Research Article

# Patient Satisfaction in Missionary Hospitals of Kerala

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## I N F O

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## A B S T R A C T

_Background:_ Kerala has become a success and a model for the country, especially in increasing life expectancy as well as reducing infant and maternal mortalities. But there is a wider demographic and epidemiological transition happened, which lead to higher morbidity rates and life style diseases. Considering health as a basic need and necessity, in this scenario of unregulated healthcare market, it is essential that along with public health services, missionary and other non-profit hospitals sustain themselves in this competitive health scenario.

_Methods:_ This is a descriptive cross-sectional study, done among the missionary hospitals under Catholic Church in Kerala. All the hospitals registered under CHAI - (Catholic Health Association of India) - Kerala Region is the statistical universe for this study. In the CHAI- Kerala region, there are 5 zones: Central zone, Kottayam zone, Trissur zone, Malabar zone and Trivandrum zone, covering all the regions of the State. The study was limited to 10 hospitals from 5 zones. The data was collected through questionnaire from 300 patients of 10 hospitals spread all over the State of Kerala.

_Results:_ With regard to the attention by the doctor, there was significant difference in terms of income, and about medical care there is significant difference on age and gender. There was also a difference of significance about the cost of treatment on income. And there was significant difference in diagnosis based on age and income.

_Conclusion:_ Understanding the factors that affect the patient perceptions of satisfaction in missionary hospitals can bring more insights in visioning quality improvement strategies in health care management.

**Keywords:** Healthcare Management, Patient Satisfaction, Missionary Health Care

## Introduction

A country like India having 1.2 billion population, managing health care is a very complex yet important task. The recent Covid 19 pandemic exposed the loopholes and weaknesses of the country`s health system. Health care in the country is managed state wise, and geographically there is huge difference in the way it is being managed in terms of access and quality. Among the various states in India, the state of Kerala had become a model for participatory

and decentralised system of managing health care. In the Human Development Index published in the Niti Ayog Annual Reports 2019-20, Kerala scored the highest score (0.625) followed by Punjab (0.569), based on the 23 health parameters.[1] This is for the fourth consecutive round that Kerala emerged as the best performer in terms of overall performance. Various factors had contributed to the success story of healthcare in Kerala, including high health awareness, education, policy making by successive governments, health care involvement by various NGOs and religio-social movements and various other factors (Ekbal et al 2012).[2] An organized movement in healthcare sector was initiated by the Missionary churches by establishing a variety of healthcare formats in the remote areas of Kerala (Sara 2018).[3]

In general, health care management comprises of various stakeholders; health care policy makers, professionals including managerial professionals and healthcare professionals, hospitals and patients. Besides there are various contributors and services working along the system, making the health care system as it is now. Among the various stakeholders, patients are the greatest beneficiaries and backbone of the system. Every policy and strategy envisioned and applied in the system, in one way or other should address the needs of the patients. Every attempt to improve the quality of the health management should definitely be referred to the wellbeing and concerns of the patients. The healthcare quality influences the patient perceptions of care and leads to patient loyalty to the healthcare system (Naidu, 2009).[4]

Health care management has come to the forefront of societal life and global wellbeing, in the scenario of pandemic and other disasters. Economic development could not be perceived without proper health management systems, and vice versa. The so called healthcare model of Kerala is being challenged due to various factors including epidemiological and demographical factors. The morbidity rates are higher compared to other states, due to the increase in life style diseases, and with the high life expectancy rates, the ageing population is on a rise. - In this article, the various factors affecting the patient satisfaction in the health care management of missionary healthcare are analysed and evaluated using scientific tools, so as to give more insights into health care development and policy making.

Missionary hospitals have a unique way of rendering health care service in Kerala. Many scholars had attributed the role of Christian missionaries especially in the education and health care development of the state. Along with the government and other social movements, Christianity and Christian missionaries, had laid a solid foundation for this Health Care model, taking care of all the sections of the society, especially the poor and the marginalised (Nithya 2013).[5]

The patients today demand more transparency, convenience, access and personalised products and services in health care. They are not passive as in traditional system, but active and informed participants, demanding better care, and involvement in decisions regarding their care plans. With more purchasing power and health care awareness, they are demanding minimum standards of care, informed and participatory decision making regarding their care plans and multi-speciality care. That is the reason why the major share of health services in the state is given by the private health sector, and the customers attach better quality to them than the public health system. Assessing patient perspectives gives users a voice and if given proper and systematic attention, this offers the potential to make services more responsive to people's needs and expectations. This is an important element in making health systems more effective (WHO 2000).[6]

## Objectives of the Study

The objectives of the study are the following.

- To examine the age-wise difference in perception regarding the factors of patient satisfaction in missionary hospitals of Kerala
- To identify the gender-wise difference in perception regarding the factors of patient satisfaction in missionary hospitals of Kerala
- To analyse the income-wise difference in perception regarding the factors of patient satisfaction in missionary hospitals of Kerala

## Material and Methods

This is a descriptive study done among the patients of the the missionary hospitals under the Catholic Church in Kerala. All the hospitals registered under CHAI - (Catholic Health Association of India) - Kerala Region, were included in the study. Two hospitals each from all the five zones was selected, one above 300 bed strength and one below 300 beds, respectively. Therefore, the study was limited to 10 hospitals from 5 zones. Random sampling method was used or the study. The data for this study was collected from patients in missionary hospitals through structured questionnaire from 300 patients of 10 hospitals spread all over the State of Kerala. The patient Satisfaction Questionnaire Short-Form (PSQ-18) developed by Grant N. Marshall and Ron D. Hays was used for the study. Item scale correlations were generated using the Multitrait Analysis Program and internal consistency reliability estimates for the PSQ-18 scales were calculated using Cronbach`s coefficient alpha. (Marshall G., Hays D, 1994).[7] The Patient Satisfaction Questionnaire Short-Form (PSQ-18) is an adaptable, reliable, and validated tool for use in various settings. (Anthony Janahan Thayaparan and Eamon Mahdi, 2013).[8] So, the instrument used in this research had a proven

content and criterion related validity as it was a derivative of instruments used in the previous studies. Information was gathered and processed through statistic software, MS-Excel, SPSS 20.0 and SPSS AMOS 24.0. The collected data have been analysed by making use of statistical tools like Mean, Standard Deviation, Factor Analysis, T test and ANOVA.

## Study Variables

Socio-demographic factors - age, gender, income. By applying factor analysis, the factors affecting patients' satisfaction are divided into four factors, such as attention by doctors, medical care, cost of treatment and diagnosis.

## Results and Analysis

In the survey, 300 patients from 10 hospitals participated; questionnaires were given, filled and returned. The respondents were divided into four categories with regard to their age; less than 30 (25.0 %), 31 to 40 years (23.3%) and 41 to 50 (23.3%) and more than 50 (28.3%) So, it is identified that majority of the respondents are from the higher age category (more than 50).

The respondents were further divided into two regarding their gender: male 60% and female 40%. Therefore, majority of the respondents are male.

The classification of respondents on account of income is based on the type of ration cards given to the people of Kerala by the Civil Supplies Department of the Kerala Government. The different types of cards are yellow, pink, blue and white. Yellow card is given to the most economically backward sections of the society. Pink care holders belong to the priority section or Below Poverty Lines (BPL). Blue card holders come under the non-priority subsidy section or Above Poverty Line (APL) and white card holders come under the non-priority beneficiary list. In this study, the first two card holders; yellow and pink card holders are grouped together as Lower class. Pink card holders are taken as middle class and white card holders under high class for convenience and better understanding. Therefore, regarding their income, the respondents are divided into three; high class (3.3%), middle class (85.0%) and lower class (11.7%). The analysis shows that most of the respondents are from the middle class.

## Factor Analysis of Patient Satisfaction

Factor analysis is performed to decrease the number of variables by making use of fewer number of surrogate variables (factors) while maintaining the variability. Each factor is analysed with the groups of selected personal variables and results are given. For this, KMO and Bartlett`s test is applied. This is given in Table 1.

The total variance is described in Table 2 and Table 3 shows component matrix.

**Table 1.KMO and Bartlett's Test**

| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | .623 |
|---|---|---|
| Bartlett's Test of Sphericity | Approx. Chi-Square | 2662.559 |
| | Df | 120 |
| | Sig. | .000 |

**Table 2.Total Variance**

| Component | Initial Eigenvalues | | | Rotation Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1. | 4.559 | 28.491 | 28.491 | 3.713 | 23.206 | 23.206 |
| 2. | 2.837 | 17.734 | 46.224 | 2.600 | 16.252 | 39.458 |
| 3. | 1.669 | 10.434 | 56.658 | 2.125 | 13.282 | 52.740 |
| 4. | 1.385 | 8.659 | 65.317 | 2.012 | 12.577 | 65.317 |
| 5. | .969 | 6.059 | 71.376 | | | |
| 6. | .856 | 5.351 | 76.727 | | | |
| 7. | .826 | 5.161 | 81.888 | | | |
| 8. | .669 | 4.179 | 86.066 | | | |
| 9. | .549 | 3.430 | 89.496 | | | |
| 10. | .405 | 2.532 | 92.029 | | | |
| 11. | .343 | 2.142 | 94.171 | | | |
| 12. | .334 | 2.085 | 96.256 | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 13. | .255 | 1.594 | 97.850 | | | | |
| 14. | .161 | 1.004 | 98.854 | | | | |
| 15. | .115 | .717 | 99.570 | | | | |
| 16. | .069 | .430 | 100.000 | | | | |

**Table 3.Component Matrix[a]**

| | Component | | | |
|---|---|---|---|---|
| | **1** | **2** | **3** | **4** |
| I feel confident that I can get the medical care I need without being set back financially | .826 | -.115 | -.129 | .274 |
| Doctors sometimes ignore what I tell them | .789 | .223 | .332 | .046 |
| I have some doubts about the ability of the doctors when treat me | .769 | .174 | .175 | -.215 |
| Doctors act too  business like and impersonal towards me | .758 | .364 | .075 | .009 |
| Those who provide my medical care sometimes hurry too much when they treat me | .723 | .125 | .381 | -.258 |
| I find it hard to get an appointment for medical care right away | .604 | .169 | .220 | -.001 |
| I have to pay more of my medical care than I can afford | .596 | -.005 | -.390 | .448 |
| Where I get medical care people have to wait too long for emergency treatment | .522 | .314 | -.351 | .317 |
| Sometimes doctors make me wonder if their diagnosis is correct | -.415 | .338 | .386 | .012 |
| I am able to get medical care whenever I need it | -.207 | .810 | -.072 | .181 |
| I think this hospital has everything to provide complete medical care | -.170 | .769 | -.330 | -.163 |
| I have easy access to the medical specialists I need | -.158 | .764 | -.410 | -.045 |
| Doctors usually spend plenty of time with me | -.151 | .356 | .645 | .096 |
| When I go for medical care they are careful to check everything when treating and examining me. | -.071 | .508 | -.034 | -.580 |
| Doctors are good about explaining reason for medical care | -.397 | .256 | .243 | .510 |
| Doctors treat me in a very friendly and courteous manner | -.345 | .270 | .360 | .477 |

**Table 4.Rotated Component Matrix[a]**

| | Component | | | |
|---|---|---|---|---|
| | **1** | **2** | **3** | **4** |
| Doctors sometimes ignore what I tell them | .857 | -.055 | .209 | .056 |
| Those who provide my medical care sometimes hurry too much when they treat me | .850 | -.084 | -.061 | -.130 |
| I have some doubts about the ability of the doctors when treat me | .801 | .028 | .101 | -.217 |
| Doctors act too  business like and impersonal towards me | .762 | .187 | .307 | -.051 |
| I find it hard to get an appointment for medical care right away | .647 | -.021 | .153 | -.001 |
| I have easy access to the medical specialists I need | -.086 | .867 | .113 | .080 |
| I think this hospital has everything to provide complete medical care | -.037 | .867 | -.019 | .055 |
| I am able to get medical care whenever I need it | .002 | .725 | .067 | .453 |
| When I go for medical care they are careful to check everything when treating and examining me. | .176 | .596 | -.427 | -.178 |
| I have to pay more of my medical care than I can afford | .232 | -.021 | .799 | -.123 |

| | | | | |
|---|---|---|---|---|
| Where I get medical care people have to wait too long for emergency treatment | .305 | .280 | .649 | -.040 |
| I feel confident that I can get the medical care I need without being set back financially | .538 | -.216 | .640 | -.202 |
| Doctors treat me in a very friendly and courteous manner | -.123 | .029 | -.018 | .730 |
| Doctors are good about explaining reason for medical care | -.230 | .065 | .045 | .695 |
| Doctors usually spend plenty of time with me | .258 | .046 | -.354 | .617 |
| Sometimes doctors make me wonder if their diagnosis is correct | -.068 | .190 | -.392 | .491 |

**Extraction Method:** Principal Component Analysis.

**Rotation Method:** Varimax with Kaiser Normalization. Rotation converged in 6 iterations (Table 4).

The factor analysis for patient satisfaction produced the following factors.

- Attention by doctors
- Medical care
- Cost of Treatment
- Diagnosis

Age wise distribution of 'Attention by doctors' is given in Table 5. By using ANOVA analysis, it is inferred that there is no significant difference in perception.

**Table 5.Age-wise Distribution of Attention by Doctors**

| | | Attention by Doctors | | |
|---|---|---|---|---|
| | | Mean | SD | No. |
| Age | less than 30 | 10.93 | 5.45 | 75 |
| | 31 to 40 years | 12.07 | 5.23 | 70 |
| | 41 to 50 years | 10.43 | 4.56 | 70 |
| | More than 50 years | 10.88 | 5.00 | 85 |
| Total | | 11.07 | 5.08 | 300 |

**Table 6.Gender-wise Distribution of Attention by Doctors**

| | | Attention by Doctors | | |
|---|---|---|---|---|
| | | Mean | SD | No. |
| Gender | Male | 11.06 | 4.48 | 180 |
| | Female | 11.08 | 5.89 | 120 |
| Total | | 11.07 | 5.08 | 300 |

Gender-wise distribution of 'Attention by doctors' is given in Table 6. The T test done on gender-wise difference in perception inferred that there is no significant difference in patient perception on attention by doctors on the basis of gender.

Income wise distribution of 'Attention by doctors' is given in Table 7. The ANOVA analysis showed that there is significant difference in patient perception on attention by doctors with regard to income.

Therefore, it is inferred that with regard to attention by doctors, there is significant difference in terms of income, and there is no significant difference in terms of age and gender.

**Table 7.Income-wise Distribution of Attention by Doctors**

| | | Attention by Doctors | | |
|---|---|---|---|---|
| | | Mean | SD | No. |
| Income | High Class | 9.00 | .00 | 10 |
| | Middle Class | 11.55 | 5.31 | 255 |
| | Lower Class | 8.14 | 2.20 | 35 |
| Total | | 11.07 | 5.08 | 300 |

## Difference in Patient Perception on Medical Care

Age wise distribution of 'Medical care' is given in Table 8. The ANOVA analysis showed that there is significant difference in patient perception on medical care with regard to age.

**Table 8.Age-wise Distribution of Medical Care**

| | | Medical Care | | |
|---|---|---|---|---|
| | | Mean | SD | No. |
| Age | less than 30 | 17.87 | 1.91 | 75 |
| | 31 to 40 years | 17.14 | 2.18 | 70 |
| | 41 to 50 years | 15.43 | 4.25 | 70 |
| | More than 50 years | 16.71 | 1.53 | 85 |
| Total | | 16.80 | 2.75 | 300 |

**Table 9. Gender-wise Distribution of Medical Care**

| Mean | | Medical Care | | |
|---|---|---|---|---|
| | | S.D | No. | |
| Gender | Male | 16.50 | 3.08 | 180 |
| | Female | 17.25 | 2.12 | 120 |
| Total | | 16.80 | 2.75 | 300 |

Gender wise distribution of patient perception on 'Medical care' is given in Table 9. The T test done on gender wise

difference in perception inferred that there is significant difference in patient perception on medical care on the basis of gender.

Income wise distribution of patient perception on 'Medical care' i.given in Table 10. The ANOVA analysis showed that there is no significant difference in patient perception on medical care with regard to income.

**Table 10.Income-wise Distribution of Medical Care**

| | | Medical Care | | |
|---|---|---|---|---|
| | | Mean | SD | No. |
| Income | High Class | 17.00 | .00 | 10 |
| | Middle Class | 16.86 | 2.96 | 255 |
| | Lower Class | 16.29 | .89 | 35 |
| Total | | 16.80 | 2.75 | 300 |

Thus it is inferred that there is significant difference in medical care with regard to age and gender, and there is no significant difference in terms of income.

## Difference in Patient Perception on Cost of Treatment

Age-wise distribution of patient perception on 'Cost of treatment' is given in Table 11. The ANOVA analysis showed that there is no significant difference in patient perception on cost of treatment with regard to age.

**Table 11.Age-wise Distribution of Cost of Treatment**

| | | Cost of Treatment | | |
|---|---|---|---|---|
| | | Mean | SD | No. |
| Age | less than 30 | 9.07 | 2.93 | 75 |
| | 31 to 40 years | 9.86 | 3.38 | 70 |
| | 41 to 50 years | 9.21 | 1.87 | 70 |
| | More than 50 years | 9.41 | 3.05 | 85 |
| Total | | 9.38 | 2.87 | 300 |

Gender wise distribution of patient perception on 'Cost of treatment' is given in Table 12. The T test done on gender wise difference in perception inferred that there is no significant difference in patient perception on cost of treatment on the basis of gender.

**Table 12.Gender-wise Distribution of Cost of Treatment**

| | | Cost of Treatment | | |
|---|---|---|---|---|
| | | Mean | SD | No. |
| Gender | Male | 9.42 | 2.98 | 180 |
| | Female | 9.33 | 2.71 | 120 |
| Total | | 9.38 | 2.87 | 300 |

Income wise distribution of patient perception on 'Cost of treatment' is given in Table 13. The ANOVA analysis showed that there is significant difference in patient perception on cost of treatment with regard to income.

Thus it is inferred that there is significant difference in cost of treatment in terms of income, and no significant difference in terms of age and gender.

**Table 13.Income-wise Distribution of Cost of Treatment**

| | | Cost of Treatment | | |
|---|---|---|---|---|
| | | Mean | SD | No. |
| Income | High Class | 10.00 | .00 | 10 |
| | Middle Class | 9.63 | 2.76 | 255 |
| | Lower Class | 7.43 | 3.34 | 35 |
| Total | | 9.38 | 2.87 | 300 |

## Difference in Patient Perception on Diagnosis

Age wise distribution of patient perception on 'Cost of treatment' is given in Table 14. The ANOVA analysis showed that there is significant difference in patient perception on diagnosis with regard to age.

**Table 14.Age-wise Distribution of Diagnosis**

| | | Diagnosis | | |
|---|---|---|---|---|
| | | Mean | SD | No. |
| Age | less than 30 | 17.13 | 2.17 | 75 |
| | 31 to 40 years | 17.43 | 1.77 | 70 |
| | 41 to 50 years | 16.21 | 1.43 | 70 |
| | More than 50 years | 16.65 | 2.58 | 85 |
| Total | | 16.85 | 2.11 | 300 |

**Table 15.Gender-wise Distribution of Diagnosis**

| | | Diagnosis | | |
|---|---|---|---|---|
| | | Mean | SD | No. |
| Gender | Male | 16.92 | 2.13 | 180 |
| | Female | 16.75 | 2.08 | 120 |
| Total | | 16.85 | 2.11 | 300 |

**Table 16.Income-wise Distribution of Diagnosis**

| | | Diagnosis | | |
|---|---|---|---|---|
| | | Mean | SD | No. |
| Income | High Class | 18.00 | .00 | 10 |
| | Middle Class | 16.63 | 2.01 | 255 |
| | Lower Class | 18.14 | 2.51 | 35 |
| Total | | 16.85 | 2.11 | 300 |

The T test done on gender-wise difference in perception inferred that there is no significant difference in patient perception on diagnosis on the basis of gender (Table 15).

Income-wise distribution of patient perception on 'Diagnosis' is given in Table 16. The ANOVA analysis showed that there is significant difference in patient perception on diagnosis with regard to income.

Thus, it is inferred that there is significant difference in patient perception on diagnosis in terms of age and income, and no significant difference in terms of gender.

## Discussion

Multiple sets of background factors are associated with patient scores on questions about health care (Sitzia & Wood 1997).[9] Analysis on the demographic characteristics of the patients shows that majority of the patients seeking care in a missionary hospital are from the middle income group and least per cent are from the high income sector.

As a nation which is growing with a growing middle class, this scenario is an opportunity and challenge. India would soon have a middle class that is proportionately as large as that of the US today. Almost a billion people will join the ranks of the middle class by 2025. The government could not be able to provide the required quantity and quality of services in basic necessities of health, education and water. India will have to adopt hybrid systems, with private and public service providers (Ghani, 2021).[10]

The missionary hospitals have to cater to the health needs of the middle income people. The expectations of this income group are complex than other income groups of lower and higher income. Mostly these patients expect quality care, at the same time they are highly concerned of the cost factor. So, the missionary hospitals are thus challenged to provide affordable care with accepted quality. The policy makers in missionary care are expected to innovate sustainable care models to respond to these groups` expectations.

Majority of the patients are from the higher age group of more than 50 years. The demographic transition that had happened in the States` population results in higher morbidity rates and need for better and quality geriatric care (Gangadharan 2008).[11] It also necessitates the health institutions to be more patient friendly and accessible to the older patients.

Age is a well-known determinant of patient satisfaction with older patients scoring more than young and middle aged patients (Cohen 1996).[12] In this study also, considering all the factors of patient satisfaction, the patients in the higher age bracket; more than 50 years, scored more than other age groups. Another study

by Rahmqvist (2001)[13] also points to the highest scores in Patient satisfaction Index in the age group 75-84 years.

As per the analysis, with regard to attention by doctors, there is significant difference in terms of income, and no difference in perception on the basis of gender and age. As the income of the customers increases, they would be willing to pay for better care, and their expectations also will be higher. They would be expecting better care and personalised attention from the part of the doctors. Staff friendliness, cost and the amount of time the physician spent with them were found to be the three most important considerations/discriminators in patient satisfaction (Naidu 2009).[4]

Analysis shows that there is not much difference in males and females with regard to satisfaction in terms of all the factors except medical care. Gender is not a differentiating factor as far as patient satisfaction is concerned. Other studies also point to the absence of correlation of gender with Patient Satisfaction Index scores.[13] Medical care refers to the accessibility of care for the patients, especially with different specialties of care. The more satisfied female patients in medical care can be attributed to the availability of specialties especially gynecology and pediatrics.[13]

There is also significant difference in cost of treatment in terms of income. Cost of treatment indicates the issue of affordability of care received by the patients. Since the respondents are from different income groups, cost would be one of the major factors in determining the patient satisfaction.

There is significant difference in diagnosis in terms of age and income. Diagnosis refers to the amount of time the doctor spends with the patients and the friendly and courteous behaviour and attitude of the doctors. Generally the patients are more satisfied when they could spend more time with the doctor. Previous studies also show that more time with the doctor also means the emotional needs are also satisfied with the consultation, and this affects the patient perceptions of care.[14]

## Conclusion

Identification and continuous evaluation of the factors that influence patient perceptions of care in a health system is very essential for improving the quality of the system. Societal and various other contextual factors play a significant role in assessing patient perceptions of care. This study attempts to analyse the influence of demographical factors like age, gender and income on patient perceptions of care in missionary hospitals of Kerala. The factor analysis done on the variables of patient satisfaction resulted in four factors viz., attention by doctors, medical care, cost of treatment and diagnosis. Differences in responses by gender, age and income were explored with t-tests and ANOVA. Differences in perception on different factors of patient satisfaction could be attributed to various contextual

and situational scenarios. The difference in perception on the basis of income and age is more prominent than that of gender. The higher usage of healthcare services by the old age population and difference in perception on the basis of age could be attributed to the drastic changes in demographic and epidemiological statistics in the state of Kerala. Understanding the factors that affect the patient perceptions of satisfaction in missionary hospitals can bring more insights in visioning quality improvement strategies in health care management.

**Conflict of Interest:** None

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