

An Innovative, Information and Communication Technology Supported Approach, Towards Effective Chronic Pain Management

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ABSTRACT

Chronic pain is one of the most common health problems affecting daily activity, employment, relationships and emotional functioning. Unfortunately, the lack of specialized health care personnel, and the high heterogeneity in terms of clinical manifestation and treatment results contribute in failure to manage efficiently and effectively pain. Information and communication technology (ICT) can be a valuable tool, enabling patients and healthcare professional empowerment and better self-management of pain. To this direction, this article reports on the design of a novel technical infrastructure to support effectively and efficiently chronic pain management, based on an Intelligent Personal Health Record platform on top of already available ICT tools. The designed platform targets, among others, at improving the knowledge on the patient data, effectiveness and adherence to treatment and providing effective communication channels between patients and healthcare professionals.

KEYWORDS

Chronic Pain Self-management, Coordinated Care, Electronic Health Record, Interoperability, Patient Empowerment, Personal Health Record

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INTRODUCTION

Chronic pain is one of the most common health problems worldwide (Elliott et al., 1999) and a common cause for patients consulting a doctor (Breivik et al., 2005; Eriksen et al., 2003). Pain is defined as being chronic or long-term when it lasts for longer than 3 to 6 months, or beyond the normal healing time of an injury. Classifying pain is helpful to guide assessment and treatment whereas, there are many ways to classify pain and classifications may overlap (International Association for the Study of Pain, 2011). People with chronic pain often experience high levels of disability (Blyth et al., 2003) and are adversely affected on areas including daily activity, employment, relationships, and emotional functioning (Breivik et al., 2005). Impairment due to chronic pain leads to high levels of work absence and dramatically increases health care needs. In addition, pain imposes a huge financial and psychosocial burden on patients, their families and society (Andersson, 2009; Gore et al. 2012; Gustavsson et al. 2012; Nitter, 2013; Waddell & Nordlund 2000). According to (Elliott et al., 1999) patients suffering from chronic nonmalignant pain constitute a heterogeneous population in terms of clinical presentation and treatment results.

Chronic pain is associated with many different diagnostic entities ranging from diseases like, e.g. osteoarthritis, low-back pain and other musculoskeletal conditions to neuropathic pain conditions like painful diabetic polyneuropathy and pain following a stroke or multiple sclerosis. Due to this, treatment also varies from patient to patient and may include pharmacological treatments, neuromodulation, physiotherapy, multimodal rehabilitation. According to (Kroenke et al. 2009) pain and depression are the most common physical and psychological symptoms in primary care. Parallel assessment and treatment of psychiatric comorbidities and sleep disorders combined with traditional rehabilitation, i.e. physical activation and cognitive reorganization are imperative for improved outcomes.

Pain management is one of the most neglected aspects of health care. Chronic pain management is often limited. Pain specialists are able to manage very few patients, while almost half of the patients with chronic pain receive inadequate pain management. Failure to adequately address chronic pain is a major driver of its economic and social burden. Inappropriate and ineffective management and treatment generate repetitive visits to primary care physicians and referrals to specialists. The International Association for the Study of Pain (<https://www.iasp-pain.org/>) has identified significant problems with waiting times and access to pain services, issues that often result in significant deterioration of patient's health. Evidence suggests that patients should receive treatment as soon as possible, to avoid deterioration in the quality of life, psychological well-being and depression. Clinicians need to work with patients to establish the best course of treatment. Enhancement of communication between clinicians and patients is one of the most important elements to establish an optimal pain treatment and quality pain self-management support. Improvement of chronic pain management in a large patient population, with limited resources, requires the development of tools for self-management, therapeutic control, and documentation of effects (Phillips, 2000). Such tools can encourage patients in taking an active involvement in their treatment while facilitating care providers to assist patients in a cost-effective manner.

Most chronic pain patients are actually managed by primary care physicians but, in several severe cases, optimal care can only be designed and implemented by special pain units. These units usually do not have the capacity to absorb all (or even most) of the severe chronic pain cases. Tools that can assist in the improvement of their capacity are urgently needed. Such tools should focus on reducing the effort needed for the evaluation of patients, the design and the implementation of their therapeutic plan and their follow-up. The scientific community has widely accepted Information and Communication technologies as useful tools for chronic pain self-management (Buhman, 2016). Chronic pain rehabilitation is very costly (Dagenais et al. 2008), and internet-based treatments could be used as a cost-effective complement or even a first-hand primary intervention, as highlighted in the case of the management of anxiety disorders (Hedman et al. 2011). According to (Buhman et al. 2015) an individualized guided internet-delivered treatment based on cognitive-behaviour therapy

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