STUDY OF PDA AND SMARTPHONE ADOPTION RATES AT King Saud Medical Complex (KSMC) HOSPITALS

Deena M Barakah Supervised by: Dr Basema Saddik PhD
Department of Health Informatics, College of Public Health & Health Informatics
King Saud bin Abdulaziz University for Health Sciences, Riyadh, Saudi Arabia

Introduction

Personal digital assistants (PDAs) and Smartphone usages in health care have increased worldwide and found many applications in modern clinical practice. Currently they are being used extensively for access to medical literature, patient tracking, drug information, e-prescribing and medical research. A cross-sectional survey was developed and distributed to physicians and dentists in King Saud Medical Complex Hospitals. The survey instrument contained 18 items exploring a variety of PDAs and smartphone usage topics and was organized into six sections. Questionnaire items were presented in a multitude of formats, including yes/no questions, Likert scales, ticking choice responses, and open-ended questions. Descriptive and statistical analysis was conducted to describe the physician and dentists PDAs/Smartphone usage patterns, clinical and administration applications and to identify wide usage barriers. Survey results were aggregated and stratified by rate of PDAs adoption, age, gender, subject rank type, department, and specialty.

Methodology

A recent study found that Smartphone adoption rates by physicians is currently 64% in U.S. and will increase to 81% penetration in 2012 (Manhattan Research Inc., 2009). In a research article by Garnetti and El Emam (2008), a systematic review of PDA usage surveys showed that the overall health care providers PDA adoption rate for individual professional use ranges between 45% and 85%. In light of the importance of successfully using PDA and Smartphone devices worldwide, well-designed research studies are thus, needed to seek information on PDA and smartphone use patterns in local Saudi hospitals.

Setting and participants

(KSMC) is a 1424-bed hospital administrated by Ministry of Health, at Riyadh in Saudi Arabia. The target population consisted of all physicians and dentists working in KSMC hospitals. A sample of fifty five participants (20 male and 35 females) was selected from this population using Stratified Random Sampling.

Research Objectives

This research aims towards finding: Prevalence rate of PDA and Smartphone among the physicians and dentists at King Saud Medical Complex Hospitals (KSMCH) and to evaluate its impact on work performance and clinical practice. The exploration of PDA and Smartphone Adoption is part of a larger study to be conducted to explore the use of various advanced technology devices used by Saudi physicians and dentists. This study also has the following specific objectives:

- To describe physicians’ and dentists satisfaction of their PDAs usage.
- To explore the major barriers and obstacles that prevents the wide adoption of PDA.
- To identify the major PDA and Smartphone applications frequently used in clinical and administrative context.

Research Questions

What is the current PDA and Smartphone prevalence (use) rate among Physicians and Dentists at King Saud Medical Complex Hospitals of Ministry of Health, Saudi Arabia? To investigate this issue, and based on the literature review of similar international studies, this research works also toward answering other sub-questions.

Main results from the research showed:

- PDA and Smart phone prevalence (use) rate is 69.1% among Physicians and Dentists at King Saud Medical Complex Hospitals (KSMCH) of Ministry of Health, Saudi Arabia.
- Correlation is significant at the 0.05 level (2-tailed) between the age group and the prevalence rate. A test of Pearson Correlation shows a negative value indicating that the prevalence rate decreases with age increase of the participant.
- The study of PDA prevalence rates in terms of gender shows that male participants group has a higher prevalence ownership rate of 90.0% compared to 57.1% only for female participants group.
- The most common applications are used for obtaining drug information with 97.4% of physicians using it (as well as using PDA for medical research 63.2%). The less used applications are PDA for patient tracking (10.5%) and for accessing patient record (21.1%). The most common barriers and obstacles to wide usage of PDA are “lack of support” (83.3% of male participants, 70.0% for female participants) and “weak integration with working environment” (72.2% male participants, 80.0% female participants). A very high percentage of participants (69.9% of male and 90.0% of female participants) strongly agree that PDA improve their performance. Also a higher percentage of (94.4% of male and 90.0% of female participants) strongly agree that PDA improve their work productivity.

Results

Conclusions

This research aims towards finding Prevalence rate of PDA and Smartphone among Physicians and Dentists at King Saud Medical Complex Hospitals, is a valuable initial step towards the evaluation of their effectiveness in providing improved health care in hospitals of the kingdom of Saudi Arabia.

This research has further enhanced the understanding and determination of various health care tasks that are most appropriate to PDA and Smartphone use in KSMC hospitals clinical settings. Furthermore, the recognition and characterization of various PDAs and Smartphone use patterns is an important consideration for the selection and purchase of appropriate handheld-based medical software applications by Saudi hospital administrations.

This research regarding the use of the PDA in clinical settings of Saudi hospitals is expected to promote safe, reliable, and appropriate care as well as positive patient-provider administrator interactions.

References