Editorial

mHealth applications are they the future or another burden for our patients?

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In medicine, the usability and access of the internet has led to many changes. Almost everyone has access to health-related websites through their mobile devices which is also known as mHealth. There are many health-related websites and many patients, and their families have performed endless searches on the internet to try to identify their medical problem. Nowadays it is a rare occurrence if patients and or their families have not accessed the internet for information. More and more clinics are also using mHealth applications to receive information on the disease status of patients.

What is mHealth and what is its utility in healthcare?

mHealth stands for mobile health, a term used for the practice of medicine and public health supported by mobile devices (1). The term mHealth is most used to refer to the use of mobile communication devices such as a mobile phone or tablet computer. The mHealth field encompasses the use of mHealth apps to gather healthcare information on both sides, patients trying to access health care information online and health care providers gathering clinical information from patients for the use of clinical decision making.

mHealth patient and provider applications are used in several health areas with varying success. For instance, stand-alone mHealth applications for pregnancy are often downloaded and used by pregnant women (2,3). A recent study showed the development and testing of an integrated patient mHealth and provider dashboard application system for type 2 diabetes management among Medicaid-enrolled pregnant individuals based on a user-centered approach (4). They co-developed and tailored a mHealth application specific to the needs of those on Medicaid. The study team recognized the importance of leveraging technology that is highly relevant to their study population and providers. Although this application tool was co-developed by patients, the health literacy component is not addressed. Patient partners in research are usually selected based on their underlying disease, but also their ability to be part of the co-development of a certain application or grant and are not representative for all patients. In the US the most recent survey revealed only a proficient health literacy level in 12% of adults and 36% have basic or below basic health literacy (5). Several other studies have shown comparable numbers in other countries (6,7).

Gap to be addressed for mHealth applications

On a recent study published on *mHealth*, Emerson and colleagues performed a scoping review on addressing

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and evaluating health literacy in mHealth (8). It is long known that health literacy is related to health outcomes (4,5). Other scoping reviews have indicated health literacy problems in specific areas such as genomic health information (9). The conscientious review of Emerson and colleagues show that health literacy is said to be addressed while developing mHealth applications, however, if looking at the details this was almost never done through a formal assessment tool (8). With the continuous rise of cellphones and internet access, the use of mHealth applications will only grow. Wearable devices such as smart watches add to the amount of downloaded mHealth apps. The scoping review shows that recommendations in their results in conjunction with formal health literacy online categories can act as a steppingstone to developing a specific health literacy evaluation tool for mHealth applications (8). Health literacy is not the only limitation to accessing mHealth applications. When developing an evaluation tool for mHealth applications, besides health literacies, other potential barriers such as hearing impairment, visual impairment and mobility impairment should also be taken into account. A recent study on mHealth use associated with health status and coronavirus disease 2019 (COVID-19)-related concerns by people with mobility impairment showed that many people with mobility issues have difficulty accessing mHealth applications (10). COVID-19 has widened the existing gaps in access and use of mHealth technology among people with mobility impairment.

Overall, it is clear that mHealth applications are on the rise and here to stay and efforts should be made to address the gaps that have been identified in access and use of these applications by all people and not those fortunate enough to have no disabilities that might hinder this process. Health literacy is one of those gaps that has been identified in health care since its existence and to exploit the full range of services by their smartphones from social connectivity to access to care and rehabilitation, end-user engagement in design and testing is necessary at all levels in future mHealth development.

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