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Mobile Health and Telemedicine:
Awareness, Adoption and Importance of Health Study

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ABSTRACT

In 2016, the U.S. Government health expenditures reached $3.35 trillion and the cost per person stood at $10,345. Health is seen as impacting both one's quality of life and finances. The Affordable Care Act (ACA) (2008 - 2016) brought the issue of cost to the forefront for all people especially those in the health disparate communities. Advances in health informatics coupled with new approaches to healthcare delivery may hold promise for this large industry in the USA that critically needs to be cost effective in order to sustain itself. This paper reports a study that investigated importance of health, mobile health (m-Health) and telemedicine awareness along with its adoption in a health disparate community that has one of the Historical Black Colleges & Universities (HBCUs) in the country. The findings were that, all participants owned a mobile (cell) phone with smart features. Although a large number them indicated that their health was very important to them, there was lack of awareness and adoption of m-Health and telemedicine.

KEYWORDS

ACA, Affordable Care Act, Health Care Disparate Disparities, Health Disparate Populations, Health Information Systems, Healthcare Costs, ICT Adoption, Importance Of Health, M-Health, Telemedicine

INTRODUCTION

Telemedicine and other information and communication technology (ICT) tools such as mobile technologies can help to extend medical services to the underserved communities (Vizitiu, 2019). In the healthcare realm, there are patients who make consistent visits to their respective physicians and telemedicine holds a bright future them; it can significantly impact some of the most challenging problems of our current healthcare systems, such as access to care, cost & effective delivery, and improved network of providers. Telemedicine has the potential to maximize change in the current platform of care to allow for improved health outcomes in cost effective ways. The good news is that mobile-cellular phones and technologies, key ICT tools needed for telemedicine and mobile health delivery are widely adopted in many populations. The International Telecommunication Union (ITU, 2018) reports geometric growth in the world mobile-cellular subscription. In 2005, world subscribers of mobile phones were about 2 billion and in 2018, about 8 billion subscribers were reported (Table 1 & Figure 1). The data also informs about very rapid adoption in developing countries where the adoption of mobile telephony has surpassed any normal adoption curve. Mobile telephony in less developing countries (LDCs) is low but it is steadily growing (Tables 1 and 3, Figure 1). With

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widespread adoption of mobile phones and the fact that they have become inseparable with our lives, there is a quest to understanding adaptation of the tools, especially the smart ones to support human needs, including awareness and use for mobile health (m-Health) and telemedicine.

The study that is reported in this paper was conducted in an area of North Carolina, USA that has health disparity issues among the population. The area studied is classified as having urban distressed census tracts and socioeconomic status (SES) factors that create disparities. According to Michaels (2015) and Richardson (2018), the area and the county in the study has 12 urban distressed census tracts with high poverty concentrations. In the urban sections, distressed census tracts are available, and it shows that residents face high percentages of unemployment, public assistance and low per capita income. Michaels (2015) also reported that 24.1 percent of residents of the county live below poverty levels with African-American populations being the most affected racial group with above 34 percent. The North Carolina Health Equity Report (2018) summarizes that: "Many factors can create or limit opportunities for good health. In North Carolina, some communities are resource-rich while others lack the social, economic, and environmental investments needed to support good health. Public health literature suggests that our health is greatly shaped by our everyday environment: where we live, learn, grow, and play… Our socioeconomic status, including educational level, employment, income and housing, also influence health" (p.7). In a large study by Vart et. al (2018), SES factors – income and educational attainment were examined along with cardiovascular risk factors. The authors concluded that SES factors may influence thresholds of identifying heart failure and N-terminal pro-b-type natriuretic peptide (NT-proBNP) levels, a marker for cardio overloads.

A local university in the area studied has a center that is devoted to health disparities research and overcoming the problem. The Community Health Assessment Report published by a nearby hospital (Wake Forest Baptist Health, 2016), established focus areas that included: lack of access to medical services and screenings, chronic diseases such as cancer, diabetes, obesity and behavioral/mental health. This literature informed the researchers and opened a door for them to investigate health disparity from a solution perspective – mobile health (m-Health) and telemedicine; a topic not covered in the reviewed. The researchers, therefore set out to investigate importance of health and awareness of telemedicine/mobile health (m-Health) as viable solutions by asking these key research questions:

- Are people's health at the level of importance to them to motivate adoption of innovative mobile health apps and telemedicine?
- Are people being made aware of the availability of m-Health and telemedicine as low cost alternatives to current healthcare practices?
- Can adoption of m-Health and telemedicine help to improve the quality of healthcare: reduce cost, better delivery of services and patient satisfaction?

In the remaining sections of the paper, the literature on m-Health and telemedicine adoption as well as impact on various populations are discussed; the study methodology and the findings are reported along with a conclusion and guidance for further study.

LITERATURE

According to Davies (2009), health is an important outcome of living and an ongoing process of living life well. He considers living life well in the sense of staying fit, avoiding disease, having coherence, building relationships, wealth and being able to adapt well to one's environment. In the USA, the cost of health care has been a concern factor especially in health disparate populations. In 2016, the U.S. Government health expenditures reached $3.35 trillion and the cost per person stood at $10,345. In an attempt to control the cost of health care earlier on, the Obama's Administration introduced the Affordable Care Act (ACA, Obama Care). Marmor et al. (2009) explained that the Administration's

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