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Letter to the Editor

WhatsApp as a remote patient-monitoring tool in low- and middle-income countries: Experience from the cerebrovascular surgery service in Iraq

Samer S. Hoz[1], Mustafa Ismail[2], Mohamed M. Arnaout[3], Teeba A. Al-Ageely[2], Aktham O. Al-Khafaji[2], Mustafa M. Altaweel[4], Luis Rafael Moscote-Salazar[5]

[1]Department of Neurosurgery, University of Cincinnati, Cincinnati, Ohio, United States, [2]Department of Neurosurgery, University of Baghdad, College of Medicine, Baghdad, Iraq, [3]Department of Neurosurgery, Faculty of Medicine, Zagazig University, Zagazig, Egypt, [4]Department of Neurosurgery, Neurosurgery Teaching Hospital, Baghdad, Iraq, [5]Department of Neurosurgery, University of Cartagena, Cartagena de Indias, Colombia.

E-mail: *Samer S. Hoz - hozsamer2055@gmail.com; Mustafa Ismail - mustafalorance2233@gmail.com; Mohamed M. Arnaout - mohamedarnaout@yahoo.com; Teeba A. Al-Ageely - teebaalageely@gmail.com; Aktham O. Al-Khafaji - akthamalkhafaji@gmail.com; Mustafa M. Altaweel - mostafa_moh_h@yahoo.com; Luis Rafael Moscote-Salazar - rafaelmoscote21@gmail.com

***Corresponding author:**
Samer S. Hoz,
Department of Neurosurgery,
University of Cincinnati,
Cincinnati, Ohio, United States.

hozsamer2055@gmail.com

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INTRODUCTION

With the dawn of the technological revolution, smartphone ownership, internet connectivity, and unparalleled mobile app development have become so pervasive that they have transformed almost every area of human existence. While the incorporation of telemedicine into healthcare has been long overdue, the concept has gained significant traction in the aftermath of the epidemic.[1] The use of telecommunication technologies to follow-up on patients, along with its benefits and drawbacks, has been well-documented in the literature pertaining to the developed world's health-care system.[3] On the other hand, although its usage in low- and middle-income countries (LMICs) is factually widespread, it has not been well recorded or analyzed, particularly in light of the unique health-care system, economic, cultural, and regulatory environment inherent to these countries.[2]

Patients' follow-up is the primary challenge in delivering surgical treatment in LMICs.[1,2] Numerous variables contribute to patients being lost to follow-up. These elements may be classified as immediate, such as those relating to the health-care system itself, or as distal, such as those relating to individual patients, as well as sociological, cultural, and economic aspects. When seen through the lens of cerebrovascular surgery, the scenario becomes even more complicated, given the critical nature of these procedures and the patients' vulnerability. This article discusses the usage of mobile telecommunication apps as a long-term follow-up tool for patients after cerebrovascular surgery in Iraq. As one of the major organized cerebrovascular centers in the country, we will describe our own experience which can be extensible to other LMICs with comparable situations.

OUR SELF-DEVISED SYSTEM

Here, we utilize WhatsApp to communicate with all of our patients after surgery. Since we operated on our first patient 3 years ago, our method has been used in over 200 open

cerebrovascular surgery cases. Patients are given the cellphone number of one of our three neurosurgeons on discharge and asked to contact them by WhatsApp text message in case of any of the following: A complication occurs, they have a question or believe they need to schedule an earlier consult, they are having difficulty accessing or taking their medications, they have newly available clinical imaging, electroencephalogram or laboratory data, and they need to see a new provider. Otherwise, patients are asked to send a quick "all is well" text message at the end of each week, with the primary aim to keep the communication channel open with them.

ADVANTAGES OF THE SYSTEM

The benefits of this system are multifold; it is wide-reaching, inexpensive, and simple to use, and it ensures continuity of treatment for our patients. Furthermore, the system serves as a link between the periphery and the center, saving our patients from expensive and often dangerous lengthy excursions. In addition, being one of the main cerebrovascular centers in the country, with three neurosurgeons in a 42 million-person nation, it alleviates our out-patient clinic burden by screening consults. Furthermore, in a nation where patient medical records are deplorable, patient data will certainly go lost, and our system assures that these data are kept in a central location. Likewise, in the absence of an effective referral system or family medicine networks, patients frequently doctor shop and see multiple physicians, many of whom are unfamiliar with the patient or their conditions, resulting in dangerous fragmentation of care. Furthermore, due to the country's low level of patient education, these patients would be unable to communicate their condition and plan effectively with their new doctors, hence, increasing the risk of patient harm. Thus, telemedicine, with WhatsApp as a platform, has enabled us to give staged, per-need instruction to our patients.

Further, during the pandemic, this strategy has shown to be particularly effective at enforcing social distancing and limiting contamination among our most susceptible patients. Finally, these conversations are used to ensure medication compliance and to explore the causes of non-compliance. We believe that by feeling close, connected, and accessible, our patients felt more comfortable expressing the genuine reasons for their non-compliance, enabling practical solutions to be implemented, including, in some circumstances, the seeking of financial help for them.

SHORTCOMINGS AND JUSTIFICATIONS

This method's disadvantages include breaching patient confidentiality, overworking our neurosurgeons, combining professional, and personal life, which increases the risk of burnout, and failing to document these consultations in patients' records. One of the primary concerns about the usage of WhatsApp and other social media platforms is the exposure of critical patient information.

While WhatsApp promises end-to-end encryption, messages may still be viewed as notifications from locked screens, and pictures go directly to the image gallery. In addition, information is only stored locally, posing the danger of losing crucial data if the phone is lost. As a result, WhatsApp does not comply with the HIPPA act or European data protection requirements. However, in countries such as Iraq, where funding for information technology is virtually non-existent, and manual medical records are notoriously unreliable, frequently containing only the patient's name, age, and major illness category, the risk to patient safety from a lack of data is almost certainly more significant than the theoretical risk of the data breach.

However, all required precautions have been taken to mitigate this danger, including the adoption of a pseudo-identification system in which a list of patient IDs is established for our patients (in Iraq, patients do not have ID numbers), and they are then stored in our cell phones. Only the three surgeons can access these lists and determine the sender's identity when a message is received.

The major practical concern in our case is that dealing such a high volume of messages for an already overworked team, especially given that this is an uncompensated service.

CONCLUSION

In brief, telemedicine using widely available platforms like WhatsApp is an affordable, simple-to-use, and efficient method of remote patient monitoring. While these platforms have shortcomings, they are primarily alleviated when seen in light of the constraints imposed by health-care systems in LMICs.

Declaration of patient consent

Patient's consent not required as patient's identity is not disclosed or compromised.

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Conflicts of interest

There are no conflicts of interest.

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