

Assessing the Attitude of Consumers towards E-prescription (e-rx) with Reference to South Mumbai

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[Abstract] During COVID-19 pandemic, many countries' government' decision was to shift to telehealth and e-prescription methods in order to reduce transmission of the Covid virus and protect individuals from contagious diseases. Before lockdown and COVID19 pandemic under the Medicines Act, 1981, only original hard copies of prescription with an original clinician's signature and dated was legal, but during COVID-19 pandemic e-prescription helped the clinicians to work from home and encouraged contactless transmission of prescriptions. The e-prescription has taken the place of paper and faxed prescriptions. It is also called a digital prescription. The present paper will assess the consumers' attitudes towards e-prescription of South Mumbai. Primary and secondary data will be sufficient for achieving objectives and to assess the hypothesis of the study. The survey method used for collecting primary data. A sample of 50 consumers will be targeted from South Mumbai. The survey was based on structured questionnaires designed for the same. Secondary data were collected from banks, newspapers, research agencies, Government Authorities, Government publications, periodicals, magazines, and websites. It was concluded with the benefits, advantages of e-prescriptions, and precautions taken while adopting the same in the present scenario. At the end of the study, suggestions are given for improving, adopting secured and accurate method of e-prescriptions, which will be helpful to the government's policy, patients, and clinicians (sellers), improving secured financial transactions and for growth of pharmaceutical industry.

[Keywords] e-prescription, telehealth, consumers' attitude, digital prescription, pharmaceutical industry

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Introduction

During the COVID-19 pandemic, many countries' government's decision was to shift to telehealth and e-prescriptions in order to reduce transmission of virus and protect individuals from contagious diseases. Before the lockdown and the COVID19 pandemic, under Medicines Act, 1981, only an original hard copy of a prescription with an original clinician's signature and date was legal, but during the COVID-19 pandemic, e-prescriptions helped clinicians work from home and encouraged contactless transmission of prescriptions. The e-prescription has taken place of paper and faxed prescriptions. It is also called a digital prescription, which helps physicians send error-free, understandable, and accurate prescriptions to avoid illegible prescriptions and for protecting patients' health.

According to Fortune Business Insights (2020), in 2018, the market of the e-prescription was US \$863.64 million, and it is expected that it will increase to US \$4017.79 million by 2026.

Due to digitalization, the use of e-prescriptions has increased all over the world in places such as North America, Latin America, Europe, Asia Pacific, Africa, and Middle Eastern countries. Ukraine made it mandatory for reimbursement. In 2018, US \$399.61 million was the status of the e-prescription market in North America.

Becker's Hospital Review (Hospital Magazine) Report (2018) focused on the details of growth in e-prescriptions; e-prescribing zoomed over 500%. In 2017, Healthcare providers sent 77.33 million prescriptions to pharmacies, which were more than 12.8% of 2015 and many more.

Vantage Market Research, April 04, 2022, reported that the e-prescription market at the global level

shows remarkable growth of 22.5%, and it will increase to US \$5,346.62 million by 2028 and will witness CAGR of 22.5% from 2022 to 2028.

The Economic Times (2021) elaborated on the benefits of e-Rx over the paper Rx, like legible handwriting so misinterpretation of instructions can be avoided, it can be preserved, it provides easy and quick accessibility, eliminates criminal forgery of prescriptions, better treatment and it saves time and money for patients.

The E-prescription has taken the place of the old-age papers very fast due to digitalization, modern technology, a literate workforce, and, most important, the COVID19 pandemic. Nowadays, the healthcare industry is more concerned about patients' health and safety, to eliminate medical errors, to reduce the death rate worldwide. Thus, the e-prescription, or, electronic prescription, became more popular worldwide. It has been noticed that the study of consumers' attitudes towards e-prescriptions in South Mumbai has not been covered for research. So, the present study will help in knowing various factors that are influencing South Mumbai consumers to accept the e-prescription.

Review of Literature

Bader and Srinivas (2021) focused on the comparative findings in adopting the e-prescription system, along with limitations and challenges faced by systems, in eight major countries in the world.

Peltoniemi, Suomi, Peura, et al. (2021) examined the impact of digitalization on the disbursing process of e-prescriptions and the socio-technical orientation of a pharmacy because without adopting innovative technology, technical knowledge digitalization in health is not possible. Schiff, Mirica, Dhavle, et al. (2018) suggested that improved and redesigned systems in e-prescriptions will result in getting safer medications to patients. Soto Carlos (2018) focused on the e-prescriptions' benefits to the health care industry and patients. Wrzosek, Zimmermann, and Balwicki (2021) elaborated on the functionalities and features of e-prescribing, which is expected by the general public and patients, along with the factors influencing the e-prescription from the patients' points of view. From the above studies, it is found that there is a gap in the collected research area, and it presents a valuable research area. So, the present study will focus on assessing the attitude of South Mumbai consumers' towards e-prescriptions.

Objectives of The Study

- To identify demographic variables of the consumers and to analyze the relationship in the demographic variables of consumers with their behaviors towards e-prescriptions.
- To identify factors responsible for consumers' attitudes towards e-prescriptions.

Hypotheses of The Study

Ho: There is no significant relationship between the gender of the respondents (the consumers) and easy-to-purchase medicine online is the influencing reason for e-prescriptions.

H₁: There is a significant relationship between the gender of the respondents and easy-to-purchase medicine online, which is the influencing reason for e-prescriptions.

The most influencing reason for consumers' attitudes towards e-prescriptions is a reduced risk of prescription error.

Methodological Tools Administered

Research Design

The present study is based on descriptive, quantitative, empirical, and survey research. The present study is survey research because it focused on primary data for collecting information from the respondents of South Mumbai. The researcher used primary and secondary data to achieve the objectives of the study.

Primary Data: This data was collected with the help of a survey; it was conducted in South Mumbai. Using the convenience method, a sample of 50 consumers was targeted from South Mumbai. The percentage

method was used to analyze the primary data. The survey was based on a structured questionnaire designed for the same. **Secondary Data:** Research agencies, research articles/papers, newspapers, magazines, periodicals, government publications, and websites were used in collecting secondary data.

Tools of Analysis: In the present research, frequencies, percentages, the ranking method, the weighted average method, and the chi-square test are used for achieving research objectives.

Factors Influencing for E-prescription (E-R_x) Model

The model focused on a versatile area of health-care, which is assessing consumers' attitudes towards use of the e-prescription in South Mumbai, which will help to understand the attitudes of South Mumbai consumers' and factors influencing use of the e-prescription. The sample of 50 consumers from South Mumbai was targeted for collecting data. The significance of the approach is to know consumers' psychology, hospitals' tendencies, office-based physicians' attitudes, pharmacies' attitudes, and important factors that influence e-prescriptions. An analysis of consumers' behaviors towards use of e-prescriptions will help digital service providers in improving their performance and tackling consumer problems. The model will be helpful to hospitals, office-based physicians, pharmacies, small and large banks, financial institutions, and firms for developing secured and risk/error free e-prescriptions. A clear understanding of the trend towards e-prescription will help the government by framing new policies that will be helpful to consumers and health-care providers. A study assessing consumers' attitudes toward e-prescriptions will be helpful to digital service provider companies for developing their businesses. This study will be also helpful to the future students, researchers, practitioners, and educationalists for achieving their respective performances. The research model is limited to 50 respondents of South Mumbai and has restricted objectives and methodology for the study.

Empirical Results of Descriptive Statistical Analysis of E-Prescription

Let's know about demographic variables of consumers' who are using E-prescription.

Table 1

Distribution of Respondent on the basis of Gender

Gender	Frequency	Percentage
Female	18	36
Male	32	64
Total	50	100

Table 1 shows 64% of the respondents were male, and 36% were female.

Table 2

Marital Status wise Distribution of Respondent

Marital Status	Frequency	Percentage
Unmarried	21	42
Married	29	58
Total	50	100

Table 2 shows 58% were married, and 42% were unmarried.

Table 3*Education wise Distribution of Respondent*

Education	Frequency	Percentage
Under-Graduate	08	16
Graduate	16	32
Post-Graduate	19	38
Other	07	14
Total	50	100

Table 3 shows 32% were graduates, and 38% post-graduates, were highest number of respondents for the study.

Table 4*Distribution of Respondent based on Age*

Age Group	Frequency	Percentage
18-30 Years	09	18
31-40 Years	15	30
41-50 Years	18	36
51 & above	08	16
Total	50	100

Table 4 shows 9 respondents were in the 18-to-30 years age group, 15 were from 31 to 40 years, 18 were from 41 to 50 years old, and 8 were from 51 and above years; 36% of the respondents were from the age group of 41-50 years, which was highest for the study.

Table 5*Occupation wise Distribution of Respondent*

Occupation	Frequency	Percentage
Business	17	34
Employee	18	36
House wife	10	20
Student	03	06
Not Working	02	04
Total	50	100

Table 5 shows respondents according to occupation; 18 were employees, the largest group; 17 were businessmen, 15 were from other categories for the study.

Table 6*Work Experience (in years) wise Distribution of Respondent*

Work Experience	Frequency	Percentage
Less than 02 years	05	10
02- 05 years	10	20
05- 10 years	15	30
More than 10 years	16	32
Not Applicable	04	08
Total	50	100

Table 6 shows respondents according to work experience; 16 respondents had work experience of more than 10 years, and 15 had 5-10 years of work experience.

Table 7*Distribution of Respondent on the basis of Monthly Income*

Monthly Income Range	Frequency	Percentage
Less Than `20,000/-	07	14
`20,001/- to `35,000/-	08	16
`35,001/- to `50,000/-	18	36
`50,001/- and more	17	34
Total	50	100

Table 7 shows respondents on the basis of monthly income; 18 are from `35,001 to `50,000/- monthly income group, 17 are from group of `50,001/- and more, and 15 are from the group of less than `35,001.

Table 8*The months/years (frequency) E-prescription used by Respondents*

Months/Years	Frequency	Percentage
Less than 06 months	10	20
06 to 12 months	14	28
01 to 03 years	17	34
04 years to 06 years	05	10
07 years & above	04	08
Total	50	100

Table 8 shows frequency of usage of e-prescriptions; 28% of the respondents had used it for 6 to 12 months, 34% of the respondents had used e-prescriptions for 1 to 3 years, which was maximum for the study.

Let's Test Hypothesis with the Help of Chi-Square.

H₀: There is no significant relationship between the gender of respondents of the consumers, and easy-to-purchase medicines online is the influencing factor for e-prescription.

Table 9*Demographic Details with Factors of Respondents*

Demographic Variables		Easy to purchase medicine online Influencing Factor			Total	Chi Square
		Disagree	Neutral	Agree		
Gender	Male	09	01	22	32	11.5326
	Female	14	00	04	18	
	Total	23	01	26	50	

Interpreting the Result

$$X^2 = 11.5326$$

Degree of freedom in the problem $(r-1) * (c-1) = 02$

The table value of X^2 for 2 degrees of freedom at 5 percent level of significance is 5.991. Comparing the calculated and table values of X^2 , we find that the calculated value is more than the table value. Thus, we reject the (H₀) null hypothesis and accept the alternate hypothesis; we can conclude that "There is significant relationship between the gender of respondents of the consumers, and easy-to-purchase medicines online is the influencing reason for e-prescriptions."

Let's Test Another Hypothesis With The Help Of The Ranking And Weighted Average Method.

The most influencing, responsible reason for consumers' attitude towards e-prescriptions is reduced risk of prescription error.

Table 10
Analysis of Ranking of Attributes by Respondents

Attributes/Reasons for preference of E-prescription	Rank (No. of Respondents)					Total Score	Rank
	1	2	3	4	5		
No need to visit Doctor's Clinic	12	11	05	11	11	152	6
Easy to preserve and access of all previous E-prescription	18	17	02	06	07	183	1
Easy to purchase medicine Online	16	19	01	06	08	181	2
To overcome illegible (not so clear) handwriting on E-prescription	18	17	00	07	08	180	3
Greater control over the prescribed drugs	13	11	05	12	09	157	5
Reduced risk of prescription error	14	15	03	08	10	165	4

Table No. 10 shows the analysis of the ranking given by the respondents to various factors influencing the usage of e-prescriptions. By using the weighted average method, the study reveals that easy-to-preserve and access of all previous e-prescriptions, easy-to-purchase medicine online and to overcome illegible (not so clear) handwriting on e-prescriptions are the major factors influencing the respondents.

Table 11
Weighted Average Method for Ranking of Attributes

R A N K	W E I G H T	No need to visit Doctor's Clinic		Easy to preserve and access of all previous E-prescription		Easy to purchase medicine Online		To overcome illegible (not so clear) handwriting on E-prescription		Greater control over the prescribed drugs		Reduced risk of prescription error	
		X1	WX1	X2	WX2	X3	WX3	X4	WX4	X5	WX5	X6	WX6
1	5	12	60	18	90	16	80	18	90	13	65	14	70
2	4	11	44	17	68	19	76	17	68	11	44	15	60
3	3	05	15	02	06	01	05	00	00	05	15	03	09
4	2	11	22	06	12	06	12	07	14	12	24	08	16
5	1	11	11	07	07	08	08	08	08	09	09	10	10
Total		50	152	50	183	50	181	50	180	50	157	50	165
CW		3.04		3.66		3.62		3.60		3.14		3.30	
Rank		6		1		2		3		5		4	

$$CW \text{ _ Calculated Weighted } = (\sum wxn / \sum xn)$$

Table 11 reveals that easy-to-preserve and access of all previous e-prescriptions is the most influencing factor for e-prescription. So, hypothesis - The most influencing responsible reason for consumers' attitude towards E-prescription to reduced risk of prescription error is rejected.

Result of Hypotheses

Hypotheses	Accepted/Rejected
There is no significant relationship between the gender of the respondents of the consumers and easy-to-purchase medicine online is the influencing factor for e-prescriptions.	Rejected
The most influencing responsible reason for consumers' attitude towards e-prescriptions is greater control over the prescribed drugs.	Rejected

Summary Output of Statistical Analysis of E-Prescription

The present study focused on 64% males and 36% females for the study. The marital status showed that 58% of the respondents were married; 42% were unmarried. The educated respondent of the study were 32% graduate respondents and 38% postgraduate, which were highest respondents for the study. The different age groups for the study were selected; 9 of the respondents were from the age group of 18 to 30; 15 were from 31 to 40 years, 18 were from 41 to 50 years, and 8 were from 51 and above. Of the respondents, 36% were from the age group of 41-50 years, the oldest for the study. The study focused on 18 respondents who were employees, which is highest; 17 were businessmen; and, 15 were from other categories for the study. The study focused on the 16 respondents who had work experience of more than 10 years; 15 had 5-10 years of work experience. The study revealed that 18 respondents from the `35,001 to `50,000/- monthly income group, 17 from group of `50,001/- and more, and 15 from the group of less than `35,001/. The study revealed 34% respondents had used e-prescriptions for 1 to 3 years, which was maximum for the study. By using the weighted average method, the study revealed that easy-to-preserve and access of all previous e-prescriptions, easy-to-purchase medicine online and to overcome illegible (not so clear) handwriting on e-prescriptions are the major factors influencing the respondent for e-prescriptions. The Chi-square Test helped to find that there is significant relationship between the gender of the respondents and easy-to-purchase medicine online is the influencing factor for e-prescriptions. It means that female and male consumers have differences of opinion regarding purchasing medicine online.

Conclusion

At the end, it can be concluded that digitalization has changed the mode of every transaction worldwide, so it has impact on the health-care industry, as well. The health-care industry is, also, more concerned about patients' health, so adopted the new method of e-prescription (digital prescription) and telehealth. It is the fastest method to get medicines, it is paperless (so we can say that it is environmentally friendly). E-prescriptions are becoming more popular due to their benefits to the consumers and a concerned industry. It is the need of the hour, also. The COVID-19 pandemic is, also, a major factor responsible for the growth of digitalization in prescriptions, worldwide, which has benefited the health-care industry and related sectors. If the health-care industry and consumers are well versed with technology, then the e-prescription method's benefits can be enjoyed.

Suggestions

If the pharmaceutical industry needs growth in e-prescriptions, then it has access to easy and simple software that should be introduced to the consumers through awareness campaigns and promotional techniques, so that consumers will be able to handle the software easily and will be able to enjoy the benefits. The government, also, should take the initiative to develop digitalization of prescriptions with reimbursement facilities or subsidies on the e-prescription. This will help avoid misinterpretation of instructions, the prescription history can be preserved, and it will have easy and quick accessibility, eliminate criminal forgery of prescriptions, give better treatment, and save time and money for the patients. In order to increase the number of e-prescription transactions, digital service providers should introduce easy, user-friendly, safe, secure, and simple software that will help the consumers handle easily and, at the same time, focus on creating awareness on usage of the system, especially elderly people, females, and low-income groups.

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