Chapter 70

Mobile Health Systems for Bipolar Disorder: The Relevance of Non-Functional Requirements in MONARCA Project

Oscar Mayora  
CREATE-NET, Italy

Mads Frost  
ITU Copenhagen, Denmark

Bert Arnrich  
ETH Zurich, Switzerland

Franz Gravenhorst  
ETH Zurich, Switzerland

Agnes Grunerbl  
TU Kaiserslautern, Germany

Amir Muaremi  
ETH Zurich, Switzerland

Venet Osmani  
CREATE-NET, Italy

Alessandro Puiatti  
SUPSI, Switzerland

Nina Reichwaldt  
PLRI-BITZ, Germany

Corinna Scharnweber  
PLRI-BITZ, Germany

Gerhard Troster  
ETH Zurich, Switzerland

ABSTRACT

This paper presents a series of challenges for developing mobile health solutions for mental health as a result of MONARCA project three-year activities. The lessons learnt on the design, development and evaluation of a mobile health system for supporting the treatment of bipolar disorder. The findings presented here are the result of over 3 years of activity within the MONARCA EU project. The challenges listed and detailed in this paper may be used in future research as a starting point for identifying important non-functional requirements involved in mobile health provisioning that are fundamental for the successful implementation of mobile health services in real life contexts.

DOI: 10.4018/978-1-4666-8756-1.ch070
INTRODUCTION

When designing mobile health systems the focal point of research is frequently concentrated on the design of innovative developments for improving the practice of healthcare and increase of wellbeing with a strong focus on functional requirements. On this regard, the aspects related to definition of non-functional requirements of mobile health provisioning are often underestimated or left as a secondary item to take into consideration by researchers. However only through a thorough consideration of potential implications on design of non-functional requirements, the mobile health innovations can find an opportunity to transform into sustainable solutions that can be applied in real life contexts. These kinds of requirements comprise all the practical aspects of healthcare provisioning that are necessary to implement mobile health services ranging from human factors to important medical and technological issues.

In this paper we introduce the experiences learnt in MONARCA project for developing a mobile monitoring system for better handling the treatment of bipolar disorder and the challenges found related to its implementation in a real life context. The main contribution of this paper focuses not only on the innovative mobile health solution proposed by MONARCA but also on the technological and clinical aspects that were necessary for conducting multidisciplinary research in the context of such project and on other non-functional requirements that are key in the development of technological solutions for the design, development and evaluation of mobile health systems. Such requirements include aspects related to technology, human factors, medical practice, regulatory aspects and other practical issues that are identified in this paper as key challenges in the development of future mobile personal health systems and services (See Figure 1).

MOBILE TECHNOLOGY AND BIPOLAR DISORDER TREATMENT

Current medical practice of bipolar disorder treatment is based on identification and analysis of

Figure 1. Relevant aspects in multidisciplinary IT-based clinical research
Related Content

Towards Process-of-Care Aware Emergency Department Information Systems: A Clustering Approach to Activity Views Elicitation
[www.igi-global.com/article/towards-process-care-aware-emergency/2234?camid=4v1a](www.igi-global.com/article/towards-process-care-aware-emergency/2234?camid=4v1a)

An Exploration of the Experiences of Migrant Women: Implications for Policy Development of Effective User Driven Health Care Delivery Systems
[www.igi-global.com/article/exploration-experiences-migrant-women/70222?camid=4v1a](www.igi-global.com/article/exploration-experiences-migrant-women/70222?camid=4v1a)

Quality Management and Quality Assurance in Medical Laboratories
[www.igi-global.com/chapter/quality-management-and-quality-assurance-in-medical-laboratories/115611?camid=4v1a](www.igi-global.com/chapter/quality-management-and-quality-assurance-in-medical-laboratories/115611?camid=4v1a)

Record Linkage in Healthcare: Applications, Opportunities, and Challenges for Public Health
[www.igi-global.com/article/record-linkage-healthcare/51683?camid=4v1a](www.igi-global.com/article/record-linkage-healthcare/51683?camid=4v1a)