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Perception of service quality, satisfaction, and behavioral intentions in Ayurveda healthcare

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ABSTRACT

Background: Based on the previous literature it is confirmed that Performance-based service quality and patient satisfaction are major antecedents of behavioral intentions in the healthcare sector. Here, the study deals with the same variables under the framework of Ayurveda healthcare.

Objectives: The study is an attempt to understand the perceptual differences of healthcare consumers in Ayurveda, by analyzing the relationship between the service quality, satisfaction, and behavioral intentions in Ayurveda.

Materials and methods: Using the convenient sampling technique, 404 samples were collected through direct interview, with a structured questionnaire from the in-patients of 20 accredited Ayurveda hospitals from the northern part of Kerala, a southern state of India. Respondents of the study consist of mostly women who were aged above 40. ANOVA and t-test were used to evaluate the differences in the perception of healthcare consumers, and multiple regression analysis and structural equation modeling were applied to propose two relationship models from the study.

Results: The perception of healthcare consumers are found to vary for service quality and patient satisfaction according to socio-economic variables except for the education factor. Later the test on the impact of performance-based service quality on patient satisfaction and the mediation model showed a significant influence between the variables.

Conclusion: The results of the study could empirically prove the relationships of these variables significantly and it can assure some quality contributions to the healthcare managers to modify their business policies in the future.

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1. Introduction

Differentiation in service delivery makes uniqueness in the service era especially under the circumstances of competitive market conditions. By making innovative service strategies, many managements can enable the business to long-term performance benefits [1]. High service quality can be treated as one of the superior service strategies for the success of any business [2–5]. The rapidly changing environment in the business retail services accompanies an endless competition in the market among the service providers of different sectors [6,7]. Today, high service quality has become a general agreement between the service providers to

create a competitive advantage for their business [8–11]. The quality of goods can be easily measured in terms of durability and the number of defects on a product [12,13]. Generally, there are three important features to differentiate a service from a product, such as, intangibility, heterogeneity [14], and inseparability of production and consumption [15], which makes it extremely difficult to measure the quality of services.

Service quality has gained a significant role in researches from decades ago [16]. This study is focused on the importance of service quality in patient satisfaction based on the Indian Ayurveda healthcare context, where the total healthcare sector has expected its growth to reach US\$ 372 billion business by 2022 in India [17]. According to the [18], quality in healthcare services refers to “the degree to which health services for individuals and population increase the likelihood of desired health outcomes and are consistent with current professional knowledge”. It consists of

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three key elements that can contribute to the efficient management process for quality delivery, such as, structure, process, and outcome. The structure includes technology, infrastructure, and resources; Process connected with the effective interactions between the patients and service providers those results in the healthcare outcomes [19]. For that reason, the present research aims to fill the role of service quality in the satisfaction of Ayurveda healthcare consumers by considering their socio-economic impact on these two variables. In addition to that, the study tried to tie up with a service quality model on behavioral intentions with the mediating effect of patient satisfaction in Ayurveda healthcare.

Ayurveda as a system of healthcare medicine has its theory and a unique pattern of the treatment process in its practices [20]. In the ancient period, it was widely practiced in the south Asian countries, but from the colonization period onwards, Ayurveda has lost popularity and the allopathic medicine took over that mainstream position rapidly [21]. Somehow, today the reputation of Ayurveda has re-entered to the healthcare market as a better medicine for various diseases, especially for the most trending lifestyle diseases like obesity, hypertension, diabetes, and heart diseases. Nowadays, it is mostly practicing in South Asian regions, among that, a state in India called Kerala is offering a full-fledged professional treatment for Ayurveda before the local and international healthcare consumers with greater proficiency in the accommodation, food, and travel packages in it.

Somehow, maintaining a quality ambiance with the predominant care facilities can retain the consumers for their pivotal concern of maximum service quality and treatment satisfaction from a healthcare system. From the literature survey, the researcher could understand that only a few numbers of studies have been focused on Ayurveda healthcare, where most of the studies are shrug into the allopathic healthcare, even in the Indian healthcare context also. Since Ayurveda is an Indian originated traditional medicine; the researcher found an opportunity to investigate his query with respect to the role of performance-based service quality on patient satisfaction in Ayurveda healthcare and also planned to propose a model on the impact of service quality on behavioral intentions in Ayurveda with the mediating effect of satisfaction level. Therefore, the study tries to identify, what are the dominant dimensions of performance-based service quality and Patient satisfaction in Ayurveda along with the different perceptions of inpatients on these two variables. It also aims to identify the relationship between performance-based service quality and patient satisfaction in Ayurveda. Finally, from the proposed model by the researcher, the study could explore the behavioral intentions of healthcare consumers about the Ayurveda with the impact of service quality and satisfaction on it. Ayurveda as a trending modern healthcare sector, the study attempted to explore this healthcare stream, where it is well suited for a study as a comparatively growing branch in healthcare with a potential market share.

Under the introduction head, the study is structured based on the titles called the current status of Ayurveda healthcare in India, a survey of literature that enfolds briefing on service quality in healthcare, perception of patient satisfaction, and behavioral intentions in healthcare. Then it is followed by the main headings research methodology, results and discussions, implications and suggestions, and conclusion of the study.

2. Status of Ayurveda healthcare in India

According to the AYUSH annual report, 2019–2020 (Ayurveda, Yoga, Naturopathy, Unani, Siddha, and Homeopathy), Ministry of Health, Government of India, indicates that India is on the track of re-emergence of traditional medical care, where the business of the Ayurveda sector is expected to reach US\$ 9 billion by 2022 in India.

Varieties in services and enhanced ambiance settings are the major offers put forward by the service providers of the Indian Ayurveda healthcare sector. It makes a trend towards high demand for Ayurveda healthcare and that appealing a well-focused study on how the service providers are keeping their service quality in their proposed treatments and to what extent the patients are satisfied, at present. Further, it can avail more insights to the healthcare providers of Ayurveda to improve their services by concentrating on the unnoticed dimensions in both service quality and patient satisfaction to strengthen the loyal relationship between the healthcare consumers in the future.

Vaidyaratnan P.S Varier's Kottakkal Arya Vaidya Sala (AVS) is a giant charitable institution established in 1902 is the most popular healthcare service provider in Ayurveda around the world with 117 years of its propagation and practice. Presently, people from the different parts of the world are rushing to visit AVS, not only during the seasons but also without getting appointments through the AVS call. That is why people from India and abroad are visiting Kerala regularly to getting admission to AVS. Due to this rush demand and the huge numbers of applicants prevailing for the Ayurveda treatment, many of the healthcare seekers are getting delayed responses or 'no bed is available' messages from the Authority of AVS, especially for the Indians, which cause hesitation in healthcare aspirants to visit AVS since they have more choices to do the same treatment from the experts of Ayurveda somewhere near to AVS location. The study tries to cover major private hospitals accredited by either NABH (National Accreditation Board for Hospitals) or KABH (Kerala Accreditation Standards for Hospitals) from the northern part of Kerala, particularly from Malappuram, Kozhikkode, and Kannur districts.

3. Literature background

Many works of literature have the face of positive direction from the service quality towards patient satisfaction [23–25]. Certainly, it brings competition to maximize customer satisfaction by ensuring better quality in the services. As a backbone to the successful organization, patient's satisfaction can be addressed as a focal concern to the service provider [26] and the quality of healthcare as a key determinant to the patient satisfaction [27,28] where, both the service quality and satisfaction have a significant positive impact on the behavioral intentions in healthcare too [29]. This study has decided to measure mainly these two dimensions thoroughly with its five and seven-dimensional attributes, respectively.

From the review of literature, the researcher could identify a lack of assessment of patient satisfaction using the PSQ-18 scale with the support of service quality in Ayurveda, where the variables are studied in other prominent healthcare sectors. The researcher could also find the aptness of satisfaction, which could be a mediating variable between the relationship of service quality and behavior intention in Ayurveda.

4. Service quality in healthcare

A service-oriented organization is always looking forward to the market, to trace the customers, to understand how they are evaluating a particular service firm concerning the customer relationship [30]. Service quality can be one of the criteria to make a valid judgment on the performance of a service organization.

A few academicians defined quality in the perspective of Goods, for example, in terms of Japanese philosophy; quality is zero defects, doing it right the first time. But according to Ref. [12]; quality is conformance to requirements, and [13] stated quality can be measured by 'counting the incidents of both internal and external

failures'. Apart from that, services have their explicit characteristics such as intangibility [31–34], heterogeneity [35,36], and inseparability [37–40]. In general, quality is a comparison between expectations and actual performance where, service quality is a measure of how well the service level delivered matches customer expectations, at the same time delivering quality services means conforming to customer expectations consistently [41]. Unlike, Service quality as a process of comparison between the expectations and perceptions [42], it is also defined as, satisfaction as a customer's confirmation and disconfirmation of such expectations [43].

The high quality of a product can be confirmed from the high level of product performance with the expectation of the consumers. While in the case of services, evaluation of the performance can be treated as a reasonable measurement to state the level of perceived service quality on the expected quality by a consumer [30]. In 1992, Cronin and Taylor reexamined the service quality model of [45] (SERVQUAL), and developed an extended concept of service quality model based on the service performance that can offer an improved means of measuring the quality construct named as SERVPERF model. The dimensions and items are the same for both SERVQUAL and SERVPERF instruments. As a highly recommended model for the more intensive service sector, the SERVPERF model is applied here to determine the performance-based service quality attributes under Ayurveda healthcare.

In healthcare services, proper caring is noticed as an important factor in ensuring of special respect to be given to the patients as persons, through satisfying their clinical needs on time, quality of amenities, and social support to keep away from the illness [20]. Generally, service quality can be folded into two, technical quality and functional quality. Technical quality is termed as the accuracy of the treatment and diagnosis, or it simply means the output of the services. Whereas, functional quality refers to the quality involved in the service delivery by the service provider to the consumers. According to healthcare consumers, the term quality is meant as satisfaction on patient's needs and hard and fast availability of necessary medical services. Irrespective of the term 'patients', the researcher adopted a distinct name to designate patients as 'healthcare consumers' of Ayurveda [46] throughout this study.

As per the survey conducted by the researcher, it is evidenced that Ayurveda healthcare is a highly service-oriented industry and it exposed more human interactions that happen between the healthcare consumers and the service providers during the treatment days. Here the perception of the service quality by the healthcare consumers are totally depending on the personal judgments rather than the quality of drugs [20]. The study consists of five important dimensions of performance-based service quality model (SERVPERF) suggested by [44], such as Tangibility, Reliability, Responsibility, Assurance, and Empathy.

- > Tangibility: Quality involved in the appearance of physical settings
- > Reliability: Quality in dependability and accuracy in performance
- > Responsiveness: Quality in promptness and helpfulness
- > Assurance: Quality in courtesy, competence, and credibility
- > Empathy: Quality in customer individual attention and convenience

5. Status of patient's satisfaction

Patient satisfaction is the ultimate means for the healthcare service provider to make consumers happy for retaining them in the future. And also, it is the biggest challenge to the healthcare organizations to compete with the other hospitals by the way of

improved service quality elements and efficiency in the service delivery at a lower price. Now a day, people have two perspectives on the services of healthcare organizations that are based on a holistic social approach along with its medical point of view [47]. Usually, healthcare services call customer satisfaction as patient satisfaction, whereas, patient satisfaction is defined as a value judgment and subsequent reaction to the stimuli they perceive in the health environment just before, during, and after the course of their inpatient stage or clinical visit [48].

Presently, as part of the enlarged competition in the healthcare market, consumers are more aware of different medical services available in the market and its quality of treatments. Thus, it has become a gigantic responsibility to maximize the service quality to meet customer expectations that can pay off their satisfaction level [20]. Treatment with higher perceived satisfaction can clinch a group of loyal consumers, which consequently encourage the behavioral intention of healthcare consumers to give positive publicity and revisit to the same service provider in the future [49,50].

Patient satisfaction is a good indicator to measure the hospital's efficiency in timely attention followed by the doctors and the respective employees towards a patient-centered healthcare delivery. While the term, dissatisfaction of patients were classified in three ways [51]. Firstly, unawareness of service providers regarding the service dimensions is important to the consumer's point of view. Secondly, failure in the understanding of the service dimensions before consumer preferences and finally, unawareness of different service attributes by the service provider that creates consumer happiness. Sometimes, consumers may become dissatisfied due to the negative behavioral characteristics of the employees [52,53]. Anyway, the influence of the attributes like equity, safety, timeliness, and evident based efficient patient-centered care can ensure quality services that can contribute to the patient's satisfaction [54]. Researchers specifically enunciated that service quality is an antecedent of satisfaction [44], [55–58]. Based on these theoretical supports, the researcher has formulated a hypothesis mentioned below.

H1: Service quality has a significant positive impact on Patient satisfaction in Ayurveda.

From the survey of the literature, the researcher identified that there are many scales to assess the patient satisfaction level. These scales are prepared based on the data which can be availed from the patients during their treatment or after the entire treatment. Based on the detailed assessment, the Patient Satisfaction Questionnaire eighteen (PSQ 18) developed by Ref. [59] were decided to employ under this context, which can be directly applicable to the in-patients of Ayurveda. It consists of seven dimensions and eighteen items to capture the essentials of the patient's satisfaction factors. Since it's a highly personalized service sector [20], the measurement of service quality and patient satisfaction in Ayurveda healthcare are depending on the personal judgment about the actual service perceived by the healthcare consumers. Seven dimensions of PSQ 18 are general satisfaction, technical quality, interpersonal manner, communication, financial aspects, time spent with doctors, and finally accessibility and convenience.

- > General Satisfaction: Satisfaction on medical care received till now
- > Technical Quality: Satisfaction in physical quality
- > Interpersonal Manner: Satisfaction on interpersonal relationships
- > Communication: Satisfaction on communication between patient and doctor
- > Financial Aspects: Satisfaction on fees prescribed by the service provider

- Time Spent by doctors: Satisfaction on time allotted by the doctor in consultation and visiting
- Accessibility and Convenience: Satisfaction on 24x7 availability of services.

6. Behavioral intentions in healthcare

Loyalty in healthcare is determined as the behavioral intentions to revisit, recommend, and positive word of mouth communication about the service provider [60]. Many previous researchers have tested and proved the positive relationships between service quality, patient satisfaction, and behavioral intentions in different healthcare contexts [61,60]; [29], [62,63]. There is no such opinion of perceived quality of care is not an antecedent of satisfaction and behavioral intentions in healthcare services [63]. Therefore, a service providing mechanism with maximum caring facilities and patient satisfaction can only retain the healthcare consumers with the hospitals by favorable behavioral intentions. One of the popular definitions on the behavioral intention as 'patient's potential behaviors likely to be triggered by service quality and satisfaction' [64].

This study deals with the performance-based service quality model for behavioral intentions, with the mediating effect of patient satisfaction in Ayurveda healthcare. Based on this main objective of the study, the researcher has developed the following hypothesis.

H2: Patient satisfaction significantly mediates the impact of service quality on behavioral intentions in Ayurveda.

7. Research methodology

A field survey was conducted for the study through a direct interview method with the inpatients of Ayurveda via its three different phases of the data collection process. Three phases 'means the data were collected at three seasonal periods of Ayurveda from August 2018 to September 2019. Minimum days for the service experience have been fixed as three days after the admission in the hospitals as a prime requirement to fill the questionnaire. The researcher used the performance-based service quality model (SERVPERF) to measure the service quality attributes that consist of five different dimensions such as tangibles (4 items), reliability (5 items), responsiveness (4 items), assurance (4 items), and finally empathy (5 items). Whereas patient satisfaction scale 18 (PSQ 18) includes seven sub-variables such as general satisfaction (2 items), technical quality (4 items), interpersonal manner (2 items), communication (2 items), financial aspects (2 items), time spent with doctors (2 items), and finally accessibility and convenience (4 items). At last, the behavioral intention variable has a total of three items which are positive word mouth, recommendation, and revisit to the same service providers of Ayurveda.

The study used a convenient sampling technique where the researcher had a visit to 20 Ayurveda private sector hospitals from three different districts located in the north part of Kerala, a southern state of India. The researcher-maintained inclusion criteria as at least 3 inpatient days in Ayurveda hospitals, i.e., the researcher has only taken responses from inpatients who have been admitted to the hospital at least for 3 days. The researcher excluded 14 responses due to the extreme opinions from healthcare consumers who all were in the treatment of severe psoriasis. After excluding all the extreme items from the total of 418 responses, the study identified 404 healthcare consumer's responses as valid and suitable for the study, especially for the analysis part. The sample size of the study is determined with respect to Cochran's formula [65] for an unknown population (the study has attained a minimum of 385). A structured questionnaire was distributed to the inpatients with the consent of the Hospital's authority and the

responses were collected with the informed consent of the participants.

Apart from the socio-economic factors, a seven-point Likert scale was followed in the entire questionnaire form. Microsoft Excel and SPSS package were the analysis software used for the statistical tests. ANOVA and t-test were used to identify the differences in the perception of service quality and patient satisfaction among healthcare consumers in Ayurveda. Multiple regression was employed by the researcher to build a model for the impact of performance-based service quality on the behavioral intentions in Ayurveda healthcare with the mediating effect of satisfaction level. Based on the average top scores secured by each dimension, the researcher tried to rank which attributes are enlightened more and those are less by the healthcare consumers in Ayurveda.

8. Results and discussion

This study consists of two major constructs, where performance-based service quality (SERVPERF) as its predictor variables or independent variables (IV) and patient satisfaction as its predicted variable or dependent variable (DV) for the first hypothetical test. For the mediation analysis, the same service quality variable is fixed as the IV, patient satisfaction as the mediator, and the behavioral intention as the DV. The eight influential socio-economic factors labeled as gender, age, marital status, annual income, religion, occupation, education, and Inpatient days are also included to make the subject for the assessment of the perception of healthcare consumers on the study variables. Table 1 has been presented regarding the detailing of scale measurement items that comes under each dimension. The table contains the number of items included in different measurement variables, its mean, standard deviation, skewness and kurtosis value (a measurement of normality), and Cronbach's alpha value (a measurement of reliability).

Table 1 explicit the happiness level of healthcare consumers in a simple way through the feedback of putting a high degree of remarks on the seven-point Likert scale (Mean values), i.e., above six in the seven-point Likert scale except for financial aspects in the dimensions of patient satisfaction. Standard deviation (SD) is the measurement to explain how far the extreme responses deviate from the mean. Therefore, SD is equal to zero or close to zero which means that there is no such deviation in the opinions of healthcare consumers regarding the service received from the healthcare providers of Ayurveda. According to Ref. [66]; the value of skewness and kurtosis should lie in between ± 2 , to satisfy the conditions of normality assumptions; here the test results of skewness and kurtosis are capable to prove its normality condition to move forward for the parametric tests. About the reliability statistics, all the variables are compiled its good internal consistency status in terms of Cronbach's alpha.

The mean values from the above table indicating that keeping Assurance by the service provider is the most effective service quality dimension and it is followed by reliability, responsiveness, and empathy. Thus, the study found that the tangibility dimension requires more attention by service providers of Ayurveda to cope up with other dimensions and move closer to the best quality.

It is observed that keeping a good interpersonal manner between the employees of the hospital and the healthcare consumer is the prominent satisfaction dimension and it is followed by the 24 h accessibility and convenience for the patient's requirements, time spent by the doctors with the patients, general satisfaction, communication, and technical quality aspects. Whereas the financial aspect is widely recorded as a low-rated one among the satisfaction dimension as well as in the overall dimensions of this study. In the Ayurveda healthcare system, employees are the groups

Table 1
Scale measurement properties.

Construct	Variables	No. of items	Mean ± SD	Skewness	Kurtosis	Cronbach's alpha
Service Quality	Tangibility	4	6.17 ± 0.676	-0.428	-0.472	0.972
	Reliability	5	6.48 ± 0.646	-1.221	1.53	0.989
	Responsiveness	4	6.39 ± 0.653	-0.769	0.049	0.987
	Assurance	4	6.64 ± 0.570	-1.44	1.239	0.98
	Empathy	5	6.25 ± 0.702	-0.838	0.822	0.995
Patient Satisfaction	General satisfaction	2	6.43 ± 0.628	-0.854	0.201	0.824
	Technical quality	4	6.27 ± 0.591	-0.353	-0.198	0.837
	Interpersonal manner	2	6.64 ± 0.585	-1.263	0.99	0.881
	Communication	2	6.29 ± 0.639	-0.539	0.045	0.927
	Financial aspects	2	5.68 ± 0.779	-0.423	-0.16	0.943
	Time spent with Doctors	2	6.53 ± 0.629	-1.04	-0.084	0.937
	Accessibility and Convenience	4	6.58 ± 0.605	-1.379	1.188	0.966
Behavioral Intentions		3	6.65 ± 0.585	-1.598	1.553	0.955

Source: Primary data.

incorporated with nurses and cleaning staffs sometimes the doctors also included in it, because in a greater number of Ayurveda hospitals/clinics, the majority of the doctors are reported as responsible management representatives, therefore those groups cannot be considered as in the list of employees, especially in this particular context.

The results also sign that the maintenance of trustworthiness, safety, politeness, and time to time support by the service providers of Ayurveda are effectively functioning in the majority of the hospitals along with the doctor's high quality and attractive interpersonal behavior towards the healthcare consumers. But regarding the tangibility dimension, healthcare consumers are not very much happy in the case of adopting modern changes in the day to day activities and dealings of the hospitals, and its physical visual attraction. When it comes to the financial aspects of the satisfaction dimension, healthcare consumers reported that sometimes it may become a burden to recover the financial requirements for some type of advanced treatments that may not be early mentioned by

the doctors or hospital management while admitting in the hospitals. Not to all, but the majority are suffering this issue of financial requirements in short notice for the next treatment.

9. Influence of socio-economic factors on the study variables

Table 2 shows descriptive statistics and other statistical output for the two important study variables. The table also mentioned different groups classified under each socio-economic factor and its frequency in number. Along with that, mean values, SD, t value, or f value statistics (t/f), and the probability value (p) is also given in Table 3. Independent sample t-test and Analysis of variance (ANOVA) were the statistical techniques used to administrate whether the argument of differences in the perception is existing or not. Eight socio-economic variables treated as the grouping variables and performance-based service quality and patient satisfaction are considered as the two test variables for the mentioned analysis. t value and f-value are the test statistics output for the

Table 2
Influence of Service Quality and Patient satisfaction across Socio-economic factors.

Socio-economic Variables			Service Quality			Patient Satisfaction		
Items	Categories	N	Mean ± SD	t/f	p	Mean ± SD	t/f	p
Gender	Male	200	6.44 ± 0.493	1.85	0.064	6.43 ± 0.448	2.42	0.016
	Female	204	6.35 ± 0.525			6.32 ± 0.477		
Age	30 and below	78	6.15 ± 0.672	10.304	0.00	6.13 ± 0.630	13.598	0.00
	31–40	67	6.34 ± 0.451			6.28 ± 0.385		
	41–50	84	6.41 ± 0.479			6.42 ± 0.419		
	51 and above	175	6.52 ± 0.419			6.49 ± 0.373		
Marital status	Single	83	6.12 ± 0.671	16.528	0.00	6.09 ± 0.615	22.18	0.00
	Married	318	6.47 ± 0.436			6.45 ± 0.387		
	Separated	3	6.16 ± 0.288			6.11 ± 0.190		
Annual Income	≤100000	270	6.33 ± 0.532	4.14	0.007	6.31 ± 0.482	5.29	0.001
	100000–300000	80	6.53 ± 0.465			6.49 ± 0.375		
	300000–600000	51	6.50 ± 0.409			6.51 ± 0.440		
	≥600000	3	6.66 ± 0.577			6.66 ± 0.577		
Religion	Christianity	37	6.50 ± 0.564	26.29	0.00	6.30 ± 0.516	8.54	0.00
	Islam	274	6.28 ± 0.484			6.32 ± 0.460		
	Hinduism	93	6.69 ± 0.432			6.54 ± 0.421		
Occupation	Govt. sector	19	6.77 ± 0.320	5.82	0.001	6.70 ± 0.386	5.1	0.002
	Pvt. Sector	48	6.52 ± 0.569			6.49 ± 0.548		
	Self employed	136	6.31 ± 0.523			6.31 ± 0.500		
	Others	201	6.38 ± 0.484			6.36 ± 0.409		
Education	Primary or below	211	6.34 ± 0.427	2.355	0.096	6.36 ± 0.403	0.487	0.615
	Secondary	82	6.43 ± 0.558			6.35 ± 0.485		
	Graduation and above	111	6.47 ± 0.608			6.41 ± 0.556		
Inpatient Days	≤14 Days	228	6.35 ± 0.519	-1.992	0.047	6.33 ± 0.463	-2.153	0.032
	>14 Days	176	6.45 ± 0.497			6.43 ± 0.463		

Source: Primary data.

Table 3
Summary of Multiple regression analysis.

Independent variables	Standardized Beta coefficient (β)	t- value	coefficient value (p)	f-value	Model fitness (p)	Adjusted R ²
Tangibility	0.015	0.338	0.736	122.13	0.00	0.605
Reliability	0.259	4.906	0.000			
Responsiveness	0.163	3.262	0.001			
Assurance	0.403	8.902	0.000			
Empathy	0.054	1.335	0.183			

a. Predictors: Service quality dimensions.
b. Dependent Variable: Patient Satisfaction.

independent sample t-test and ANOVA, respectively. If the independent variable has more than two groups, Analysis of variance is a suitable tool to measure the mean difference between the groups.

From the statistical tests conducted by the researcher to determine the perceptual differences based on the socio-economic factors on performance-based service quality and patient satisfaction, the probability values (p) for age, marital status, annual income, religion, and the number of inpatient days are resulting in a value less than to the threshold limit ($p < 0.05$). It means that, except for gender and education factors, there exist significant mean differences between the perceptions of each group under these six socio-economic classes on the study variables. Literature is supporting the finding of both gender groups (male and female) have no disparity in the perception of service quality but have differences in the perception of patient satisfaction attributes [67]. From Table 2, it is also evident that different occupation classes have a significant difference in service quality and patient satisfaction. In detail, government sector employees exhibit more pleasure in service quality and satisfaction. Apart from that, the education element indicates it has no role earned by the healthcare consumer for evaluating the quality of services and satisfaction perceived by him/her from Ayurveda healthcare.

When it is looking into the mean values of the service quality and patient satisfaction dimensions under each socio-economic variables, a positive trend can be noticed under the cases of young aged groups to aged groups [67], lower-income groups to higher income groups, and less number of inpatient days to more number of inpatient days. The test results of the marital status group evidencing that married people are happier in-service quality and patient satisfaction than the unmarried group. Another important observation is that only a few numbers of Government employees are seeking Ayurveda treatment but they are more satisfied than the other groups. Around 65 percentages of Ayurveda inpatients are aged above 40 and women, and those people have no regular income right now or they are already retired from the services. These groups are majorly occupied in ‘others’ heads under the occupation variable and the same group consists of more women especially homemakers.

10. Impact of performance-based service quality on patient satisfaction

The main intention of using multiple regression is to investigate the relationship between the variables that can lead to building a model. Apart from the single variable prediction of simple linear regression, multiple regression helps to predict one variable based on more than one independent variable. In this case, Patient satisfaction is the predicted variable or dependant variable (DV) that contains 18 items under its seven dimensions. Whereas, Performance-based service quality attributes are the Independent variables (IV) or predictors that having five dimensions with 22 items. From the results of multiple regression analysis, the researcher has tried to address whether or not the variables are

adequate to establish the proposed model 1, based on the H₁ from this study. Following Table 3 displays the important results of the multiple regression analysis and it is followed by the discussion.

From the results of multiple regression analysis, R is a statistic value similar to the correlation coefficient. R-value is equal to 0.778 means that the relationship between patient satisfaction and all the service quality attributes are very strong to suggest a model with some good predictors of outcome. R square is equal to 0.605 implies that 60.5% of the variance in the DV is explained by this IV. In simple words, it can be concluded that the impact of service quality is 60.5% on patient satisfaction in Ayurveda healthcare services. In a closer look, it is evident that the assurance dimension is the most predictor of patient satisfaction ($\beta = 0.403$) and it is followed by reliability ($\beta = 0.259$) and responsiveness dimensions ($\beta = 0.163$). The standardized beta coefficient value explains that the assurance dimension has a great positive impact and the empathy dimension has an insignificant positive impact on patient satisfaction in Ayurveda.

Analysis of variance tells whether or not the model is a significant predictor of patient satisfaction. As the significant value is less than 0.05 (p-value) from the regression ANOVA output, it is finalized that the regression model significantly predicts patient satisfaction with the five-dimensional performance-based service quality in Ayurveda healthcare.

While the ANOVA reveals whether the overall model is significantly fit to predict patient satisfaction, the coefficient results tell the extent to which each service quality dimensions are contributing to the overall model. From Table 3, except tangibility and empathy dimensions, all the other variables that are reliability, responsiveness, and assurance have a strong significant positive impact on patient satisfaction in Ayurveda.

From the results of the multiple regression analysis, the study concludes that the performance-based service quality measurements such as reliability, responsiveness, and assurance could significantly and, tangibility and empathy positively predicting the model by the way of explaining its 60.5% variance on the patient satisfaction in Ayurveda healthcare.

11. Test on mediation effect

Based on hypothesis 2 (H₂) proposed, the triangular model represents the mediating effect of patient satisfaction between the relationship of service quality and behavioral intentions in Ayurveda healthcare is visualized in Fig. 1.

In this final step of the study, it is directed to test the second hypothesis (H2) developed by the researcher. In its first phase of the study, the researcher could explore the direct relationship of service quality on patient satisfaction in Ayurveda healthcare through an illustrated model 1. Whereas, in this section, the study tries to find out the impact of service quality on behavioral intentions in Ayurveda through the mediating effect of patient satisfaction. Moreover, this study needs to confirm whether the mediating effect of satisfaction level is significant or not through the Sobel test conducted by the researcher.

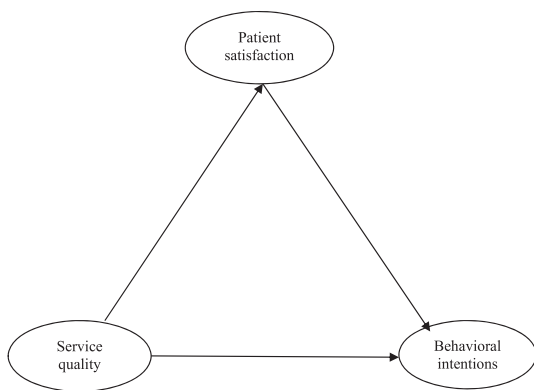


Fig. 1. Proposed mediating model.

Table 4 exhibits the results regarding the goodness of fit indices for the mediating research model. From this output, the value of chi-square shows a significance value higher than the cutoff of 0.05 with a statistics value of 417.149. This means the mediating model proposed by the study is fit in terms of the appropriate level of goodness of fit.

Table 5 evidence that all the correlation coefficients of each path are significant at the 0.05 significance level. This indicates that patient satisfaction as a mediating variable partially mediating the relationship of service quality and behavioral intentions in Ayurveda healthcare.

The results of the Sobel test talking about the indirect effect of service quality on behavioral intentions through the satisfaction level in Ayurveda healthcare. The significance value is equal to 0.00 ($p < 0.05$, t value -3.781) implies that patient satisfaction significantly mediates the effect of quality of services on the behavioral intentions in Ayurveda, thus H_2 is supported here based on the empirical support.

Results of the path analysis used for the mediating effect shows that patient satisfaction mediates the relationship of performance-based service quality on the behavioral intentions in Ayurveda healthcare. It happens due to the condition that a patient will be loyal to a hospital when he/she is satisfied with their service

Table 4 Model fit indices.

The Goodness of fit indices	Cut-off value	Result	Remarks
Chi-Square (X^2)	Expected to be low	417.149	Fit
Degrees of freedom (DF)	Positive	110	Fit
Probability level (p)	≥ 0.05	1.04	Fit
Chi-square mean/DF	≤ 5.0	3.792	Fit
Goodness of fit (GFI)	≥ 0.90	0.891	Marginal
Adjusted GFI	≥ 0.90	0.924	Fit
Tucker Lewis index (TLI)	≥ 0.90	0.912	Fit
Comparative fit index (CFI)	≥ 0.90	0.943	Fit
Root Mean Square Error Approximation (RMSEA)	≤ 0.08	0.08	Marginal

Source: Processed Data.

Table 5 Regression weights for mediating effects.

Model	Path	Estimate	SE	CR	Sig. (p)
H2	Service quality on Behavioral intentions	0.325	0.106	11.462	0.00
	Service quality on Patient satisfaction	0.814	0.071	3.907	0.00
	Patient satisfaction on Behavioral intentions	0.445	0.109	5.402	0.00

Source: Processed Data.

delivery mechanism. These results are in support of the findings of [68–70], who find satisfaction has the power to mediate the effect of service quality on customer loyalty.

12. Implications and recommendations

The study suggested that all the healthcare service providers should conduct a continuous evaluation of what they offer to the healthcare aspirants before the treatment and what they deliver to them. For that purpose, there should be a regular monitoring system to ensure the same. The service providers also have responsibilities to guarantee the basic amenities like easy access to the purified drinking water, a washbasin system inside each room, and a proper place for laundering and all [71]. Based on the study, the researcher's recommendations to maximize the service quality and patient satisfaction in the future to compete with other modern healthcare systems are;

(1) It is suggested to modernize the technology used by the Ayurveda hospitals for admission and billing with the support of advanced e-payment systems, which are already implemented by hospitals of other streams; (2) The physical settings of the hospitals should be upgraded with the traditional settings into an attractive environment, which can create a positive ambiance among healthcare consumers; (3) Some possible communication devices/applications are recommended to install in every hospital to easily convey the needs and problems faced by healthcare consumers before the hospital management. It may lead to quick responses by the authority that can improve the satisfaction level; (4) Individual care received by healthcare consumers is very important in Ayurveda healthcare which seeks more attention to better the service experience to retain the consumer in the future; (5) A pleasant and positive attitude of the doctor and the employees are inevitable for an improved service experience in Ayurveda healthcare; (6) Service providers may able to enlarge the demand of Ayurveda healthcare from the native as well as foreign aspirants if they meet appropriate policy changes based on these study findings. It may also support the development policy of the Ayurveda health tourism department of the state as well as the central Government.

Obviously, through addressing these important aspects by the Ayurveda hospitals they can retain the customers with improved patient satisfaction level since customer satisfaction and customer loyalty are very much interrelated and dependent on each other [72].

The study also identified that interaction between the healthcare consumers, doctors, and other staff are essential to contribute a positive result on the service experience [73,74]. Because, later this service experience is evidenced in the higher level of customer satisfaction and loyalty in healthcare services [75,25].

Again, the study has given more focus to address the dimensions which are unnoticed in performance-based service quality and patient satisfaction in Ayurveda. In that list, the important factor that is to be considered by each service provider is 'an effective pricing strategy', where the majority of the healthcare consumers are demanding affordable treatment packages based on their financial status. Easy accessibility with essential facilities to Ayurveda is another important matter to be considered by the state and

central Governments. Therefore, both Governments are requested to launch more Ayurveda hospitals for low-income groups at a cheaper cost. Beyond all these, Ayurveda healthcare providers should seriously think about more awareness programs and campaigns to attract all generations (especially the younger generation) by creating some sort of fascinating strategies towards this natural treatment, whereas the majority of the present inpatients are aged women. Because the younger generation can circulate and propagate more about the Ayurveda among their peer groups and to the following generations, respectively, as a whole group is aware of its utility and advantages.

13. Conclusion

The major intentions of the study were to publish the role of performance-based service quality (SERVPERF, developed by [44]) on patient satisfaction and identify the mediating impact of satisfaction on behavioral intentions in Ayurveda healthcare. For that purpose, the survey was carried out from the inpatients of 20 private sector Ayurveda hospitals located in the north part of Kerala, India. To establish a model on this objective, the study considered the dependent variable as patient satisfaction and the independent variable as dimensions of performance-based service quality attributes. As a summary of its analysis and discussion, the financial requirement in the Ayurveda healthcare is noticed as the only one factor that is commonly replied as a low rated dimension by the healthcare consumers from the entire list of variables used for this study. Apart from this, all the other variables are rated above six on a seven-point Likert scale, which means that the consumers are enough happy with the service offered and delivered by the service providers of Ayurveda from the mentioned region. Model 1 evidenced that assurance, reliability, responsiveness has a stronger significant positive influence on patient satisfaction whereas the other two have not significant impact on it. Whereas, Model 2 explained the power of satisfaction level among healthcare consumers plays an important role in the relationship between performance-based service quality and behavioral intentions in Ayurveda healthcare. Simply, it can be said that only through the quality of service delivery and enhanced satisfied patients together can contribute more loyal healthcare consumers, especially in Ayurveda. Finally, the author could conclude with the importance of awareness programs to attract more people into this natural treatment, Ayurveda.

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Conflict of interest

None.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.jaim.2020.10.011>.

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