

Assessing the Attitude of the Physicians towards e-prescribing in Chennai

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Abstract

Electronic prescribing simply means writing the prescriptions with the support of hand held personal digital assistant and touch screen or it could be typed in using a laptop or a personal computer. E-prescribing also is referred to as a means of sending prescriptions electronically from a doctor to a pharmacist or a patient. However, in either case, there should be minimal or no usage of paper is strictly adhered to (Spooner, 2005). Although e-prescription has many benefits associated with it, the adoption rate in the country is very less. Many factors could be attributed to the slow adoption of e-prescription out of which the attitude of physicians play a major role. Therefore the study aims to assess the efficiency of using e-prescribing facility. This is a descriptive study which involves analysis of the collected data through questionnaire. Simple random technique of selecting the samples was used. Hundred physicians were approached with the help of the consultancy, out of which 90 physician responded. Survey was also conducted through mail. The result shows that majority of the physicians had positive attitude towards e-prescription. The experience of the physician and E-prescribing facility helps to spend lesser time on prescribing the drugs when compared to hand written prescribing ($P < 0.05$). The electronic prescriptions will improve the competence of health care system, when the physicians start using it in their practice. The greatest challenge in e-prescribing is there is no standard guidelines, cost incurred, security and confidentiality of the information prescribed by the physician.

Key-words: Attitude, Medication, E-prescription, Physician.

1. Introduction

The world is developing at such an astonishing speed that it is necessary for every one of us to remain updated to maintain the pace. Digitalization is one of the remarkable change that is happening in the universe. The digitalization that takes place in the hospital industry is indispensable as well.

Gone are those days where physicians had to write manually to prescribe the medicines. The unclear handwriting in the prescription often led either to misinterpret the medicines or incorrect filling of the prescriptions. At times, the unavailability of the doctors in the hospital/clinic to solve the confusion might lead to the long waiting time of the patients. The technology that was developed to solve all these problems is “e-prescription” or “Electronic prescription”. The use of this technology in the health care industry tends to resolve the problems that usually arise due to some of the outdated techniques like handwriting scripts, faxing, telecommunications, etc. The basis of electronic prescribing is the usage of computers or handheld personal digital assistant to input the prescription. It can also be done with the help of laptops and personal computers. Not using the paper for prescribing is the core process that makes it electronic prescribing. Achieving the fulfillment of the patients’ prescription is one of the most important benefits that patients can get out of this. Reducing the number of lost prescriptions, eliminating the errors that arise due to handwriting errors, notification of drug interaction & allergies, improving patients’ adherence to medication are some of the other advantages that can be achieved by using this technology. Although e-prescription has many benefits associated with it, the adoption rate in the country is very less. In order to increase patient satisfaction, and to satisfy the expectations of the patient, the health care industry must indulge itself in adapting to digital health systems in which e-prescribing is one of the major components. Many factors could be attributed to the slow adoption rate of e-prescription in the healthcare industry, out of which the attitude of physicians plays a major role. Before getting into the implementation/adoption to an e-prescribing facility, it is necessary to find out the attitude of the physicians towards e-prescribing, which this paper aims to assess.

Lina Hellstorm, et.al, (2009) made an effort to evaluate the attitude of the physicians towards e-prescribing in which most of the respondents believed that they could give better services through e-prescribing. Jason F. Cohen, et.al, (2013) tried to find out whether the physicians in South Africa were ready to accept the e-prescribing facility and engage with the facility. The physicians showed their strong intentions to use the facility when given a chance and opportunity. Tsyben A, et.al, (2016) in their study on “Assessing the impact of e-prescribing facility in the pediatric department” revealed, “implementation of a new electronic system had reduced prescribing errors but has also resulted in new challenges”. Steinschaden T, et.al, (2009) through their comparative web survey conducted in Austria and Sweden found that physicians’ time being saved, improved “safety and better service for patients were the potential success factors for the implementation of e-prescribing in Sweden”.

2. Materials and Methods

The main objective of the study is to assess the attitude of the physician on the efficiency of using an e-prescribing facility. The study was conducted in various hospitals in Chennai from February, 2018 – April, 2018. All the primary data required for the study were collected through a questionnaire. The questionnaire was designed based on the objectives of the study which was then distributed to physicians in various hospitals across Chennai. A simple random technique of selecting the samples was used. A pilot study was conducted for 13% of the sample size i.e. 12 physicians to pre-test and validate the questionnaire. The Cronbach's alpha calculated was found to be 0.708, which in turn represented the reliability of the questionnaire. Physicians specialized in various specialties like cardiology, orthopedics, gynecology; general medicine, dental medicine, etc were approached to participate in the study. Around 90 physicians participated actively in the study, which was then analyzed with the help of various statistical tools like ANOVA, Multiple linear regression, Correlation, Weighted average, Percentage analysis, etc.

Limitations: AYUSH doctors were excluded from the study. Twelve weeks of research was not enough to approach the physicians in Chennai.

3. Data Analysis, Results & Discussions

A. Assessing the Efficiency of Using e-prescribing Facility

Achieving efficiency by using an e-prescribing facility in a healthcare set up is considered one of the important perceptions behind this core concept. Around 92% of the respondents believed that the available information about the medical history of the patient would enable the physician to keep track of the medications of the patients. Only less than 8% of the respondents did not believe that e-prescription would help “to prevent calling back from pharmacies for potential safety problems”. The results are depicted in Table 1.

Table 1 - Efficiency of Using e-prescribing Facility

S. No	Description	SB	B	N	DB	SDB	Total
1	“Keeping track on medications of patients”	42	41	7	0	0	90
2	“To prevent calling back from pharmacies for potential safety problems”	11	44	28	5	2	90

Source: Primary

The respondents had given the highest weighted average (4.38) for information regarding the patient’s history in e-prescription would enable them “keeping track on medications of patients” and the lowest weightage (3.63) is given for prevention of recalling medicines from the pharmacy for safety issues.

B. Evaluation of Adequacy of Medication History of the Patients in Improving the Patient Safety

More than 80% of the respondents believed that the drug coverage information in the prescribing system would help to reduce medication errors which in turn would help in improving the safety of the patient. Only 1% of the respondents did not believe that the adequacy of medication history would help to enhance adherence to drug treatment by accessing the patient’s drug formulary. The above result was drawn from table 2.

Table 2 - Adequacy of Medication History

S.No	Description	SB	B	N	DB	SDB	Total
1	Helps to reduce medication errors	37	37	11	5	0	90
2	Helps to enhance adherence to drug treatment by accessing patient’s drug formulary	18	49	14	9	0	90

Source: Primary

C. Appraisal of the Drug Coverage Information in the Prescribing System

The information about the drugs that are covered for the patients plays an active role in enhancing the use of e-prescribing facility. More than 85% of the respondents believe that the drug coverage information in the prescribing system would help to reduce the complications that arise due to lost prescriptions. More than 35% of the respondents did not believe that the drug coverage information would help to spend lesser time on prescribing the drugs when compared to handwritten prescribing. The respondents had given the highest weighted average (4.22) for drug coverage information in the e-prescribing system would help to reduce the number of lost prescriptions and the lowest weighted average (2.96) for drug coverage information in the e-prescribing system would reduce the risk of re-admission. ANOVA test revealed that there was a significant difference between experience and e-prescribing facility would help to spend lesser time on prescribing the drugs when compared to handwritten prescribing.

D. The Strengths Associated with e-Prescribing Facility

More than 75% of the respondents believed that eliminating the need for handwriting interpretation is the strength associated with e-prescribing. About 15% of the respondents did not believe that an e-prescribing facility would help in improving safety. The results were drawn from table 3.

Table 3 - Strengths Associated with e-prescribing

S.no	Description	SB	B	N	DB	SDB	Total
1	Eliminate the need for handwriting interpretation	32	38	14	4	2	90
2	Improves safety	24	30	21	14	1	90

Source: Primary

The weighted average was calculated and it showed that the respondents had given the highest weighted average (4.04) for eliminating the need for handwriting interpretation is the strength associated with e-prescribing and the lowest weighted average (3.69) for improving safety is the strength associated with e-prescribing.

E. Weakness Associated with e-Prescribing Facility

It was found that 68% of the respondents believed that no warning of high doses in the e-prescribing facility is one of the strong weaknesses associated with it. 24% of the respondents did not believe that e-prescribing facility being complicated in general is the weakness that is associated with it.

The respondents had given the highest weighted average (3.87) for insufficient warning of drug interactions was the weaknesses associated with e-prescribing and the lowest weighted average (3.40) for complicated in general, e.g. many mouse clicks was the weaknesses associated with e-prescribing.

Through the Analysis of Variance test, it was found that there was a significant difference between age and Insufficient warning of drug interactions.

F. Barriers in Using or Adopting of e-Prescription

Around 81% of the respondents believed that effective e-prescription requires computer skills and knowledge which are actually considered to be a myth that is existing among them. Less than 7% of the respondents did not believe that physical examination of the patients being not satisfactory & prescription data transferred electronically might be breached could be the impactful barrier for the adoption of e-prescription (Table 4).

Table 4 - Barriers in Using e-prescription

S.no	Description	SB	B	N	DB	SDB	Total
1	Effective e-prescription requires computer skills and knowledge	28	45	11	5	1	90
2	Physical examination of the patients is not satisfactory	27	35	22	6	0	90
3	Prescription data transferred electronically may be breached	22	46	16	6	0	90

Source: Primary

When coming to the weighted average, the respondents had given the highest weighted average (4.04) for effective e-prescription, which requires computer skills, and knowledge as the barriers in the usage and adoption of e-prescribing and lowest weighted average (3.86) for implementation cost is too high as the barrier to the use/adoption of e-prescribing.

Correlation

Correlation test was performed to study the relationship between the different variables.

Table 5 - Relationship between Variables

Dimensions	Efficiency of using e-prescribing facility
Adequacy of medication history	0.373
Appraisal of the drug coverage information	0.080
Strengths associated with e-prescription	0.322
Weakness associated with e-prescription	0.115
Barriers to adaptation	0.067

Source: Primary

A positive correlation was observed between adequacy of medication history, appraisal of the drug coverage information, strengths associated with e-prescription, weakness associated with e-prescription, barriers to adaptation & efficiency of using e-prescribing facility. Among all, a high correlation of 0.373 is observed between adequacy of medication history & efficiency of using e-prescribing facility which shows a 37.3% positive correlation.

Multiple Regression

Multiple regression test was performed to find out whether there is an impact of the adequacy of medication history, appraisal of the drug coverage information, strengths, weakness, barriers on the efficiency with regard to the opinion of the respondents. The efficiency of using an e-prescribing facility was taken as a dependent variable and the adequacy of a medication history of the patients in improving the patient safety, appraisal of the drug coverage information, strengths associated with e-prescribing, weakness associated with e-prescribing & Barriers to adaptation/implementation were taken as independent variables. The result drawn is as follows (Table 6 & Table 7):

Table 6 - Dependent Variable – Efficiency of Using e-prescribing

Multiple R	0.578
R ²	0.334
F Value	8.439
P Value	P < 0.001

Source: Primary

Table 7 - Independent Variables with their P Values

Independent variables	Beta value	P Value
The adequacy of medication history of the patients in improving the patient safety	0.428	0.000
Appraisal of the drug coverage information	-0.417	0.002
Strengths associated with e-prescribing	0.621	0.000
Weakness associated with e-prescribing	0.048	0.618
Barriers to adaptation/implementation	0.036	0.692

Source: Primary

The multiple regression was run to predict the efficiency of using e-prescribing from the adequacy of a medication history of the patients in improving patient safety, appraisal of the drug coverage information, strengths associated with e-prescribing, weakness associated with

e-prescribing, and barriers to adaptation. These variables statistically significant predicted efficiency of using e-prescribing, $R^2 = 0.334$, $F = 8.439$, $p < 0.001$. The three variables added statistically significant to the prediction, $p < 0.001$ except weakness associated and barriers to adaptation.

4. Suggestions

Based on the analysis and findings, the following are the suggestions:

- Reducing prescribing & dispensing errors is one of the key strengths associated with the e-prescription system. By achieving the same, doctors could save; their time thereby more patients can be seen. Thus, an e-prescribing facility could increase the patient flow to the hospital.
- The problem of displaying similar names at the same time could be solved by giving a unique identification patient ID for the patients. This could reduce the confusion that arises due to similar names.
- E-prescription also facilitates the transfer of information within the various departments of the hospital. This particular aspect could greatly enhance the integrity of the Hospital Information System that is existing in the hospital.
- To have strong government regulations on e-prescribing.
- Apart from the physicians, other stakeholders like hospital management, government, patients also play a major role in the adoption of e-prescribing facilities. Figure 1 gives suggestions to each of the parties involved.

Figure 1 - Suggestions to Stakeholders

Statutory regulations	Management support	Physicians	Patients
Government should take initiatives to start e-prescription in government hospitals.	Training on computer skills development to be imparted to physicians	Should dedicate time to learn & adapt to new technologies, which will save their time in future	Make E-prescription user-friendly, so that patients feel easy to use
Tie-ups with software development companies and customize according to the basic needs.	Incentives and special recognition can be given to those who effectively use the facility.	Should understand the basic concepts behind e-prescription and its associated benefits & try to practise them	Potential benefits like, presence of past medication history etc. should be taught to the patients
Create awareness about potential benefits of e-prescribing facility.	More innovative approaches like web based and cloud based solution can be used.	Myths regarding e-prescription that exist in the society should not be bothered about.	Provide confidence that their information is kept safe and it cannot be breached through any of the means.

5. Conclusion

The primary goal of this project is to study the attitude of physicians towards e-prescribing. From the overall project, it was found that the majority of the physicians had a positive attitude towards e-prescription. When the physicians accept and are ready to use it in their practice, “electronic prescriptions will surely boost the competence of healthcare systems”. For a well-built healthcare delivery system and a wider range of benefits, “the government should support to provide incentives act like boosters to promote the market of e-prescription adoption”. Even though the initial stages of implementation appear to be slow, the advantage associated with it in the later stage is just unexplainable.

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