patients' decisions on whether or not to switch from using an online doctor's service to one that was provided offline, as reported by Li et al. (2019). Zhou (2019) used the stimulus-organism-response theory to look at how users' incentives for sharing information in online health communities are influenced by their concerns about privacy, their level of confidence in the platform, and the information's security. Liu (2020) analyzed how users' impressions of community support influenced their willingness to communicate with others and to collaborate to create value, two factors that in turn influenced how frequently they participated.

METHODOLOGY

This study utilized a quantitative research design, employing a questionnaire to collect data from students and employees in different colleges and departments. The sample will be selected using purposive sampling technique, and the data will be analyzed using SPSS as a statistical tool.
Expected Outcomes: The findings of this study will generate technology in collaboration with the Information Technology experts that can produce a mHealth app that would be use for smart health monitoring in the medical field.

ANALYSIS

The data for this research paper was collected through a survey questionnaire administered to a sample of students and employees in different colleges and departments. The survey included questions about the adaptation of the medical field in smart health monitoring in terms of personalization, perceived ease of use and perceived usefulness. The data collected from the survey was analyzed using statistical methods. Sample Characteristics: The *personalization* resulted to obtained the highest mean with a verbal interpretation of "strongly agree" that deals with the statement "Smartwatch enables me to personalize my healthcare data (setting medication reminders, prioritize the applications I only need, etc.)". In the *perceived ease of use*, the highest mean with a verbal interpretation of "strongly agree" that deals with the statement "I have learned and adapted easily to the use of smartwatch." In the *perceived usefulness* section, the highest mean with a verbal interpretation of "strongly agree" that deals with the statement "Smartwatch is useful in providing my medical information needs."

DISCUSSION

An individual could personalize their smartwatch depending on their wants and needs in everyday living. The result of this section is inclined to the study of Kenney (2014). The fact that contemporary smartwatches may be personalized to the user's preferences is among the most

impressive capabilities that have been included into these timepieces. The user interface of a large number of smartwatches that are currently on the market today may be customized in one way or another by the user. Personalization is an extremely important component of today's technological landscape.

Lazaro, Lim, Kim, & Yun (2020) stated that it is anticipated that wrist-worn wearable technology such as smartwatches would be among the game-changing items that will assist senior citizens in effectively aging in place. However, as of yet, there has been insufficient research conducted to do a comprehensive analysis of the use of smartwatches by older persons. The result also presented from the respondents who are 76 older persons (ages 50 to 74) that the past experience, emotional quality, and anxiety connected to technology all had an effect on how easily older persons perceived using the technology.

As the majority of elderly people are not literate in technology, having a device like a smartwatch that is simple to use is beneficial for them because of the nature of the technology.

According to the results of the related study, factors such as the perceived usefulness, ease of use, and website design have a favorable influence on customer satisfaction. The fact that perceived usefulness emerged as the top predictor of customer happiness indicates a substantial positive link between perceived usefulness and customer contentment. The strongest predictor was perceived time performance. The simplicity of ordering had a major influence, although it was a negative one. Ease of purchasing, ease of understanding, and ease of navigating all emerged as key characteristics that contributed to consumer satisfaction, (Tandon, Kiran, & Sah, 2016).

A piece of technology that displays a greater number of advantages and is able to demonstrate that it is financially worthwhile will almost certainly increase customer satisfaction. This is particularly true if the innovation is useful in achieving the smartwatch's primary objective, which is to provide users with medical assistance.

CONCLUSION

All of the categories and sections either received a “strongly agree” or “agree” verbal interpretation in which the results have been utilized by the researcher to further innovate it. As the given statements on the instrument proposed a positive result leading for the study to utilize its success instead to the least users of smartwatch - the older individuals ranging from 41 to 60 years old which could also be beneficial to elderly above 60 years old. Its purpose is to widen its beneficiaries in which it does not only give a good emphasis to the present generation who are obviously technology literate, but also to the older people who are risky in health conditions knowing that most of them are unfamiliar in the use of technology.

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