Arch Bronconeumol. 2015;51(12):611–612

ARCHIVOS DE BRONCONEUMOLOGIA

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Editorial

Acceptance of Telemedicine Among Healthcare Professionals☆

Aceptación de la telemedicina por los profesionales sanitarios

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Telemedicine (TLM) consists of a set of information and communication technologies (ICT) that facilitate the remote practice of medicine.[1]

The use of TLM programs is becoming more widespread, and in the field of respiratory medicine its use has extended to sleep apnea, asthma, smoking cessation, chronic obstructive pulmonary disease, and others. Most of the experience has been gained from programs monitoring patients in their own home,[2] an approach which has led to a reduction in the number of exacerbations and hospital admissions.[3]

Despite its potential benefit, implementation of TLM has been a slow and difficult process. Some of the factors preventing widespread implementation of this strategy are well-known and include: poor organization in healthcare institutions, lack of cost-effectiveness studies and specific laws governing use of the information generated, and resistance to change.

While we know that patients are willing to accept TLM, its acceptance among healthcare professions has not been studied in depth.

Several questionnaires are available for assessing the acceptance of technologies among users, the most widely used being the Technology Acceptance Model (TAM). This tool, proposed by Davis in 1989,[4] is based on Ajzen and Fishbein's theory of reasoned action (1980).[5] The TAM attempts to explain how users come to accept and use a certain technology, in terms of the causal relationship between the design of the technology, perceived ease-of-use, perceived usefulness, and the user's attitude toward using the system (determined by a series of non-technological variables).

The TAM is structured as follows: 3 dimensions address perceived ease-of-use, intention to use, and perceived usefulness. Each dimension is subdivided into different items, and answered "yes/no"[4]: perceived ease-of-use, 6 items; intention to use, 3 items; and perceived usefulness, 6 items.

Several standard studies have demonstrated the validity and ease-of-use of the TAM,[6] its high pre-test reliability, and its ability to predict intention to use and attitude to usage.[7] One of the main criticisms of applying TAM to TLM programs is that the perceived usefulness dimension is not a significant determinant of the attitude and intention to use dimensions.[8]

The TAM is now widely used in TLM programs and other healthcare programs.

Studies have so far reported a high level of acceptance among healthcare professionals, yet uptake of different ICTs and TLM initiatives has been disappointing.[9]

This appears to be due to external motivational factors, previously identified by Davis,[4] which decisively influence how these resources are used.

Motulsky et al.[10] and Cresswell et al.[11] divided these external factors into 3 groups, as follows: (1) institutional organization, (2) clinical practice guidelines and performance standards in TLM, and (3) training. Other factors related with the use of ICTs include accessibility to resources and a feeling of self-sufficiency.

One of the main resistance factors reported in the scientific literature is the healthcare professional's belief that TLM will increase their work burden. Several studies have shown that protocols for implementing these programs and prior training help overcome this attitude.[12]

Telemonitoring schemes generate large amounts of clinical data,[13] so clinical response must be protocolized, and data must be stratified according to relevance. For this reason, specialized personnel must be specifically trained in using TLM,[14] and tangible objectives must be defined before it is implemented.

Since the acceptance of TLM among healthcare professionals in the field of respiratory medicine has not been specifically studied, we invited all the members of the Spanish Society of Pulmonology (SEPAR, http://www.separ.es) to share their opinion by responding to an anonymous survey, designed along the lines of the TAM (Davis, 1989), to evaluate the degree of acceptance of TLM programs.

We received a total of 348 responses, 254 (73%) of which were submitted by pulmonologists. Mean age of participants was 41 ± 10 years.

☆ Please cite this article as: Segrelles-Calvo G, Chiner E, Fernández-Fabrellas E. Aceptación de la telemedicina por los profesionales sanitarios. Arch Bronconeumol. 2015;51:611–612.

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In total, 57% (200 participants) did not have any previous experience in TLM programs. The degree of experience was not associated with the respondents' professional role (P=.067), but it was statistically significantly related with age (51% in respondents aged ≥50 years vs 38% in respondents <50 years; P=.035 and 95% CI: −0.02–0.25).

Overall satisfaction (defined as the total percentage of "yes" answers in the questionnaire) was 77%; when stratified by TAM dimensions, satisfaction was for: perceived usefulness, 75%; perceived ease-of-use, 75%; and intention to use, 81%,

The main resistance factors among respondents were grouped in the perceived usefulness and perceived ease-of-use dimensions.

Within the intention to use dimension, the item "I intend to use telemedicine *routinely* with my patients" was the main resistance factor reported, irrespective of previous experience or age.

This point, in our opinion, is of great importance, since it explains why several studies[15] have highlighted the need to restrict TLM to those patients who would most benefit from it and avoid the routine use of these resources.

Naturally, healthcare professionals with no experience of TLM – who were also the youngest – expressed more concern about whether they would be able to "do what telemedicine wants me to do" (item included in the perceived ease-of-use dimension). This response underlines the importance of conducting specific TLM training programs for improving acceptance among professionals. Trained users make better use of TLM programs and thus give more positive feedback.

In conclusion, healthcare professionals involved in respiratory medicine have a generally good opinion of TLM. We have detected some resistance factors, which appear to be associated with need for specific information on TLM and defined guidelines and performance standards. These factors must be taken into account when setting up TLM programs.

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