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Research Article

The Effect of Patient Privacy on Telemedicine Implementation in Developing Countries: Iraq Case Study

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Abstract: The aim of this research is to measure patient privacy factor of adopting telemedicine project in Iraq since it plays a central role in adopting telemedicine in developed countries or even in Developing countries this research measures the importance of patient privacy in developing countries and take Iraq as case study, Questionnaire used as instrument of collection data. First was the pilot study and 35 questionnaire were distributed at Baghdad medical city and 500 were distributed to physicians, some of these questionnaire were ignored because they was not completed thus 312 respondent only were used for the final result.

Keywords: Adopting telemedicine, patient privacy, telemedicine

INTRODUCTION

Confidentiality and privacy: Confidentiality and privacy are potential significant human factors barrier (Kelly and McKenzie, 2002). The public concern regarding the privacy and security of medical data can be significant barrier to the widespread use of telemedicine applications and the development of computer-based patient record systems. Transmission of medical information through the telecommunication network and the usage of computer-based patient record systems represent the basis of success in most telemedicine applications at present. Their integration in health information systems has become a necessity since it provides significant benefits in terms of health services and improving healthcare quality. For example, the telemedicine domain allows medical providers to have instantaneous access to a patient’s medical record and offers the ability to exchange this information within the healthcare institution or over distance.

These confidential medical record databases, which contain information about all patients, become jeopardized if left unprotected (Khan et al., 2007). The need for proper handling of medical records and guaranteed data protection during transmission has prompted governmental institutions and the private sector in many countries to create policies to address these issues. Confidentiality and security laws need to be enacted inline with country privacy practices. At present, teleconsultation sessions cannot be held until permission has been received from the patient (Abu-dalbouh, 2014).

The need to ensure the security and privacy of patient records has additionally reduced the adoption and utilization of telemedicine technology. The importance of keeping up privacy of telemedicine services to be most critical and prompt obstruction to telemedicine adoption (Abu-dalbouh, 2014). This depends on the level of privacy of each association that gives it regulations to securing healthcare records, averting healthcare misrepresentation and misuse and implements the privacy and security of all patient information. In Iraq, disappointment to conform authoritative regulation is common in healthcare sectors (Jaber et al., 2014).

Kvedar et al. (2014) have addressed the detainment of privacy and its possible predictor of one’s attitude to use technology. In view of that, while technology may better absorb, store and offer quiet information; physicians are still not certain how well it will secure patient information. Late features of rupture of patient-record privacy just serve to fuel physician concerns. Patient record privacy should then be ensured secure before physicians will feel great utilizing telemedicine technology. Therefore, this study aims at investigated the effect of patient’s privacy in telemedicine on physicians’ attitude to use it in the Iraqi healthcare sectors.

Information security and privacy: Without providing security for users and businesses, e-technology will not achieve its desired objectives. This requires strengthening of the legal framework to address privacy protection and prosecution of computer crimes, creation
of effective certification authorities, authorizing of
digital signatures and enabling a public key or web of
trust infrastructure. A survey of existing or “in
gestation” legislations in the Arab countries shows that
there are either no laws, or there are only draft laws
(Mohan and Baburaj, 2014; Saidi and Yared, 2003).

Privacy in developed countries: There are some issues
that have been raised by telemedicine in developed
countries such as privacy and confidentiality (Abdul
et al., 2015). Telemedicine practice was inhibited in the
past by the law, because of the patient privacy issues
and medical licensure. For example, in the USA,
doctors cannot consult with patients in a different state
unless the doctor is licensed to practice in that state.
Therefore, the State Medical boards from different
States have come up with a few solutions to ease the
licensure barriers between them, in order to facilitate
the practice of telemedicine (Kantor and Irving, 1997).
Privacy is an issue that is facing the application of
 telemedicine in developed countries, for example, in
some cases, patients’ records need to be shared between
more than one states in the USA. A conflict between
States and federal laws relating to the privacy and
confidentiality of the patient’s record will appear
(Demiris, 2003).

Developed countries have utilized telemedicine and
have benefited from it. The next section will show the
developing countries’ experience with telemedicine and
the need for its application in those countries (Ghani
et al., 2015).

Patient privacy in Iraq: The demand to ensure the
security and protection of patient records has
furthermore diminished the selection and use of
telemedicine technology (Olanrewaju et al., 2013).
Tended to the significance of keeping up the security of
telemedicine administrations to be more basic and brief
check to telemedicine appropriation. This relies on
upon the level of protection of each one affiliation that
provides for its regulations to securing medicinal
services records, deflecting health awareness distortion
and abuse and executes the security and security of all
patient data. In Iraq, frustration to acclimate legitimate
regulation is normal in social insurance divisions.

Hypothesis: Patient privacy will induce a positive
impact on adopting telemedicine in Iraq.

METHODOLOGY

The survey method was employed in this study
because surveys are prevalently used to begin reports
and is a suitable method for examining factors and
hypotheses. The questionnaire methodology is used for
data collection. Sekaran and Bougie (2010) showed that
the questionnaire design relies on three criteria, namely,
the manner by which the questions are written, planning
for the classification of variables and the appearance of
the questionnaire.

The instruments are designed based on the content
of each factor. Suggestions and various advice from
colleagues and supervisors were taken into
consideration to improve the design of the instruments,
as well as to build the questionnaire. The questionnaire
is written in English and then translated into Arabic,
which is the official language in Iraq. Table 1 shows the
penalization of the factors and items.

Pilot study: In the pilot study, questionnaires were
distributed amongst physicians who are working in
Baghdad medical city. However, among the 35
questionnaires that were collected, five were not
correctly answered. Table 2 illustrates the demographic
characteristics of the pilot study of this research.

Reliability of questionnaire: As per (Sekaran and
Bougie, 2010), "the unwavering quality of a measure
shows the degree to which it is without inclination
(lapse free) and consequently guarantees steady
estimation crosswise over time and over the different
things in the instrument." Therefore, an exploration
instrument that is reliable, steady and unsurprising is
thought to be solid. In increase, the more elevated
amount of consistency and reliability in the
examination instrument, the higher its unwavering
quality (Smith, 2012). The dependability of the
exploration may be resolved through two techniques, in
particular, interior and outer consistency strategies
(Smith, 2012).

The current study takes after the inner consistency
methodology on the reason that it needs to quantify the
inquiries of the same sensation by hanging the
aftereffect of answers that connected from the
respondents together as a gathering (Smith, 2012). The
examination of the inside consistency measures can be led by means of two modes, to be specific, between thing consistency unwavering quality and part half dependability (Sekaran and Bougie, 2010). As indicated by Sekaran and Bougie (2010), "the between thing consistency dependability is a test of respondents' responses to all the things in a measure."

The most well-known test of this measure is Cronbach's alpha (Cronbach, 1946). The Cronbach's alpha test has qualities running from 0 to 1; a more elevated amount of extent suggests a more prominent estimation of reliability. Estimations of 0.8 or more show that the dependability of the exploration instrument is great; values over 0.6 additionally mean a satisfactory unwavering quality (Hair et al., 2007). Besides, values running from 0.5 to 0.6 are somewhat adequate for the dependability of exploration of the connection of new applications or circumstances.

To make the estimation of survey unwavering quality up to 0.74, (Smith, 2012), suggested that the scientist ought to take after specific steps, for example, blowing up the amount of things, institutionalizing the organizational systems, assuring that the respondents shrewdly stamp things in the canvass and guaranteeing that the things in the poll pass on a sensible sentiment, are elegantly composed and outfit for the answerers. The between thing consistency dependability is chosen for the present study to test the respondents' responses for all the things utilizing Cronbach's alpha. The Table 3 above shows the Cronbach's Alpha value is 0.756 which is reliable.

**Regression:** The method of multiple regressions was used step by step in order to test forth hypotheses of the study. SPSS version 20 was served as the instrument for the statistical analysis. The dependent variables involved for this test was participation in adopting telemedicine while the independent variables included is privacy (Table 4).

Were found to be significant determinants of participation in adopting telemedicine. However, cost, privacy and culture were excluded statistically from the model by the step by step regression method. The statistics for the removed variables from the model and remained in the model are displayed respectively in Table 5 and 6. Additionally, Table 6 even illustrates the model which summaries the statistics results that are obtained from the regression analysis.

**Factor analysis:** Data were analyzed by utilizing principal component factor analysis using promax rotation with Kaiser Normalization technique. In order to find the prepare component Kaiser-Guttman Rule (Eigenvalues greater than one) and scree plot were utilized (Nunally and Bernstein, 1978). Table 7 illustrates the results of the factor analysis of the principal component. The factor analysis found out the items that captured for the later analysis, thus, seventeen distinct factors were been indicated within the dependent variable.

In order to provide the best solution, the analysis should be based upon both convergent validity and discriminant validity. Therefore, the convergent validity was established depending on all the strong loaded instruments according to their respective factors (loading>0.50) (Chau and Tam, 1997). However, any particular factor loaded strongly on its respective factor instead of another factors (Chau and Tam, 1997). Table 7 shows the value of each item.

**Discussion on the feedback of the Iraqi physicians readiness toward telemedicine:** Response of this research's survey has been rate and analyses in this section. Moreover, it consists of the discussed of response rate and, missing data and screening data.

Response rate the sampling frame for this study consisted of five public hospitals in Iraq. The total physicians who work in the 5 hospitals are 1386. The size of the sample is 500. Out of these 5 hospitals, 324...
of them returned the questionnaires back, the rate response is 64.8%. From the returned questionnaires, 12 of them were incomplete or giving random answers so they were dropped from subsequent analyses, yielding 312 usable responses and a usable response rate of 62.4%.

**Missing data and screening data:** Missing data refers to not available information for a subject (or case) in the questionnaire (Hair et al., 2010). Missing data cause by the respondent’s refusal or forget to answer one or more questions. Therefore, the questionnaire has been include a guidelines in order to decrease the missing data or answering twice for one item. However, 12 cases were removed for having double answers for questions or because of not answering most of the questionnaire, which made them not usable for this study.

To check the error, the researcher needs to look for values those fall out the range of right values for the items (Pallant, 2013). Moreover, there is an important need to check the errors before starting the analysis because these errors can distort it. In order to check the errors this study has done frequencies for each item. Therefore, now the data are screened and cleaned to do the analysis in SPSS.

**CONCLUSION**

Patient privacy is an important aspect to measure before implementing any technology such as telemedicine, the aim of the research is to measure the privacy of patient in developing countries in general and Iraq to be a case study. A pilot study has been done to measure the reliability of the questions and it shows that the value is accepted, 35 questionnaires was distributed at Baghdad medical city 5 had missing data and it had been ignored. The total physicians who work in the 5 hospitals are 1386. The size of the sample is 500. At 5 hospitals from Baghdad medical city, 324 of them returned the questionnaires back, 12 of them were, thus 312 usable responses and a usable response rate of 62.4%. The result showed patient privacy has negative effort and it does not support the telemedicine project in Iraq.

**REFERENCES**


