Original Research

An investigation of users' attitudes, requirements and willingness to use mobile phone-based interactive voice response systems for seeking healthcare in Ghana: a qualitative study

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ABSTRACT

Objectives: In implementing mobile health interventions, user requirements and willingness to use are among the most crucial concerns for success of the investigation and have only rarely been examined in sub-Saharan Africa. This study aimed to specify the requirements of caregivers of children in order to use a symptom-based interactive voice response (IVR) system for seeking healthcare. This included (i) the investigation of attitudes towards mobile phone use and user experiences and (ii) the assessment of facilitators and challenges to use the IVR system.
Study design: This is a population-based cross-sectional study.
Methods: Four qualitative focus group discussions were conducted in peri-urban and rural towns in Shai Osudoku and Ga West district, as well as in Tema- and Accra Metropolitan Assembly. Participants included male and female caregivers of at least one child between 0 and 10 years of age. A qualitative content analysis was conducted for data analysis.
Results: Participants showed a positive attitude towards the use of mobile phones for seeking healthcare. While no previous experience in using IVR for health information was reported, the majority of participants stated that it offers a huge advantage for improvement in health performance. Barriers to IVR use included concerns about costs, lack of familiarly with the technology, social barriers such as lack of human interaction and infrastructural challenges. The establishment of a toll-free number as well as training prior to IVR system was discussed for recommendation.

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Conclusions: This study suggests that caregivers in the socio-economic environment of Ghana are interested and willing to use mobile phone-based IVR to receive health information for child healthcare. Important identified users' needs should be considered by health programme implementers and policy makers to help facilitate the development and implementation of IVR systems in the field of seeking healthcare.

Introduction

Health systems in low- and middle-income countries continue to face challenges in providing free access to high-quality healthcare and thus increasing the urgent need for innovative approaches to overcome existing shortcomings.[1,2] In response, the application of mobile technology in the health sector has experienced mounting interest as a consequence of an unpredicted increase of not only cell phone user rates and network coverage in developing countries but also a rapid mobile technological advancement and falling market prices.[1,3,4] As a result of this powerful combination of favourable factors, the application of mobile devices in the health sector (known as mHealth; a subset of electronic health [ehealth]) has the potential to overcome geographical and financial barriers and can serve as an access point to national health information and disease surveillance systems.[5] Additionally, it offers an effective contribution to public health initiatives in support of achieving the health-related Millennium Development Goals post-2015 era while being economical, effective and sustainable. The mHealth initiatives are designed to improve communication between individuals, emergency care, health monitoring and surveillance as well as access to information by healthcare professionals at point of care.[5] Systematic evidence of the benefits of some specific mHealth approaches such as patient-targeted text messaging for health information and behaviour change already exists.[6-8] Although less popular than text messages to facilitate care at a distance, automated telephone calls with recorded messages, called interactive voice response (IVR) has shown great potential for use in the field of healthcare.[9] IVR application in mHealth allows for an efficient exchange of information to or from a database and is a way of patient communication that has increasing utility to disseminate life-saving health information in remote areas. So far, it has been successfully used in a variety of applications ranking from preventive services utilization,[10] diagnosis and management of disorders and chronic diseases[11-13] to health behaviours measure.[14] In Ghana a national eHealth strategy was launched in 2010 in order to make best use of existing capacity and to provide a foundation for investment and innovation.[15] Since then more than 20 pilot projects have been implemented across the country.[16] Although the level of mHealth activities in Ghana is growing significantly, the temptation is to transfer technology without any considerations for local needs, and evaluation of activities continue to be very low.[16] In order to guarantee successful nationwide scale-ups and large-scale programming, a consideration of implementation barriers has to be anticipated, appropriate measures taken to identify such barriers and strategies to overcome the barriers well fashioned into the scale-up programmes.[5,16] It is known from technology acceptance research that user perceptions, adherence and acceptance may constitute the key barriers or indictors for successful development and implementation of mHealth technologies[5,17,18] and becomes of particular importance when applying approaches in highly sensitive healthcare settings.[19] The general objective of the present study was to explore users' needs and requirements to use mobile phone-based IVR systems for seeking healthcare. This included the assessment of (i) the attitudes towards mobile phone use and user behaviour/experiences as well as (ii) the identification of facilitators and barriers to use mobile phone-based IVR technology in two rural and two urban sociocultural settings in Ghana.

Methods

The qualitative data used for this study were part of a larger project that developed a mobile phone-based electronic health information and surveillance system (eHISS) for child health to be piloted in the Asante Akim North Municipal of the Ashanti Region of Ghana. eHISS aimed to (i) support parents of sick children to assess the disease severity and to advise appropriate treatment and (ii) collect data on the occurrence of symptom clusters. Therefore an interactive voice response system was established, which caregivers of ill children could call. Based on a set of questions to respond, tailored feedback with specific health advice was provided at the end of each call.

Study site and sampling

Four qualitative semistructured focus group discussions (FGDs) were conducted to allow for both detailed and direct assessment of subjective perceptions of study participants. A mixed sampling technique was applied which was composed of different steps stratified in a random and purposeful manner (Fig. 1). Four out of 10 districts of Greater Accra Region were selected as study sites; Accra Metropolitan and Tema Metropolitan as urban centres and Shai Osudoku Municipal and Ga West Municipal as rural counterparts. Accra and Tema Metropolitan assemblies have estimated total populations of 1,848,614 and 402,637 respectively.[20] Furthermore, Shai Osudoku and Ga West Municipal assemblies have an estimated population of 122,836 and 262,742 respectively.[20] Out of the selected districts, two peri-rural subdistricts, Ayikuma and Teiman, and two peri-urban subdistricts, Tema Community 5 and Kokomlemle, were selected on the basis of demographics to ensure a representative sample with respect to urban and