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Mobile Applications in the Management of Headache

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Abstract

Mobile applications show great potential for the assessment and registration of information regarding headaches. However, data on the content and usability of mobile applications for headache that are accessible to the public in European Portuguese are scarce. Therefore, this study aims to search for and characterize the mobile applications related to headache in terms of content and usability. A search in the Android app store of applications was conducted. Four mobile applications were found in European Portuguese (Diário da Cefaleia, Diário da Dor, Dor de Cabeça e Registo Simples) that matched a set of predefined criteria. These were characterized in terms of content general characteristics, content and usability. Three of the apps were specific for headache and one could be used for any type of pain, including headache. All apps allow recording pain characteristics and its extraction in a form of a report.

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Keywords: Headache, mobile applications, elderly, usability

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1. Introduction

In Portugal, as in the other countries, the aging population rate has increased in the last few years, and this increase is likely to continue in the years to come[1]. The increase in the elderly population highlights the need to promote healthy aging, with autonomy, health and independence, preserving and improving the functional capacity of the elderly, in line with the concept of active ageing. The World Health Organization (WHO)[2] defines active ageing as a process of optimizing opportunities for health, participation on activities and security, in order to increase the probability of older adults to live an healthier life. This must be accompanied by health opportunities, a sense of security, personal participation in different activities, and with social and family involvement as well.

The aging process is associated with the development of several pathologies. Pain is one of the major symptoms associated with these pathologies. Several studies have shown that the prevalence of pain increases with age[3–6]. Headache is referred in several studies as one of the most common type of pain in the elderly population [7–10]. A study in Spain, at the Neurology Department of the University Hospital of Valladolid, with 262 participants aged 65 years or older, found that the prevalence of headache was 51.9%.

There has been over the years a great development of the Information and Communications Technologies (ICTs), but there is still a stereotyped image that ICTs are only developed for the younger population[11]. However, a study carried out between 2002 and 2007 in the elderly population of five European countries (Germany, France, Italy, Poland and United Kingdom), showed an increase in the internet use among older adults: 27% users in 2001 and 44% in 2007 [12].

Currently, there are several software applications running in mobile devices (such as tablets and smartphones), with capacity to promote better monitoring of pain, which might facilitate better care[13]. WHO defines mobile applications for health as medical and health practice supported by mobile devices, such as mobile phones, monitoring patient devices, personal digital assistants (PDAs) and other wireless devices [14]. Several studies indicate that older people use more and show more interest in new technologies, especially technologies related to health. According to the Food and Drug Administration (FDA), the mobile applications for health should: help people (which means the users of the app), monitoring of health conditions without providing treatment suggestions; provide simple tools to organize and control the health information; provide easy access to information related with health; help to document the health conditions, making this easier to share information with the health providers; automate simple tasks for health care providers; be intended to transfer, store and display medical data[15].

Several authors conclude that the most beneficial applications for the elderly in the future, are related with applications that are able to maintain their social relationships, health and well-being[16]. However, mobile applications for health should go through a process of assessment in order to guarantee the quality and accuracy of its content as well as its usability [17]. The usability of applications is a quality attribute related to the ease of use, more specifically, refers to the degree of easy of use, efficiency, errors and the number of users that like to use the applications[18].

The objectives of this study were to characterize in terms of content, and assess in terms of usability, mobile applications related to headache.

This paper is divided by 5 sections: Introduction, where it is presented the state of art of the mHealth; Methods, the description of the procedures used to collect and process the data; Results, where the data are presented; Discussion, the analyses of the data, and Conclusion.

2. Methods

In order to facilitate the description of all procedures involved in this study, it was divided in two different phases. Phase A, included the selection and analysis of mobile applications and evaluation of its content. Phase B corresponded to the evaluation of their usability.

2.1. Phase A - Selection and analysis of mobile applications

Applications available in the Android platform between the 7th of October 2014 and the 15th of March 2015 were searched. The search was conducted in this platform because it is the most used in terms of applications[19].

To be included in the present study the applications had to meet the following criteria: