

Contentment Of Patients With The Service Quality Of M- Healthcare - A Growing Impact In India

Dr Meena G

Assistant Professor Of Commerce, Salem Sowdeswari College, Salem - 636010

How to cite this article: Dr Meena G (2024) Contentment Of Patients With The Service Quality Of M-Healthcare - A Growing Impact In India. *Library Progress International*, 44(3), 15655-15661

ABSTRACT

To improve the quality of service in any sector, getting to know the satisfaction quotient of end users is indispensable. The purpose of this study was to benchmark user satisfaction of the quality of service in the mobile healthcare sector. Digital and cloud-based technology has played a vital role in the management of chronic diseases by medical professionals and patients. This study was based on the feedback of 158 patients with chronic disease who have used mobile healthcare services. Primary data for the study was collected using the structured interview schedule. Key variables influencing user satisfaction like role of technology, consultants, supply of information and cost were chosen for the study. The study found that cost of service provided and continued use of the M - Healthcare app had a profound influence on patients' satisfaction.

Keywords: Mobile healthcare, chronic diseases pandemic, Patients satisfaction

INTRODUCTION

Technology is a powerful tool that enhances the quality of life of people. One of the cutting edge technology which has gained immense popularity in recent times is Artificial Intelligence. The digital healthcare sector is one of the fastest growing sectors in India where Artificial Intelligence plays a pivotal role. Development of digital healthcare sector is propelled by wide use of mobile phones, ease of accessibility and cost-effective net connectivity¹⁰. India's mobile cellular subscription per 100 people is 43.83%. India has merely 1 medical professional for close to 1700 people, wherein World Health Organization recommends a minimum ratio of 1:1000¹⁰. Amidst the Covid-19 pandemic, there has been an increasing interest in the use of smartphone-based medical and healthcare applications. Healthcare applications helps medical professionals to connect virtually with their patients, drastically reducing the need for direct visits thus preventing the transmission of the virus. Healthcare has shifted from the hospital to a clinic, from a clinic to a home and from a home to 24x7 round-the-clock healthcare provided via mobile phones (Sangeeta Reddy). India has a chronic disease load in nearly 20% of its population where 200 million people are afflicted by some sort of chronic disease. Mobile phones and Bluetooth connectivity support self- management and lifestyle changes for chronic diseases such as diabetes¹. Smartphone apps have incredible potential to improve a patient's self - management of a chronic disease (Urmimala Sarkar). A major challenge faced by healthcare institutions is offering consistently high quality service to patients at an affordable cost²⁴. The paradigm shift towards preventive strategies and enhanced funding for mobile healthcare start-ups has been the major impetus for market growth¹⁰. Technological advancements in healthcare apps offering accurate health data to people on the move has piqued the interest of customers¹⁰.

Beside technological growth and a disconcerting rise in the prevalence of chronic disease, strategic collaboration and a sustainable business model remain 2 major factors for companies to create structured revenue channels¹⁰. Insufficient network coverage and data security breach are few factors which impede market growth. India needs novel and innovative strategies like m-health to provide healthcare and compensate for the paucity of healthcare workforce and infrastructure¹¹ as there is just 1 medical professional for nearly 1700 people in India when World Health Organization recommends a minimum ratio of 1:1000. Based on data garnered from Google Trends, a tool which aids in understanding relative interest in a specific search term, India figures among the top five countries for search terms like 'mobile health', 'health apps', medical apps and M health¹¹.

Reviews

Eirik Arsand et al (2010) through his research titled "Mobile phone based self-management tools for type 2

diabetes” found that use of the application was hassle free for the most part save a few technical issues.

Arsand et al (2012)¹ in his research article titled “Mobile health applications to assist patients with diabetes: Lessons learned and design implications” specifies opportunities for developing and leveraging mobile health interventions in diabetes treatment and self-management based on various feature sets. Findings were based on user experiences, design preferences, service providers, app developers and researcher experience. Some of the design implications from the study are 1. Blood glucose meters should send data directly to a patient’s smartphone. 2. Focus on making a phone-based diary user friendly and motivational for those with TDM. 3. Nutritional information on smartphones should be easy to read. This study highlighted the importance of engaging representative end users in all phases of design and implementation.

El-Gayar O(2013)¹³ in his article titled “Mobile applications for diabetes self- management: Status and Potential” endeavored to determine whether mobile applications for diabetics helped self-manage their condition. The study concluded that available applications definitely helped people self- manage diabetes.

Arnold et al (2014)¹⁵ in their study titled “Mobile applications for diabetics: A systematic review and expert-based usability evaluation” considered the special requirements of diabetics, age 50 years or older by performing an expert-based usability evaluation. This study concluded that the usability of M - app was good, but clear documentation and analytical functions low with limited accessibility features.

Mishra P K (2018)¹⁷ in his article titled “Mobile healthcare adoption in India: A comparative study” investigated the adoption of m-health app based on gender and age. This study revealed that the app was installed by more women than men and that genX had a favourable attitude than genY. The study also inferred that health apps can have women as their opinion leaders.

Abhinav Bassi (2020) in his study titled “An overview of mobile applications to support the coronavirus disease 2019 response in India” picked a sample of 50 apps out of 346 potential apps. The study deduced that health apps should have integrated teleconsultation options.

This study was conducted to assess patient satisfaction based on service quality of the mobile healthcare sector during the pandemic. This study collected primary data using the structured interview schedule which assessed the various dimensions of patient satisfaction.

This study was based on the feedback of 158 patients suffering from chronic diseases who have used mobile healthcare facilities during the pandemic. The COVID-19 pandemic has posed a myriad of challenges to the medical sector. One of the major challenge is the management of chronic diseases. Patients suffering from a chronic disease have to monitor it regularly to keep it under control. The pandemic has severely restricted the scope of patients and medical professionals to monitor and keep chronic diseases under control. Digital technology has played an indispensable role in the management of chronic diseases by medical professionals and patients. Numerous cloud-based health applications are now available for consultation and monitoring of patients with chronic diseases. These applications are a godsend for patients with chronic diseases and medical professionals to monitor their health status without the need for hospital visits. Though these applications have reduced hospital visits, assessing the satisfaction level of patients to understand the effectiveness of these mobile healthcare applications is important.

Independent variables for assessing impact on user satisfaction can be classified into four:

- Role of Technology
- Role of Consultants
- Supply of Information
- Cost

Impact of the above variables on user satisfaction was identified using the following hypotheses:

- H₁ - Role of Technology associated with patient satisfaction towards M healthcare
- H₂ - Role of Medical Professional interactivity influenced patient satisfaction with M healthcare
- H₃ - Supply of Information has a profound impact on patient satisfaction with M healthcare
- H₄ - Cost has a major impact on patient satisfaction with M healthcare
- H₅ - Continued use of M healthcare has a positive impact on patient satisfaction

The above hypotheses were transformed into a structural equation model which is presented diagrammatically using the below chart - 1.

Results

The SEM model finalised (Chart- 2) has clearly depicted the role played by the mobile healthcare sector and its impact on the patient satisfaction in the study area. The model has rendered multiple outputs that explain the relationship between dependent and independent variables of service quality of mobile healthcare. The hypotheses framed were tested and results are explained as below:

The table -1 enumerates the number of variables involved in the model that determines the efficiency of mobile healthcare. The regression weights explain the cause and effect relationship on patient satisfaction in relation to mobile healthcare. The role of patient satisfaction and its impact on continued use of mobile health care was also assessed as explained in table 2.

H₁ - Role of Technology is associated with patient satisfaction with M healthcare

Results - Technology does not influence the satisfaction level of a patient with the M healthcare as explained by the p-value of the regression estimate which is insignificant at 5%. This trend is witnessed during the pandemic. Management of chronic diseases and associated patient satisfaction with M healthcare is impacted by technology confirmed by the results of SEM analysis.

H₂ - Role of medical professional interactivity influences patient satisfaction with M healthcare

Results - Patient satisfaction with M healthcare does not have a significant relationship with the role of a medical professional engaged in the management of chronic diseases. The p-value of the relationship is statistically insignificant at 5%. The role of a medical professional does not have an impact on patient satisfaction.

H₃ - Supply of information has an impact on patient satisfaction with M healthcare

Results - Supply of information provided by M healthcare impacting satisfaction level of users based on feedback and opinions confirmed that supply of information is not related to patient satisfaction level as evident from the p-value of the test (0.472) which is statistically insignificant at 1%.

H₄ - Cost has an impact on patient satisfaction towards M healthcare

Results - Cost incurred through use of M healthcare having a major impact on patient satisfaction is explained by the significant p-value and its corresponding regression estimate of 0.573. The regression weight explains that cost and patient satisfaction have a cause and effect relationship. The results validate that the cost of M healthcare impacts the satisfaction level of those patients with chronic diseases.

H₅ - Continued use of M healthcare has a positive impact on patient satisfaction

Patient satisfaction is definitely influenced by continued use of M healthcare by patients with chronic diseases during the pandemic. The p-value of relationship is statistically significant at 5% confirming that continued use of M healthcare has a profound impact on the satisfaction level of patients with chronic diseases. The regression estimate explains the cause and effect impact caused by the changes in patient satisfaction with that of continued use.

Impression

Cost and continued use of M healthcare has a major impact on patient satisfaction during the pandemic. Cost and patient satisfaction influences a patient's decision on long- term use of digital healthcare systems well beyond the pandemic. Consistent monitoring and meticulous management of chronic diseases makes the life of both patients and medical professionals easier, but cost and associated satisfaction level of patients is of paramount importance to make it viable for the long haul.

The model fit summary (table – 3) explains the parameters that are to be evaluated to ascertain the fitness of the model. There are 7 parameters that are to be evaluated based on SEM literature. The model that has been constructed has significant model fit among all the 7 parameters above and helps to understand if model fit is achieved successfully.

Table -1
Number of Variables

S.No	Nature	Number
1.	Total Number of Variables	8

2.	Observed Variables	6
3.	Unobserved Variables	2

Table -2
Scalar Estimates - Maximum Likelihood Estimates
Regression Weights

Dependent		Independent	Estimate	S.E.	C.R.	P	Label
Patient Satisfaction	<---	Role of Technology	0.006	0.019	0.296	0.767	NS
Patient Satisfaction	<---	Role of Consultants	0.037	0.016	2.249	0.025	NS
Patient Satisfaction	<---	Supply of Information	0.016	0.022	0.719	0.472	NS
Patient Satisfaction	<---	Cost	0.573	0.074	7.740	***	S
Continued Use	<---	Patient Satisfaction	1.632	0.209	7.800	***	S

Table -3
Model Fit Summary

S. No	Parameters	Reference Range	Model Value
1.	Chi- Square (CMIN)	<5.00	4.97
2.	Goodness of Fit (GFI)	>0.80	0.944
3.	Adjusted Goodness of Fit (AGFI)	>0.80	0.908
4.	Normed Fit Index (NFI)	>0.80	0.978
5.	Comparative Fit Index (CFI)	>0.90	0.989
6.	Root Mean Squared Residual (RMR)	.<0.08	0.02
7.	Standardised Root Mean Squared Residual (RMSEA)	<0.09	0.07

Chart 1 - Model to be Tested

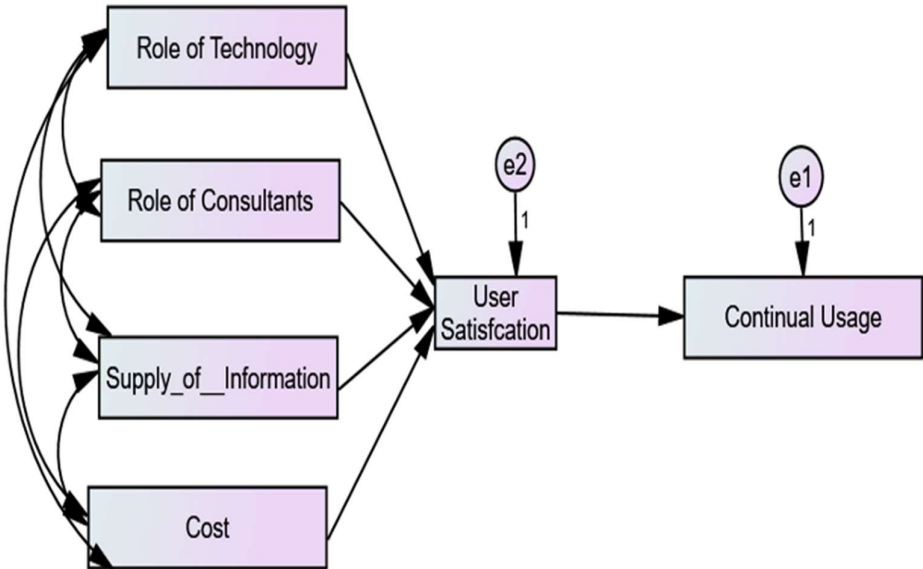


Chart-1 – Model to be Tested

Chart-2 – Evaluated Model

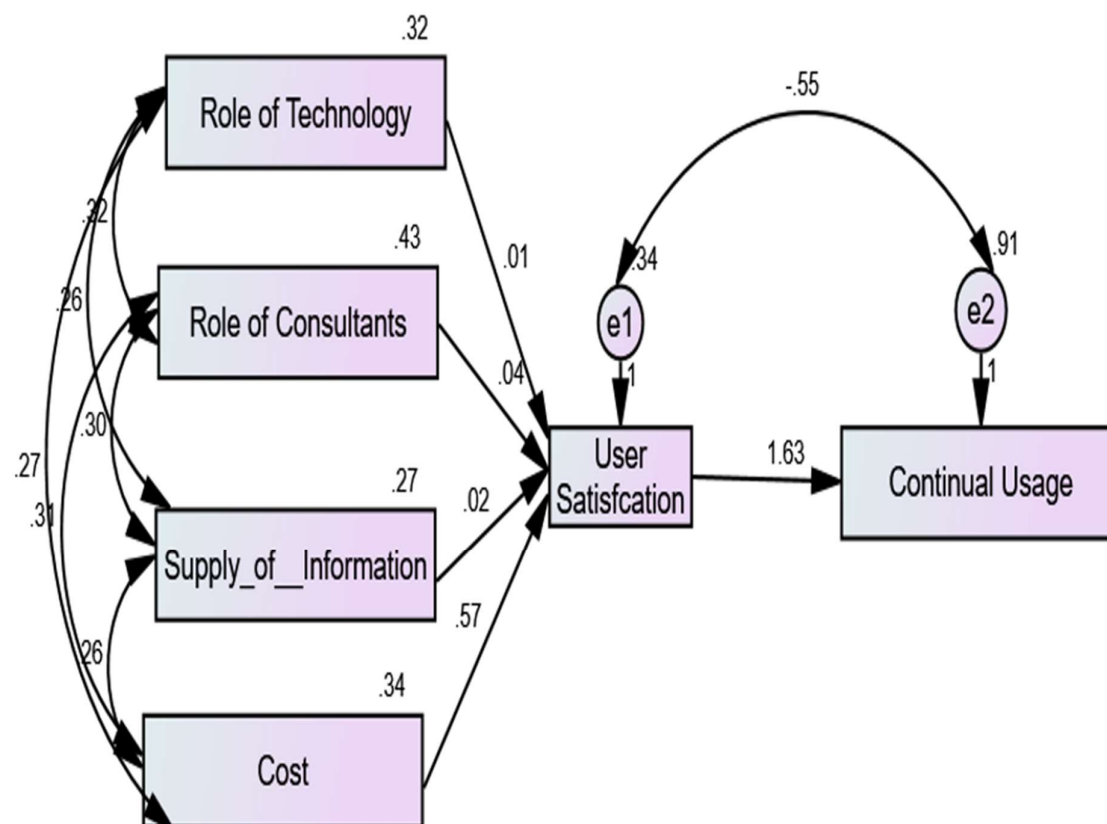


Chart 2 - Evaluated Model

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