



Point of View

Telemedicine Definition: The First Barrier To Its Use

La définition de la télémédecine : un premier obstacle à son utilisation

Birama Apho Ly^{1,2}, Mohamed Touré²

¹ Faculty of Pharmacy,
University of Sciences,
Techniques and Technologies
of Bamako, Bamako, Mali;

² Centre d'Analyse et de
Recherche de l'Espace Sahélo-
saharien Modibo Goïta, École
de Maintien de la Paix Alioune
Blondin Beyé ;

Correspondence author:

Birama Apho Ly
MD, MPH, Msc, PhD
E-mail:
apholyca@hotmail.com

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ABSTRACT

Telemedicine is suggested to improve recruitment and retention, as well as access to health care, however it remains difficult to operationalize because of certain confounding factors. Based on our experience in studying telemedicine in Senegal and using data from the literature, we discuss these factors and propose recommendations to make the concept more understandable. Thus, the confounding factors include the large number of telemedicine definitions and concepts used interchangeably with that of telemedicine; the concomitant use of these concepts and their French translations; the consideration of types and methods of telemedicine as different technologies from telemedicine; the confusion between telemedicine applications and other applications; and the lack of clarity around the technologies to be used in telemedicine activities. Solutions include adopting a consensus definition of telemedicine; clarifications on the limits of telemedicine and those of telehealth, eHealth, mHealth and telecare; training researchers, planners, policy makers and health professionals on the similarities between concepts and their French translations; the training of these actors on the types, methods and applications of telemedicine; and the clarifications around the technologies to be involved in telemedicine. This article could help draw attention to the fact that the lack of clarity of the concept of telemedicine can be an impediment to its use. It could also contribute to address this barrier.

RÉSUMÉ

La télémédecine est suggérée pour améliorer le recrutement et la rétention, ainsi que l'accès aux soins de santé, toutefois elle reste difficile à opérationnaliser à cause de certains facteurs de confusion. A travers no expérience dans la recherche sur l'outil au Sénégal et à partir des données de la littérature, nous discutons ces facteurs et proposons des recommandations pour rendre le concept plus compréhensible. Ainsi, parmi les facteurs de confusion, il y a le nombre important de définitions de la télémédecine et de concepts utilisés de manière interchangeable avec celui de la télémédecine; l'utilisation concomitante de ces concepts et de leurs traductions en français; la considération des types et des méthodes de télémédecine comme des technologies différentes de la télémédecine; la considération d'autres applications comme des applications de télémédecine; et le manque de clarté sur les technologies à utiliser dans la télémédecine. Les solutions incluent l'adoption d'une définition consensuelle de la télémédecine; des clarifications sur les limites de la télémédecine et celles de télésanté, eSanté, mSanté et télésoins; la formation des chercheurs, des planificateurs, des décideurs et des professionnels de santé sur les similitudes entre les concepts et leurs traductions; la formation de ces acteurs sur les types, les méthodes et les applications de la télémédecine; et les précisions sur les technologies à utiliser dans la télémédecine. Le présent article pourrait aider à attirer l'attention sur l'impact du manque de clarté sur la télémédecine sur son utilisation. Elle pourrait aussi contribuer à éliminer cet impact.

Introduction

Telemedicine is considered to be an effective way to improve physicians' recruitment and retention by reducing their professional isolation (Potter et al., 2014), alleviating their workload (Jennett, Watson, & Watanabe, 2000; Watanabe, Jennett, & Watson, 1999), and allowing them to get advice from experts (Brebner et al., 2004). Telemedicine is also seen as a good solution to improve access to

healthcare through electronic transfer of expertise from one area to another (Bediang, et al., 2017; Tegemoh, 2013). Yet, the concept of telemedicine is not evident enough for decision makers and researchers. A lot of confusion persists about this concept. This confusion can be a hindrance to its use and is linked to some factors. Based on our experiences in conducting researches on telemedicine in Senegal and according to our findings in the literature review, this paper describes these factors and proposes some recommendations to make the concept of telemedicine more

comprehensible. Any other studies have been done with this regard.

Factors of confusion

The factors of confusion include the multiple definitions of telemedicine; the multiple concepts used interchangeably with the concept of telemedicine; the concomitant use of concepts and their French translations; the consideration of the types and methods of telemedicine as technologies different than telemedicine; the consideration of other applications as telemedicine applications; and the lack of clarity around the technologies to be used in telemedicine activities.

Multiple definitions of telemedicine

Scientists fail to agree on one definition of telemedicine and many of them created their own definition of telemedicine. The result is a proliferation of different definitions of telemedicine (Oh, Rizo, Enkin, & Jadad, 2005;; Solli, BjØrk, Hvalvik, & HellesØ, 2012; Sood et al., 2007). A research team identified up to 104 definitions of telemedicine (Sood et al., 2007). This proliferation creates certain confusions around the concept of telemedicine, impacting decision makers' understating of it. In addition, most of these various definitions are only suited for specific contexts, and therefore not applicable to all situations.

Multiple concepts used interchangeably with telemedicine

Telemedicine is used interchangeably with several other terms: telehealth, eHealth, mHealth and telecare. These terms have, in turn, many definitions. Some researchers identified up to 51 definitions of eHealth (Oh et al., 2005) and 32 definitions of telecare (Solli et al., 2012). Other researchers identified up to 36 definitions of eHealth (Pagliari et al., 2005). All of these terms and their multiple definitions aggravate confusion around the concept of telemedicine. At the height of this confusion, many authors tried to clarify the difference between telemedicine, telehealth, eHealth, mHealth and telecare (Bashshur, Shannon, Krupinski, & Grigsby, 2011; Fatehi & Wootton, 2012; Sood et al., 2007). For instance, some mentioned that telemedicine is a subset of telehealth the way medicine is a subset of health (Bashshur et al., 2011; Sood et al., 2007). For that reason, they limit the scope of telemedicine to healthcare while they limit that of telehealth to health prevention and promotion (Bashshur et al., 2011; Sood et al., 2007). They see telecare as a preventive health program that falls within the area of telehealth and not that of telemedicine. They believe that telehealth includes the notion of distance while eHealth doesn't include. They refer mHealth to applications run through mobile technology and see it as a subcategory of telemedicine, telehealth and eHealth. If these distinctions are interesting on paper, they are less so on the ground, because the boundaries between the various concepts are still unclear.

Concomitant use of concepts and their French translations

In French speaking countries, we notice that the terms (telehealth, eHealth, telecare and mHealth) and their French translations and counterparts (télésanté, eSanté, Télésoins and mSanté) are used concomitantly (e.g., telehealth and télésanté) as if they have different meanings. The confusion related to the difference between various languages worsens the existing one.

Considering telemedicine types as technologies different than telemedicine

Other confusions stem from the different types of telemedicine. There are many types of telemedicine. Such as tele dermatology (Kaddu, Kovarik, Gabler, & Soyer, 2009), telesurgery (Cone, Rodas, & Merrell, 2009), telecardiology, telepathology, the telecytology, teleradiology, teleneurology and telepediatry. These types of telemedicine should simply remain types of telemedicine, not a particular technology in a specific field of medicine.

Considering telemedicine methods as technologies different than telemedicine

The various methods of telemedicine should also remain methods of telemedicine and not particular technologies. There are two methods of telemedicine: "store and forward" and "real time" (Kaddu et al., 2009). The first is asynchronous and the second is synchronous (Kaddu et al., 2009). Both methods were proved reliable and accurate when they were compared with the traditional method (face to face) (Kaddu et al., 2009). The method "store and forward" is more accessible and less demanding in terms of technology, so most used (Kaddu et al., 2009). The "real time" method, less used, allows a practice closer to the traditional practice and has the advantage of improving interactions between physicians and patients (Kaddu et al., 2009). By contrast, it requires more time and resources (Kaddu et al., 2009). Considering these methods as different technologies than telemedicine may increase the confusions around the concept of telemedicine.

Considering other applications as telemedicine applications

There are three applications of telemedicine: (i) remote assistance, (ii) remote monitoring and (iii) remote education. Remote assistance includes remote consultation, diagnosis and exchanges of opinions. Remote monitoring refers to exchanges of information on patients' health. Remote education is related to remote training (Kaddu et al., 2009). Some authors confirmed that remote consultation represents less than 25% of the applications used. Others affirmed that its use does not exceed 30% (Edwards & Patel, 2003). Remote education seems to be the most used application (Al-Qirim, 2007). Telemedicine equipment is often diverted for administrative or research purposes (Al-Qirim, 2007), but administration and research

are not telemedicine applications. These various facets of telemedicine need to be known.

Lack of clarity around the technologies to be involved in telemedicine

The use of telemedicine involves the use of information and communication technologies (ICT), sometime called new information and communication technologies (NICT), but the list of these technologies is not clear enough. Discussions remain very active in the world of scientists and technicians about which technology is ICT and which is not (Pilote, 2014). ICT generally include computers, e-mail, cell phones, scanners and game consoles (Pilote, 2014). Cell phones and computers are considered to be the most used in current societies. Radios, televisions and landline phones are not considered as ICT (Pilote, 2014), but landline phones are still widely used to communicate medical data. Facsimile is also common in these countries, but it is not considered as ICT yet. While, this list of ICT and NICT to be included in telemedicine programs is really important for planners and decision makers.

Proposed recommendations

Recommendations include the adoption of one consensual definition of telemedicine instead of 104 definitions. This definition should be as less specific as the definition of medicine to be applicable to all medical fields and all contexts. Its various dimensions must be measurable by researchers, planners and decision makers to guarantee its use in researches, planning and decision making. This recommendation will require international collaborations among researchers, planners and decision makers. Recommendations also include clarifications on the boundaries between the concept of telemedicine and those of telehealth, eHealth, mHealth and telecare. The boundaries between these concepts and the concept of telemedicine remain unclear instead of the efforts of some authors to make them clear. One of the recommendations is also to explain to researchers, planners, decision makers and health professionals that telehealth, eHealth, mHealth and telecare; and their French translations are similar. Another one is to explain to researchers, planners, decision makers and health professionals that the types and methods of telemedicine remain just types and methods of telemedicine, and not technologies different than telemedicine. These experts also need to know that administration and research are not applications of telemedicine. Finally, recommendations include clarifications around the technologies to be involved in telemedicine.

Conclusion

This paper has discussed the confusion regarding the concept of telemedicine, which can be an obstacle to the use of telemedicine. In this study we addressed seven different potential factors for confusion, and proposed recommendations that could be potential responses to these factors that cause confusion. This paper may be beneficial to health professionals, decision makers, researchers and

other experts in identifying the confusion factors and possible solutions, and consequently it could contribute in improving the use of telemedicine. Improving the use of telemedicine can contribute to improve physicians' recruitment and retention, which contribute to improve access to healthcare.

Competing interests

Declare any competing interests here. If there are no competing interests to declare us the mention: The authors declare no competing interest.

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