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ORIGINAL ARTICLE/REMOTE CONSULTATION

Could telemedicine enhance traditional medicine practices?



La télémédecine pourrait améliorer les pratiques de la médecine traditionnelle?

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Summary In developing countries, telemedicine and mobile health tools promise to enhance access to high-quality healthcare, to support communication of medical information and to assist pharmacovigilance processes. In this article, we provide some arguments on the potential of telemedicine and mobile health (mHealth) applications to improve the delivery of health care in rural African regions. Specifically, the development of mobile telemedicine could help to lay the foundations of a healthcare approach integrating modern medical knowledge with ancient medical practices on the African continent. Access to information and communication technology (ICT), technical devices or portable media in developing countries is increasingly widespread. This can foster a complementary approach to healthcare, namely in African home-based care (AHC), in which the practice of conventional medicine takes place in an environment where belief in traditional medicine is strong. In the AHC, there are community volunteers who provide primary care and link patients with qualified medical personnel working in the nearest clinics and hospitals. These volunteers have contextual knowledge that is at the frontier of modern and traditional medicine, strongly influencing their practical approach to healthcare. The article proposes an interesting holistic look at potential applications of telemedicine in this context and examines in particular therapeutic and preventive education of toxicological aspects of medicinal plants and communication about the potential side effects of these plants. © 2014 Elsevier Masson SAS. All rights reserved.

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MOTS CLÉS

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Résumé Les outils de la télémédecine et de la santé mobile offrent de grandes promesses pour ce qui est d'élargir l'accès à une santé de qualité, de soutenir la communication de l'information médicale et d'assister les processus de pharmacovigilance, dans les pays en voie de développement. Dans cet article, nous fournissons des arguments sur le potentiel d'applications de la télémédecine et de la santé mobile (mHealth) pour l'amélioration de la prestation des soins de santé en milieu rural en Afrique. Particulièrement, les développements des moyens mobiles de la télémédecine pourraient permettre de jeter les fondements d'une approche de la santé intégrant les connaissances médicales modernes avec les pratiques médicales ancestrales sur le continent africain. L'accès aux technologies de l'information et de la communication (TIC) dans les pays en développement est de plus en plus répandu ; notamment via l'utilisation de dispositifs techniques ou multimédias portables. Ceci peut favoriser une approche complémentaire de soins, en l'occurrence dans les maisons de santé communautaires (MSC), dans lesquels la pratique de la médecine conventionnelle se déroule dans un environnement où la croyance à la médecine traditionnelle est forte. Dans les MSC, on trouve notamment des volontaires communautaires qui offrent des premiers soins et font le lien entre les patients et le personnel médical qualifié exerçant dans les cliniques et les hôpitaux rapprochés. Ces volontaires ont des connaissances qui sont à la frontière de la médecine moderne et de la médecine traditionnelle qui a une forte influence dans leur approche pratique des soins de santé. L'article propose un regard holistique intéressant sur des applications potentielles de la télémédecine dans ce contexte et examine particulièrement l'éducation thérapeutique et préventive avec l'aspect toxicologique des plantes médicinales et la communication sur les potentiels effets secondaires de ces plantes.

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Introduction

A recent study explains the prominence of environmental resources for health service delivery in general [1]. The scale of medicinal plant use can be related to the advantages inherent in the practice of outcome-contingent contracts by African herbal healers [2]. Medicinal plant research has sometimes revealed certain fundamental properties (antimicrobial, anti-inflammatory, antioxidant, anticancer, and anti-diabetic activities) that have led to some progress in medical research and development [3]. We can cite the following examples: the use of phytosterols and phytostanols (for diminishing low density lipoprotein and total cholesterol), black cohosh (for relieving menopausal symptoms) and phytoestrogen extracts (e.g. isoflavones, lignans and coumestans in reducing plasma lipid levels and bone loss) [4]; the medical use of African potato (*Hypoxis hemerocallidea* or *Hypoxis rooperi*) for a wide variety of diseases (e.g. intestinal parasites, cough, heart weakness and childhood convulsions) and biomedical evidence has revealed that hypoxis extracts (e.g. glucosides, sterols and sterolins tested in several in vitro and in vivo models as well as in a couple of clinical trials) possess certain pharmacological properties (antimicrobial, antiviral, anti-inflammatory, anti-diabetic, antioxidant, anticancer, cardiovascular and anticonvulsant) [5]. However, there is a lack of sound studies on the comprehensive toxicity of the most used herbal products in African traditional medicine. It is therefore imperative to improve the means for informing people about toxicology aspects and adverse drug reactions of different medicinal plants used in traditional healthcare systems [6].

The challenges presented by the low number of health professionals and unequal distribution of medical

infrastructures, within the context of rapid population growth, as well as existing budgetary constraints drive the need for new patient-management models and health care organizations across developing countries.

These new organizations can encourage cooperation and remove barriers between programs conducted within conventional medical frameworks and traditional medicine settings and nurture local competencies, a source of sustainable development. This would provide opportunities to extend knowledge, taking into account the expectations of patients more involved in their healthcare. We live in a pervasive (or ubiquitous) environment where widespread computing allows smart devices to recognize and automatically locate each other. This major breakthrough has been achieved thanks to recent progress in communication, information processing and human-computer interaction technologies. In fact, in both developed and developing countries, healthcare improvements must focus besides care, on prevention, promotion of good health habits and develop community medicine. This is why telemedicine must address these issues, among others, with the following objectives:

- improve access to quality health care services to all individuals regardless of their physical location (remote areas, territories with few medical professionals and dependent persons with multiple chronic conditions);
- optimize the management of scarce medical resources (experts or specialists and infrastructures or devices for the prevention, monitoring and management of complex diseases);
- improve collaboration between health professionals for the implementation of telemedicine procedures, whether in outpatient practices, or in medical or medico-social

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