

# Chapter 13

## Factors Impacting Use of Health IT Applications: Predicting Nurses' Perception of Performance

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### ABSTRACT

*Nowadays, information technology tools are widely used in the healthcare industry to record and integrate medical data so as to provide complete access to patients' information for coordinated healthcare delivery. Yet, the efficacy of these technologies depends on their successful implementation for, adoption by and/or adaptation to support health professional workers such as physicians and nurses. This study addresses the impact of specific factors including result observability, autonomy, perceived barriers, task structure, privacy and security anxiety on the nurses' perception of their performance using health information technologies. Additionally, the effects of nurses' personality factors are examined as moderating factors on the relationships between the organizational factors and nurses' perception of performance. Multiple linear regression was applied to validate the proposed research model and professional autonomy, result observability, privacy and security anxiety were found to be key factors predicting the nurses' perception of performance.*

### 1. INTRODUCTION

The goal of nationwide, interoperable health information technologies (health IT) is to promote patient safety, to enhance the quality of care delivery, and to provide cost-effective health care services to patients (US Department of Health and Human Services, 2009). Although major applications of health IT such as electronic medical records (EMR), decision support systems (DSS), and computerized physician

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order entry (CPOE) promise to enhance the efficiency and quality of care (Harrison, Koppel & Bar-Lev, 2007), the efficacy of these technologies depends on their successful implementation for, adoption by, and adaptation to support health professional workers such as physicians and nurses.

Owing to the fundamentally different professional training that healthcare staff received, especially in contrast to those of ordinary business user groups, it is important to adapt health IT applications in their professional work before we can expect healthcare workers to accept them as complementary tools (Chau & Hu, 2002). Notwithstanding, health care, in comparison with other industries, has a slower rate of IT adoption (Cresswell & Sheikh, 2013). Moreover, understanding how technological shift may impact on the perception of healthcare performance over time, it implies a growing need to investigate main and interacting effects of different kinds of technical, social, and organizational factors vis-à-vis its usefulness for changing both individual and work organizational processes (Cresswell & Sheikh, 2013). The implementation of health IT in organizations has different aspects and different pre-requisites, which should also be addressed before or during ongoing implementation.

This study examines the sociotechnical aspects of health IT implementation and investigates the impact of organizational and personal factors on nurses' perception of their performance when working with relevant IT applications. More specifically, it examines the extent to which employees' personality factors affect the relationships between the organizational factors and nurses' performance. The following main research questions are to be addressed in the study reported here:

1. What factors best predict the relationship between key organizational variables and nurses' perception of performance?
2. Do certain personality factors have a direct effect on the perception of performance?
3. To what extent do personality factors have a moderating effect on the relationship of organizational variables vis-à-vis the perception of performance?

The rest of this paper is organized as follows. Section 2 details the literature review as a background to understanding the key factors being investigated while Section 3 offers insights to the theoretical frameworks and research model that guided this research. Section 4 shifts focus to discuss the research methodology and Section 5 presents the study results, limitations and future study directions.

## **2. LITERATURE REVIEW**

The Office of the National Coordinator for Health Information Technology (ONC) defines health IT as technologies that “enable the secure collection and exchange of vast amounts of health data about individuals,” and collecting health data that improve the health care of the future (US Department of Health and Human Services, 2009). Moreover, health IT has not only been thought of improving the healthcare delivery system, in and of itself, leading to greater transparency of the associated payment systems, but that it can also offer a better integrated perspective towards promoting population health and well-being (US Department of Health and Human Services, 2011).

Key health IT applications such as electronic health records (EHRs), personal health records (PHRs), telehealth devices, remote monitoring technologies, and mobile health applications, have not been used to their full potential to date. In fact, health care is seen as a relatively laggard industry in comparison with other high-risk industries in term of its attention to ensuring basic safety; more aggravatingly, health

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