

Sustainable Healthcare: A Comprehensive Regression Analysis of 4 A's Access, Affordability, Assurance, and Awareness in Driving Patient Motivation

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ABSTRACT

Patient motivation is an individual's intrinsic desire, willingness, or initiative to actively participate in their healthcare, make healthy choices, and engage in well-being-promoting actions. Motivated patients follow treatments, adopt better lives, participate in preventive measures, and collaborate with healthcare practitioners in shared decision-making. Accessibility, affordability, awareness, and assurance affect patient motivation, which greatly affects health-related behaviour. These four pillars shape patients' healthcare experiences and motivate them to take responsibility for their health. These factors combined can make healthcare more sustainable. Patient motivation greatly impacts sustainable healthcare. Motivated people cure diseases, use resources efficiently, engage in health-promoting habits, and improve healthcare outcomes, ensuring the long-term sustainability of healthcare services. The objective of the paper is to develop a multiple regression model to study the impact of Access, Affordability, Assurance, and Awareness on patient motivation is used to examine healthcare sustainability. The primary data for the study was collected from the patients of Madurai district. The results of the study based on multiple linear regression model reveals that correlation in impact of affordability and assurance on patient motivation. The analysis also determined investing more on creating awareness about healthcare, making healthcare affordable will boost Patient motivation also giving assurance to patients is impact patient motivation. This study provides policymakers, healthcare providers, and other stakeholders about areas that need change to sustain healthcare systems. This research contributes to the discussion on resilient, patient-centric healthcare models that promote accessibility, affordability, assurance, and awareness for long-term well-being.

Keywords: Accessibility, Affordability, Assurance, Awareness, Patient motivation, Sustainable healthcare

1. INTRODUCTION

The era of Sustainable Development Goals requires an innovative approach to conceptualizing health systems. The SDG-3, or Sustainable Development Goal 3, seeks to ensure healthy lifestyles and promote well-being for all individuals of all ages. The main focus of SDG-3 is "Universal Health Coverage" (UHC), which means that everyone should be able to obtain high-quality health services without experiencing financial difficulties when needed. Fineberg, H. V. (2012) Sustainable healthcare systems are systems that provide high-quality care and better public health without depleting the environment or causing significant ecological harm. Fineberg provided the triple an idea for a sustainable healthcare system that encompasses affordability, acceptance, and adaptation for all stakeholders, such as patients, employees, employers, hospital agencies, and government. Kruk, M. E et al., (2018) Health systems should consider the demands, experiences, and preferences of individuals especially their right for being treated with respect. Satisfaction is affected by the quality of treatment as well as care accessibility, prices, health status, expectations, direct consequences of care, and gratitude.

The influence of affordability, accessibility, awareness, and assurance on patient motivation is a crucial factor in healthcare that greatly affects individuals' involvement in and commitment to health-related behaviours. These four pillars are crucial in shaping the healthcare experience for patients and impact their motivation to engage in their well-being. Accessibility significantly influences patient motivation in healthcare. "Accessibility pertains to geographic proximity, indicating the ease

with which the client can physically access the provider's location." The features were categorized into five "As" of access to care: affordability, accessibility, availability, accommodation, and acceptability. Enhanced accessibility enables patients to receive prompt medical interventions, resulting in early detection and treatment of health conditions. Accessible healthcare encourages preventive actions including routine check-ups, screenings, and vaccines. When people can easily obtain preventative care, they are more inclined to address potential health issues early, which helps improve their long-term well-being. Affordability is based on the correlation between the provider's fees and the client's capacity and readiness to pay for services (C. McLaughlin & L. Wyszewianski 2002). Accessible healthcare encourages engagement in preventive healthcare practices, like immunizations and screenings. People are more inclined to spend in preventive healthcare treatments when the financial cost is lowered, encouraging a proactive attitude towards preserving good health. Accessible healthcare reduces the financial burden of medical costs. Patients who find healthcare prices to be acceptable and affordable are less likely to suffer from financial stress, resulting in enhanced mental well-being and a greater willingness to prioritize their health.

Healthcare awareness, especially on health issues, preventive measures, and available resources, greatly influences patient motivation. Individuals' level of awareness significantly impacts their comprehension of their health, their capacity to make educated choices, and their drive to actively participate in health-promoting actions. The main similarities included healthcare cost, insurance qualification challenges, lack of awareness of available services, and limited healthcare service availability. Despite this, patients also mentioned significant obstacles to healthcare access, such as unawareness of covered services and restricted service availability (M. Molina & M. Briggs-Malonson, 2017). Increased awareness improves health literacy, allowing individuals to comprehend health-related information, interpret medical guidance, and navigate healthcare institutions. Enhanced health literacy promotes a feeling of capability and drive to proactively handle one's health. The assurance dimension was deemed crucial in impacting both patient satisfaction and behavioral intentions. "Tangibles, reliability, and assurance were found to have a significant relationship with satisfaction" (Nor Khasimah Aliman & Wan Normila Mohamad, 2016). Confidence in the efficacy of treatments and interventions boosts patient motivation. When individuals have confidence in the effectiveness of recommended therapies, they are more inclined to follow the prescribed regimens and participate in health-promoting behaviors. Patients who are confident in the quality of care, communication, and their involvement in decision-making are more likely to engage actively in their health journey, resulting in enhanced overall well-being. The study aims to examine how accessibility, affordability, assurance, and awareness affect patient motivation.

2. LITERATURE REVIEW

Studies frequently demonstrate that accessibility greatly influences patient motivation and satisfaction. In Cole's (2018) study, it was discovered that the perceived accessibility of travel services has a substantial effect on travel motivation, where more accessibility results in higher motivation. Asher (1997) emphasized the significance of patient access in medical care, as it might impact a practice's reputation and patient population. Nagle (1991) and Kroneman (2006) highlighted the beneficial effect of accessibility on patient satisfaction, stating that direct access to healthcare providers results in increased satisfaction with general practice. The results highlight the importance of accessibility in influencing patient motivation and satisfaction. A questionnaire was used to assess the variables of geographical and functional accessibility in 322 users of a health center seeking medical care. The study revealed that the average travel time from the patient's residence to the health center was 9.3 minutes, however the average waiting time in the clinic was more than two hours (121 minutes) (M. D. del Castillo 1990). However, Jones and Tamari recognize that accessibility encompasses more than just eliminating physical obstacles. Barriers in the physical environment hinder individuals with disabilities from experiencing the same rights, advantages, and chances as other individuals in society (M. Peat 1997).

Affordability's impact on patient motivation is a multifaceted issue influenced by several aspects. Deep, D. M., et al (2024) the consultation fee is one of the factors taken into account when selecting a physician for consultation. Lozano (2015) discovered that although affordability can lower financial obstacles to healthcare, it is not the only factor influencing patient motivation. Atella (2005) provides additional evidence that patients' cost-saving actions are impacted by their income levels and the affordability of medications. According to McArtor (1992), the motivation of patients as perceived by physicians might impact the amount of follow-up treatment they receive, with patients who are poorly motivated more likely to be directed towards self-care. Hoskins (2019) emphasizes the impact of financial rewards on altering health-related behaviors, noting that their effectiveness can be influenced by aspects like equity, communication strategies, and the particular behavior being addressed. These studies indicate that affordability is a significant factor but not the sole one affecting patient motivation. 13% of patients couldn't afford essential expenses related to health issues, while 41.8% highlighted the cost of medications. Bhojak, N. p, et al (2024) The low desire to pay for health insurance hinders universal coverage.

Macleane (2000) and Maclean (2002) emphasize how personality and societal factors influence patient motivation. The 2002 study warns about the harmful effects of categorizing patients as lacking motivation. McCarron (2019) highlights the need of comprehending patient motivations to enhance engagement in healthcare decision-making. McArtor (1992) demonstrates how physician-evaluated patient motivation might impact the extent of follow-up care in a practical manner. These studies emphasize the importance of having a detailed grasp of patient motivation and how patient awareness might influence their

motivation.

3. OBJECTIVE OF THE STUDY

1. To analyse motivation of the patients
2. To analyse the impact of accessibility, affordability, assurance and awareness on patient motivation.
3. To find out relationship between gender and patient motivation
4. To find out the relationship between place of residence and patient motivation

4. METHODOLOGY

The descriptive research design was chosen to meet the objectives. Secondary data was gathered from journals, books, and articles. The data was primarily gathered via a survey. The study utilized a questionnaire as the research tool. The questionnaire contains demographic information about the participants and statements that comprise the independent and dependent variables of the study. The independent variable of the study was awareness, affordability, assurance and accessibility and dependent variable was patient motivation. The statement was constructed using a five-point Likert scale where question 1 ranges from strongly disagree (1) to strongly agree (5). The survey participants were patients from Madurai district. Madurai district was purposefully chosen due to its higher number of hospitals compared to other districts in Tamil Nadu. The hospitals in Madurai district were chosen using a basic random sampling technique. There are a total of 10 hospitals selected, including 2 government hospitals, 3 primary health centers (PHCs), and 5 private hospitals. Stratified random sampling was used to obtain samples from 10 hospitals for the study. The sample size is determined to be 125 with a 5% margin of error accepted at a significant level. We ensured the privacy and safety of the respondents in the survey. The SPSS software package is utilized for data analysis. Regression analysis is utilized to assess the influence of accessibility, affordability, assurance, and awareness on patient motivation. Cronbach's alpha was computed for all parameters of the study to assess reliability. The study's variables have a Cronbach's alpha score of 0.74. The value suggests strong internal consistency among variables. The Cronbach's alpha reliability coefficient was greater than 0.7 for assurance and motivation, suggesting strong dependability, except for attention. The awareness, accessibility, affordability factor has a value over 0.6, indicating a high level of reliability. Thus, alpha values confirm the dependability of the scales utilized in the study.

5. DATA ANALYSIS AND DISCUSSION

This part includes demographic profile of the respondents, findings of the test and results of survey.

Demographic profile of the respondents

The following **table 1** shows the demographic profile of the respondents.

Table 1: Demographic profile of the respondents

		Percentage
Gender	Male	57.6
	Female	42.4
Age	Below 18 Years	20.8
	19-35	56.8
	36-55	20.8
	Above 56 Years	1.6
Marital Status	Married	65.6
	Single	34.4
Residential Area	Rural	18.4

	Urban	72.0
	Semi Urban	9.6

From the **table 1** majority of the respondents 57.6% are male and belongs to 19 to 35 years. Moreover, majority of the respondents were married and belongs to urban area.

Gender influence patient motivation

The motivation of male and female were different. Hence there will be difference between gender and patient motivation. To find out the relationship between gender and patient motivation T test was used.

Table 2: T test to determine relationship between gender and patient motivation

Patient Motivation		Mean	Std. Deviation	F	Sig.
	Male	2.5532	.62914	3.581	.061
	Female	2.3553	.54006		

Table 2 shows that T test used to determine the relationship between patient motivation and gender. The results from the table reveal that statistically there is no significant difference between patient motivation with respect to gender, $P=.061^*$ ($P>.05$). Health education and awareness programs often focus on both sexes with the goal of imparting knowledge and encouraging healthy habits. Successful efforts to engage and connect with a varied audience could lead to equal levels of motivation among different genders.

Residential area influence patient motivation

The motivation of patients belongs to different area will vary. Hence there will be difference between residential area and patient motivation. To find out the relationship between patient motivation with respect to residential area Anova test was used.

Table 3: Annova test to determine the relationship between residential area of patient and patient satisfaction

		Mean	Std. Deviation	F	Sig.
Patient Motivation	Rural	2.6375	.52148	7.381	.001
	Urban	2.5037	.61044		
	Semi Urban	1.8889	.21711		

Table 3 reveals that the results of one-way anova test to determine the relationship between residential area and patient motivation. Since P value (.001**) is less than .05 the null hypothesis is rejected at 5 % level of significance. So, it is concluded that there is significant difference between residential area and patient motivation. Patient motivation varies by residential area due to healthcare availability, socioeconomic situations, community support, environmental factors, and cultural influences.

Relationship between Patient Motivation and Accessibility, Affordability, Awareness, Assurance

To find out the strength and direction of a relationship between Patient Motivation and Accessibility, Affordability, Awareness, Assurance correlation coefficient is used. The **table 4** shows the correlation between Patient Motivation and Accessibility, Affordability, Awareness, Assurance

Table 4: Correlation between Patient Motivation and Accessibility, Affordability, Awareness, Assurance.

		Patient Motivation	Accessibility,	Affordability	Awareness	Assurance.
Pearson Correlation	Patient Motivation	1.000	.062	-.313	-.113	.323
	Accessibility,	.062	1.000	.385	-.148	.003
	Affordability	-.313	.385	1.000	-.140	-.168
	Awareness	-.113	-.148	-.140	1.000	.222
	Assurance	.323	.003	-.168	.222	1.000
Sig. (1-tailed)	Patient Motivation	.	.246	.000	.104	.000
	Accessibility,	.246	.	.000	.050	.488
	Affordability	.000	.000	.	.060	.031
	Awareness	.104	.050	.060	.	.006
	Assurance	.000	.488	.031	.006	.

In the above table 4 the Significant value of accessibility and awareness is greater than .05 there is no relationship between patient motivation and accessibility and awareness

In the above table 2 the value of correlation coefficient (r) for patient motivation and affordability is -.313 i.e., $r < 0$; Negative relationship. There is a negative association (-.313) between patient motivation and accessibility.

In the above table 2 the value of correlation coefficient (r) for patient motivation and assurance is .246 i.e., $r < 0$; Positive relationship. There is a Positive association (.323) between patient motivation and assurance.

Impact of Accessibility, Affordability, Awareness, Assurance on patient motivation

To find out the impact of Accessibility, Affordability, Awareness, Assurance on patient motivation regression analysis is used. The table 3 shows the regression table of Patient Motivation and Accessibility, Affordability, Awareness, Assurance c.

Table 5: Regression analysis Patient Motivation and Accessibility, Affordability, Awareness, Assurance

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson	F	Sig.
1	.495	.245	.220	.52894	1.476	.000	1.476

a. Predictors: (Constant), Accessibility, Affordability, Awareness, Assurance c.

b. Dependent Variable: Patient Motivation

To find out the association between Patient Motivation and Accessibility, Affordability, Awareness, Assurance the correlation coefficient is used. The correlation coefficient observed from the above table is .495, indicating moderately correlated.

To find out the degree of variability of Patient Motivation and Accessibility, Affordability, Awareness, Assurance coefficient of variation is used. According to the above table, the values of R square and adjusted R square are 0.495 and 0.245, indicating that Accessibility, Affordability, Awareness, Assurance increase accounts for about 49% of the variance in patient motivation.

Test for significance

From the above table 3 $F = 36.134$, $P = 0.000$. Since $P < \alpha$ (0.05), there is a relationship between Patient Motivation and Accessibility, Affordability, Awareness, Assurance. In this study, the dependent variable(Y) is Patient Motivation, independent variable(X) is Accessibility, Affordability, Awareness, Assurance.

Mathematical representation of linear relationship

To determine the relationship impact of Accessibility, Affordability, Awareness, Assurance on patient motivation the regression equation is used.

Table 6: Variables in the regression analysis are Patient Motivation and Accessibility, Affordability, Awareness, Assurance.

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	2.466	.338		7.286	.000
Accessibility	.138	.071	.167	1.925	.057
Affordability	-.201	.050	-.355	-4.053	.000
Awareness	-.211	.084	-.207	-2.511	.013
Assurance	.291	.078	.309	3.745	.000

a. Dependent Variable: Patient Motivation

The regression equation is from the table 4 is,

$$Y = 2.466 + .138X_1 - .201X_2 - .211X_3 + .291X_4$$

Where, Y = **Patient Motivation**, X1= **Accessibility**, X2 = **Affordability** X3 = **Awareness**, X4 = **Assurance**

Here the coefficient of X is 2.466 represents the effect of Accessibility, Affordability, Awareness, Assurance on Patient Motivation as constant. Since significant value is greater than .05 i.e., .071 the influence of accessibility on patient motivation is not significant.

Since significant value is less than .01 i.e., .000 the influence of affordability on CSR is significant. The estimated positive sign in X2 implies that affordability stimulates patient satisfaction positively. Patient satisfaction would increase by .201 for every unit increase in affordability and this coefficient value is significant at 1% level. Affordability directly influences an individual's ability to access healthcare services. Manageable healthcare expenses encourage patients to seek vital medical care without financial worries. Accessibility improves patient happiness in healthcare.

Since significant value is less than .05 i.e., .013 the influence of awareness on patient motivation is significant. The estimated positive sign in X3 implies that awareness stimulates patient motivation negatively. Patient motivation would decrease by -.211 for every unit increase in awareness and this coefficient value is significant at 5% level. Awareness motivates patients by promoting information, understanding, and health proactivity. It helps people make informed decisions, reduce health risks, and engage in healthy habits.

Since significant value is less than .000 i.e., .000 the influence of assurance on patient motivation is significant. The estimated positive sign in X4 implies that assurance stimulates patient motivation positively. Patient motivation would increase by .291 for every unit increase in assurance and this coefficient value is significant at 1% level. assurance in healthcare significantly impacts patient motivation by fostering trust, positive experiences, confidence in treatment, and emotional support. When patients feel assured in the quality of care and communication, they are more motivated to actively engage in their healthcare, leading to improved health outcomes and overall well-being.

6. CONCLUSION AND SUGGESTIONS

The overall effect of accessibility, cost, assurance, and awareness significantly affects patient motivation and plays a crucial role in influencing how individuals interact with healthcare services. The study emphasizes the interaction among these crucial factors and how they influence the development of a sustainable healthcare system. Assurance, built on trust, good communication, and the perceived quality of care, substantially increases patient motivation. Patients who trust healthcare practitioners and have favourable interactions are more likely to actively participate in their treatment plans and make well-informed decisions about their health. Being aware of health conditions and services enables individuals to make informed decisions, take preventive actions, and proactively manage their health. Heightened awareness improves health literacy, which motivates patients to actively seek knowledge, engage in shared decision-making, and take proactive measures to preserve their well-being. A healthcare system that focuses on accessibility, affordability, assurance, and awareness promotes a patient-centered approach, motivating patients to take an active role in their health care. The influence of these factors extends beyond individual patient results, aiding in the enhancement of public health and well-being. Healthcare systems are vital in developing a motivated and engaged patient population by focusing on and improving these key aspects. Providers can alleviate the economic strain by prescribing generic medications and providing patients with information on services like inexpensive generic drug lists, discount cards, mail-order pharmacies, and prescription assistance programs.

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