Chapter 11
Confirmatory Factor Analysis to Establish Determinants of Wireless Technology in the Indian Healthcare

Raj Gururajan
University of Southern Queensland, Australia

Tiana Gurney
University of Southern Queensland, Australia

Abdul Hafeez-Baig
University of Southern Queensland, Australia

ABSTRACT

This study reports the determinants of wireless technology in the Indian healthcare validated by a second order regression model. In order to assert the determinants, a qualitative study was conducted with 30 physicians using interviews to arrive at a set of barriers and drivers. Further analysis of the qualitative data indicated that there is a third component emerging, namely, clinical influence. The interview data was used to develop a survey instrument and this was administered on the Indian clinicians with 200 completed surveys. This data was used to establish the sub-components of the three major determinants as identified in the qualitative study. This is reported in this article.

INTRODUCTION

In the last few years, high expectations, technological developments, and effective and efficient services have been shown to be prerequisites for improvements in the healthcare domain (Rogoski, 2005; Versel, 2008). Latest trends in the healthcare sector include the design of more flexible and efficient service provider frameworks aimed at providing health services to all stakeholders. In order to implement such frameworks, wire-

DOI: 10.4018/978-1-60960-183-6.ch011

Copyright © 2011, IGI Global. Copying or distributing in print or electronic forms without written permission of IGI Global is prohibited.

less technology is increasingly being used in the healthcare sector. A decrease in the cost of wireless devices and improved awareness of the benefits by using related wireless applications are two of the contributing factors towards the increased use of wireless technology in this sector (Gururajan, Quaddus, Fink, Vuori, & Soar, 2005; R. Gururajan, Hafeez-Baig, & Gururjan, 2008). Even though the future of this technology and its usability is promising, its adoption is still in its infancy, which is attributed to the complex and critical nature of the healthcare environment. In the current competitive and complex business environment, technology developments have played a critical role in delivering high quality of care (Reinecke, 2004). However, there is limited knowledge and empirical research on the effectiveness and adoption of wireless technology in general, and in the Indian healthcare system in particular.

Recent research has established that investment in emerging Information Technology (IT), including Information Systems (IS), can lead to productivity gains only if they are accepted and effectively used by respective stakeholders. Consequently, acceptance and utilization of IT/IS in the healthcare environment have been central themes in the information systems literature. Therefore, the fundamental focus of this research is to investigate and examine the influence of internal and external determinants on the usefulness of wireless technology. Further, this research also assesses how its acceptance contributes to the adoption of wireless technology. We believe that this research is the first of its kind attempted in the Indian healthcare domain and it employs empirical evidence to explore the impact of wireless technology and its usefulness in the Indian healthcare system. The Indian healthcare domain is at the forefront in adopting the latest medical technologies and applications, as evidenced by media reports and, as such, it constitutes an excellent context for validating existing adoption theories and extending them.

The main contribution of this research includes the identification of a set of drivers and barriers to using wireless technology in a given Indian healthcare setting. In addition to this, for the first time, a set of clinical factors influencing the adoption of wireless technology has been identified and validated using a second order regression model.

LITERATURE REVIEW

The concept of wireless technology in healthcare is discussed in many studies (Dyer, 2003; Hu, Chau, & Sheng, 2002; Sausser, 2003; Simpson, 2003; Siracuse, Pharm, & Sowell, 2008; Versel, 2008; Wisnicki, 2002; Wu & Wu, 2007; Zhang, 2007). For example, Wisnicki (2002) provides details of how broadband technology, an essential component of wireless technology, can be used in healthcare. While prior studies agree that wireless applications have the potential to address the endemic problems of healthcare, very limited information can be found about the determinants of such applications (Gururajan, Toleman, & Soar, 2004; Gururajan, Moloney, & Kerr, 2005). In general, the majority of the works reviewed are descriptive about the benefits of wireless handheld devices in healthcare in general, and medicine in particular. There are only a small number of studies that provide evidence-based information concerning these devices in healthcare (Fischer et al., 2003; Sax et al., 2005)(Hafeez-Baig, 2007). Furthermore, five major studies in the area of healthcare (evaluated by (Spil & Schuring, 2006) testing the Technology Acceptance Model (TAM) produced findings which were inconsistent with the body of knowledge in non-healthcare settings. With 'Perceived Ease of Use' and 'Perceived Usefulness' as the major TAM attributes, these studies found that in the health environment, 'Perceived Usefulness' is an important attribute in technology adoption, while 'Perceived Ease of Use' was found to have no effect (Spil & Schuring, 2006). This is different to findings reported in

17 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:
www.igi-global.com/chapter/confirmatory-factor-analysis-establish-determinants/50160

Related Content

Managing E-Procurement in Public Healthcare: A Knowledge Management Perspective
Tommaso Federiciand Andrea Resca (2009). *International Journal of Healthcare Delivery Reform Initiatives (pp. 1-15).*
www.irma-international.org/article/managing-procurement-public-healthcare/2169

Mapping Population Health Management Roadmap into Cervical Cancer Screening Programs
Anastasius Moumtzoglouand Abraham Pouliakis (2015). *International Journal of Reliable and Quality E-Healthcare (pp. 1-18).*
www.irma-international.org/article/mapping-population-health-management-roadmap-into-cervical-cancer-screening-programs/141209

Intelligent Risk Detection in Healthcare Contexts of Hip and Knee Athroplasty and Paediatric Congenital Heart Disease
Hoda Moghimi, Nilmini Wickramasingheand Jonathan L. Schaffer (2018). *Health Care Delivery and Clinical Science: Concepts, Methodologies, Tools, and Applications (pp. 1086-1099).*
www.irma-international.org/chapter/intelligent-risk-detection-in-healthcare-contexts-of-hip-and-knee-athroplasty-and-paediatric-congenital-heart-disease/192719

The Rehabilitation Effect of Rehabilitation Nursing Scheme for Sprinters With Knee Ligament Injuries
Bin Huand Yoh Murayama (2024). *International Journal of Healthcare Information Systems and Informatics (pp. 1-11).*
www.irma-international.org/article/the-rehabilitation-effect-of-rehabilitation-nursing-scheme-for-sprinters-with-knee-ligament-injuries/338221

Rural E-Health Infrastructure Development
Ali Zalzala, Stanley Chia, Laura Zalzala, Subrat Sahu, Suresh Vaghasiyaand Ali Karimi (2013). *User-Driven Healthcare: Concepts, Methodologies, Tools, and Applications (pp. 870-900).*
www.irma-international.org/chapter/rural-health-infrastructure-development/73870