

Psychometric Validation of Patient Satisfaction Assessment Tool for Alternative Medicine Healthcare Facility in India

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Purpose: Good health status has traditionally been linked to greater levels of patient satisfaction. With the emergence and integration of various medical modalities, including Homeopathy, Ayurveda, and other complementary and alternative medical treatments, patients are likely to have different satisfaction levels during their interaction with different practitioners. Amidst this diversity, the efficacy, accessibility, and cost-effectiveness of these treatment approaches have garnered significant attention. Hence, a tool was developed to assess the patient's interaction with Complementary and Alternative Medicine treatments specifically Homeopathy. The objective of this study is to evaluate the validity and reliability of the Patient Satisfaction Assessment Tool (PSAT) developed to assess patient interaction with homeopathic outreach services.

Methods: A new structured questionnaire was developed using a standardized procedure. After obtaining clearance from the scientific and ethics committee of the Central Council for Research in Homoeopathy, data was collected from consenting participants above 18 years of age attending the Dr. D.P. Rastogi Central Research Institute for Homoeopathy, Noida, Uttar Pradesh, India. Data was then computerized and analyzed by principal component analysis as the extraction method and orthogonal varimax as the rotation method.

Results: A total of 285 participants were enrolled for psychometric validation, and 254 participants were included in the final analyses after exclusion. The mean (\pm Standard Deviation) age of participants was 37.63 (\pm 12.9) years (range 18–79). The final 34-item questionnaire was arranged into nine domains as per rotated component matrix analysis. The overall internal consistency of the final questionnaire, as calculated by Cronbach's alpha, was 0.79, and the measure of sampling adequacy was 0.85 (Kaiser–Meyer–Olkin test).

Conclusion: Initial results from the pilot tests suggest that Patient Satisfaction Assessment Tool (PSAT) is effective in capturing key aspects of patient satisfaction, from homeopathic clinical services which can guide future quality improvement initiatives in alternative medicine healthcare facilities.

Keywords: consultation quality, health consciousness, homeopathy, outpatient department, treatment quality

Introduction

Patient satisfaction is a comprehensive concept of the cumulative effect of multiple interlinked domains, which include (a) healthcare provider's assessment – Availability of medicine, side effects, (b) cost-effectiveness – out-of-pocket expenditure and affordability of treatment, (c) general health status – frequency of illness and sleep quality, Eating habits, medication adherence, health education and resources, (d) health awareness, health check-ups and preventive health measures, physical activity, stress management and pleasure assessment and (e) daily screen time and overall healthcare experiences. However, factors such as age, income, communication, employment status, gender, and education

of the patient can also affect the perception of satisfaction. Therefore, it becomes important to understand the scope of the construct of 'patient of health'¹ from the patients' perspective. Patients carry certain expectations before they visit the hospital, and the resultant satisfaction or dissatisfaction is the outcome of their experience.² All such information can be utilized effectively to identify barriers, address treatment gaps, enhance patient turnover, and build more sustainable healthcare services.³

Better service qualities are a means to achieve more support, competitive advantage, and long-term profitability for healthcare providers.⁴ Considering the significance of patient satisfaction in healthcare around a continuous exchange of knowledge, understanding, and cooperation between the patient and healthcare providers, the characteristics of the patient as well as the providers, can be the determinants of affecting this interaction.

India has a sizeable proportion of traditional complementary and alternative healthcare practitioners, collectively termed AYUSH practitioners. AYUSH is an acronym for Ayurveda, Yoga and Naturopathy, Unani, Siddha, and Homeopathy (spelled as homoeopathy in India). Of the estimated 5.76 million health workers in India, 1.16 million are modern medicine practitioners, 0.79 million are AYUSH practitioners and 0.27 are dentists, the remaining being healthcare workers such as pharmacists and nurses.⁵ The AYUSH practitioners work in both stand-alone and integrated settings. Homeopathy is an acceptable form of treatment being considered a holistic, safe medicine.⁶ It is also reported that 82.40% (95% confidence interval = 79.23, 85.19) of patients would prefer integrating Homeopathy services along with modern medicine setups.⁷

Within this multi-system provision of healthcare, apart from the process of defining patient satisfaction and further differentiating its subsets, its relationship to the holistic care provided by the practitioners of traditional and complementary medicine needs to be determined.

The purpose of this study is to develop a validated scale that can measure the quality of care/patient satisfaction from the services provided in independent standalone settings/outreach services in the community, as per our knowledge, no such standardized scale specific to alternative medicine delivery services is not yet available.

Materials and Methods

Study Design

This was a cross-sectional survey involving the development of a patient satisfaction questionnaire. The research team obtained approval from the scientific and ethics committee of the Central Council for Research in Homoeopathy (CCRH), New Delhi. The study was conducted in compliance with the Declaration of Helsinki.⁸ The development of the Patient Satisfaction Assessment Tool (PSAT) took place according to a previously reported procedure that included item development, validation, and pilot testing.^{9,10}

Literature Review and Item Generation

Following a search of the literature, previously published studies were reviewed, and it was concluded that no survey questionnaire was available to address the objectives of our study. Thus, we screened all the relevant studies and extracted useful information to form the initial face of the questionnaire. The information was mainly from the evaluated dimensions and items from existing inpatient satisfaction questionnaires developed in countries all over the globe.

Of various fields, items were generated for developing our questionnaire, to evaluate the consultation quality, treatment process, and environment of care. Following literature survey and patient interaction, 39 items representing various domains including healthcare provider's listening to health concerns, knowledge of disease, diagnosis, instructions provided, professionalism, treatment effectiveness, overall care, availability of medicine, side effects, out-of-pocket expenditure, affordability of treatment, financial stress and future treatment alternatives, general health status, frequency of illness and sleep quality, eating habits, medication adherence and health education and resources health awareness, health check-ups and preventive health measures which reflected the construct-concept of the tool were generated.

Face Validity

Face validity was achieved based on the appearance, format, and layout of the questionnaire. It is a subjective assessment of factors such as the relevance, formatting, readability, clarity, and appropriateness of the questionnaire for the intended audience. Two experts with more than 40 years of experience in patient care and healthcare management looked at the items in the questionnaire to support their relevance. Care was taken to include both positive and negatively worded items to avoid the chances of a submissive response by the study participants. The experts also examined the language of the questions, the intent of the questions, and the total number of questions (length of the survey). Once consensus was obtained from the experts, the questionnaire was finalized with 39 questions. Options for the questions were framed in the form of Likert-type items as respondents can choose one option that best aligns with their view. The questionnaire was developed in English language, and the surveyor's script was developed bi-lingual in English and Hindi.

Psychometric Evaluation

Factor analysis (Extraction method Principal Component Analysis with rotation method varimax with Kaiser normalization) was done for construct validity testing to identify the domains affecting patient satisfaction and to reduce dimensionality. The construct validity determined if the tool measured the concept that it was meant to measure. Importantly, it determined if the measure is appropriately associated with other factors that are not directly included within the tool and the extent of correlation between related measures.

Participants

Participant recruitment took place in the outpatient department (OPD) of Dr. D.P. Rastogi Central Research Institute for Homoeopathy, Noida, Uttar Pradesh, India, a peripheral research center of CCRH, providing homeopathic treatment, with an average footfall of 450 patients per day. The target sample size was 200 participants considering a ratio of 1:5. The sample size was expected to be achieved over a period of maximum 4 days within a span of 10 working days. However, on the last day of data collection, a larger number of patients were enrolled in the study due to increased footfall of patients resulting in a total of 285 participants being interviewed. A team not affiliated with the center and not involved in patient care carried out the pilot survey. Following the participant's visit with the physician and receipt of the prescribed medication, the survey was administered as an exit interview. The participants were included if they were adults above 18 years of age, coming to the institute for consultation for the second time or more and gave consent for participation. Participants who could not understand English or Hindi and, therefore, could not communicate with the interviewers or understand the questions or were short of time and likely to rush through the exit interview were excluded. Participants were made aware of the fact that the interviewers were free from any judgmental bias and the information provided by them, whether good or bad, will only help to improve the quality of care provided at the facility. They were informed that participant confidentiality will be maintained at the time of compiling the feedback responses.

Data Collection

Participants were provided with information regarding the survey, it was also made sure that the participants knew the interviewers were not from the hospital staff and that the answers provided by them would be used to improve the healthcare facility. Written informed consent was obtained from all participants, ensuring confidentiality and voluntary participation. Pen paper method was used to fill the paper questionnaires, where each question was read out in English or Hindi to the participant and their responses were marked. Data was collected for 4 days in a span of 10 working days in the month of July 2024.

Data Analysis

Statistical analysis was performed using SPSS version 21.0. Descriptive statistics were used to summarize the demographic data. Socio-demographic data included the name of the participant, age, sex, marital status, type of family, and education. Modified Kuppaswamy Scale¹¹ was used which categorizes the occupation of participants in a range of unemployed/unskilled to professional level based on the kind of work they do on a daily basis.

The internal consistency of the questionnaire which reflects the extent of the correlations among the individual items included in the questionnaire was calculated. Factor analysis was performed to elucidate the construct validity, using the principal component analysis method as an extraction method, which creates uncorrelated linear combinations of weighted observed variables and accounts for the maximal amount of variance present in the data. The Varimax method was used as the rotation method. Items poorly associated with all other items were scrutinized if they were contributing to the overall measure of “Patient Satisfaction”, while items that were very highly correlated were retained. Internal consistency was assessed by measuring Cronbach’s alpha measures correlation within items and includes the association among all items within the questionnaire. A significant Bartlett’s test of sphericity was examined for possible inter-correlations of the items which is required for conducting principal component analysis and a determinant of correlation matrix <0.00001 revealed if there is any multi-collinearity.

Results

Out of the data of 285 participants who participated in the survey, 31 participants were excluded from the analysis as they deviated from the requisite inclusion criteria (Figure 1).

Demographic data of the study participants are summarized in Table 1, and missing responses were excluded. The majority of participants were female (64%), and mean age of the participants was 37.63 ± 12.96 years (range 18 to 79 years).

Sequencing and grouping were done to further modify the questionnaire. Content validity was also supported by expert reviews and patient feedback. Finally, as shown in Table 2, 34 items were kept with an overall variation of 72.25% using factor analysis which is satisfactory.

The analysis was conducted four times, initially including all 39 items. Additionally, separate analyses were performed for each of the four domains. A total of five items, pertaining to anxiety assessment, oral health, comparison with other hospitals, cleanliness and ambience, and staff friendliness, were removed during the process. Three items

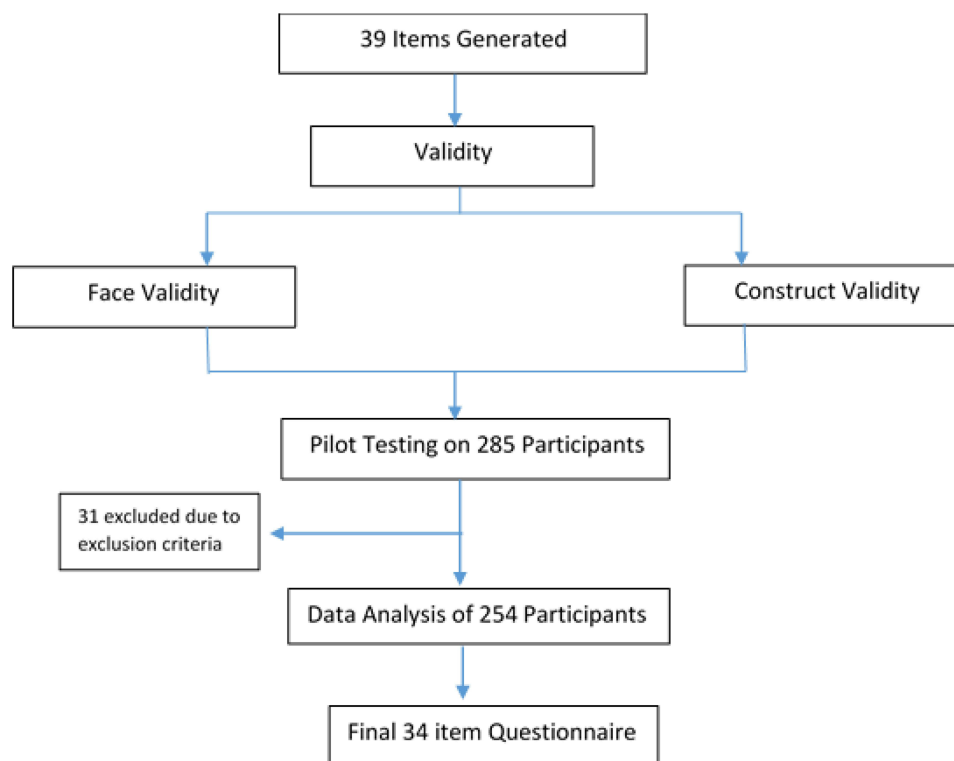


Figure 1 Flowchart of the survey.

Table 1 Demographic Characteristics of the Participants

Characteristics	Frequency (%)
Sex	
Female	163 (64)
Male	90 (35)
Other	1 (0)
Place of Residence	
Urban	236 (93)
Rural	18 (7)
Total household income from all sources in the last 12 months	
Less than 50 thousand	6 (2)
50 thousand to 1 lac	17 (7)
1 lac to 2 lac	61 (24)
2 lac to 5 lac	89 (35)
5 lac to 10 lac	48 (19)
More than 10 lac	32 (13)
How many people live in your household?	
1	7 (3)
2	11 (4)
3	29 (11)
4	81 (32)
5	58 (23)
6 or more	66 (26)
What are the main sources of your household income?	
Wages & salaries	159 (63)
Business	58 (23)
Agriculture	22 (9)
Social benefits	5 (2)
Pension	3 (1)
Education Level	
Profession to Honors	2 (1)
Graduate to Postgraduate	91 (36)
Intermediate or post-high school diploma	44 (17)
High School certificate	47 (19)
Middle School certificate	32 (13)

(Continued)

Table 1 (Continued).

Characteristics	Frequency (%)
Primary School certificate	7 (3)
Illiterate	31 (12)
Type of Occupation	
Homemaker	106 (42)
Professional	28 (11)
Skilled	36 (14)
Semiskilled	15 (6)
Unskilled	20 (8)
Clerical	4 (2)
Student	29 (11)
Unemployed	7 (3)
Marital Status	
Married	186 (73)
Single	53 (21)
Widow	8 (3)
Separated	4 (2)
Type of Family	
Nuclear	185 (73)
Joint	67 (26)

Table 2 Rotated Component Matrix (39 Questions)

Items	Description	Factors								
		1	2	3	4	5	6	7	8	9
Q1	Health Awareness How conscious are you about maintaining your health?						0.608			
Q2	Regular Health Check-ups How often do you have regular health check-ups?						0.810			
Q3	General Health Status How would you rate your overall health?				0.699					
Q4	Frequency of Illness How often do you fall ill?				0.787					
Q5	Healthy Eating Habits How would you rate your eating habits?					0.651				
Q6	Sleep Quality How would you rate the quality of your sleep?				0.701					

(Continued)

Table 2 (Continued).

Items	Description	Factors								
		1	2	3	4	5	6	7	8	9
Q7	Physical Activity How often do you engage in physical activity or exercise?							0.696		
Q8	Knowledge of Health Conditions How knowledgeable are you about any health conditions you have?									0.567
Q9	Medication Adherence Do you take your medications as prescribed?					0.752				
Q10	Smoking Do you smoke or take tobacco in any form?								0.860	
Q11	Alcohol Consumption Do you consume alcohol?								0.853	
Q12	Stress management How well do you manage stress?							0.596		
Q13	Preventive Health Measures How often do you engage in preventive health measures (eg, vaccinations, screenings)?						0.670			
Q15	Interest & Pleasure Assessment Over the past 2 weeks, how often do you engage in activities that contribute positively to their well-being, relaxation, and enjoyment?							0.820		
Q17	Daily screen time How many hours in a day do you look at an electronic screen (eg Mobile phone, Television, Computers, Laptops etc.)									0.805
Q18	Health Education and Resources Do you feel you have access to sufficient health education and resources?					0.662				
Q19	Listening to health concerns How well do you feel the provider listened to your health concerns?	0.898								
Q20	Answering Questions How well do you feel the provider answered your questions?	0.890								
Q21	Diagnosis Process How would you rate the diagnosis process that you experienced	0.826								
Q22	Knowledge of disease How well do you feel the provider has explained the health problem and its severity?	0.879								

(Continued)

Table 2 (Continued).

Items	Description	Factors								
		1	2	3	4	5	6	7	8	9
Q23	Thoroughness of Instructions Please rate how thorough you feel the provider's instructions for care were.	0.816								
Q24	Overall Care How would you rate the overall care you received from your provider?	0.899								
Q25	Clarity of Answers When you had important questions to ask a doctor, did you get answers you could understand?	0.846								
Q27	Likelihood to Recommend How likely are you to recommend our facility to your friends and family?	0.634								
Q30	Staff professionalism How would you rate how professional the staff members are in handling your inquiries or requests?	0.731								
Q31	Consultation Quality How was the quality of consultation with the doctor?	0.764								
Q32	Previous Treatment Was the treatment prescribed to you earlier effective?	0.537								
Q33	Availability of medicine Is medicines prescribed were readily available?		0.731							
Q34	Cost Effectiveness Was the treatment provided to you cost effective?		0.908							
Q35	Side effects Did you experience any side effects from medicines		0.811							
Q36	Additional expenses Did spend any additional out-of-pocket expenses related to your treatment (eg, medications, tests)		0.798							
Q37	Financial Stress The cost of treatment at this healthcare setting caused significant financial strain.			0.927						
Q38	Affordability The treatment provided in this healthcare setting was affordable for me		0.880							
Q39	Financial barrier The cost of homeopathic treatment has affected my ability to seek healthcare services in the future.			0.957						
Extraction method: Principal Component Analysis										
Rotation Method: Varimax with Kaiser Normalization										
Rotation converged in 7 iterations										

Table 3 Distribution of Questions Into Various Domains (34 Questions)

No. of Domains	Domain Name	Question Numbers	Questions On
1	Consultation Quality	19, 20, 21, 22, 23, 24, 25, 27, 30, 31, 32	Healthcare provider's assessment Listening to health concerns, knowledge of disease, Diagnosis, Instructions provided, professionalism, treatment effectiveness, and Overall Care
2	Treatment quality	33, 34, 35, 36, 38	Availability of medicine, side effects, out of pocket expenditure and affordability of treatment
3	Cost-effectiveness	37, 39	Financial stress and future treatment alternatives
4	Individual health status	3, 4, 6	General health status, frequency of illness and sleep quality
5	Self-care	5, 9, 18	Eating habits, medication adherence and health education and resources
6	Health consciousness	1, 2, 13	Health awareness, health check-ups and preventive health measures
7	Habits	7, 12, 15	Physical activity, Stress management and pleasure assessment
8	Addiction	10, 11	Tobacco and alcohol consumption
9	Lifestyle habits	8, 17	Screen time and knowledge of health conditions

Table 4 KMO and Bartlett's Test

	Original Questionnaire (39 Questions)	Modified Questionnaire (34 Questions)
Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy.	0.860	0.855
Bartlett's Test of Sphericity		
Approximate chi-square	5370.128	4619.408
Df	741	561
Significance	0.000	0.000
Determination of correlation matrix	9.441E-013	5.707E-011

contributed minimally to the variance extraction, showing factor loadings below 0.50, and two items had factor loadings greater than 0.50 on more than one component, indicating potential issues with cross-loading and multicollinearity.

The 9 domains identified were consultation quality, treatment quality, cost-effectiveness, individual health status, self-care, health consciousness, habits, addiction, and lifestyle habits (Table 3).

Measure of sampling adequacy (KMO = 0.855) and Bartlett's test of sphericity were found to be significantly satisfactory (Table 4). Overall internal consistency of the final questionnaire reflects good associations among the items with Cronbach's alpha of 0.78.

Discussion

Studies identifying satisfaction levels associated with alternative medicine when juxtaposed with modern medicine have not received due attention in India, despite the growing use of alternative medicine. There remains a need for standardized tools to measure patient satisfaction in these settings. This study addresses this gap by developing and pilot-testing a questionnaire, Patient Satisfaction Assessment Tool (PSAT), designed to assess patient satisfaction specifically

at a homeopathic care OPD. Based on the initially identified 39 questions, the final questionnaire had 34 items covering 9 domains of Consultation Quality, Treatment quality, Cost-effectiveness, Individual health status, Self-care, Health consciousness, Habits, Addiction, and Lifestyle habits. The internal consistency of the PSAT was found to be satisfactory and so was the sampling adequacy. To our knowledge, this is the only scale to be validated in a homeopathic outpatient department and aims to assess if the conceptual differences in the practice of modern medicine practitioners and that of homeopathic practitioners are perceived differently and affect patient satisfaction.

Future demand for the services in healthcare settings is influenced by how patients assess the process of receiving care as well as the technicalities of it in the outpatient departments. Not surprisingly, it is increasingly important to understand and measure patient satisfaction in varied settings, including stand-alone complementary and alternative care, such as homeopathic clinics and outreach camps and settings providing integrated care. By doing so, healthcare providers can begin to address organizational and service delivery changes that can contribute to patient satisfaction, and potentially improve the health of their surrounding communities at the same time.¹²

According to the theory of constructed preferences, when people are in a situation that is both complex and unfamiliar, they likely do not have fixed ideas about what is important to them¹³ advocated that a person's orientation determines satisfaction; dissatisfaction occurs where there was a mismatch in the relationship between the expectations and experience of the patients.

We see the importance of empirical surveys of patient satisfaction as a way of expressing the preferences of those who are most directly affected by medical care. While clinicians tend to agree that clinical skill, rapport, and health-related communication behaviors constitute key elements of "quality care", patients view empathy, courtesy, respect, and "enough time" for care encounters as more important than healthcare providers.¹⁴ In alternative medicine, including Homeopathy, patient satisfaction can significantly impact the perception of care effectiveness. How the concepts of health and disease and principles of holistic care provided by homeopathic practitioners¹⁵ affect patients' perception of quality care and satisfaction can be adjudged by the development of a questionnaire that assesses care parameters provided in a homeopathic setup. Further studies are, therefore, needed to contribute to our knowledge of the nature of patient satisfaction with health services, as evaluated by members of the population who use Homeopathy in the OPD and outreach services.

Satisfaction scales have been present and modified in the past, such one tool is SERVQUAL "A Multiple-Item Scale for Measuring Consumer Perceptions of Service Quality", this 22-item instrument (SERVQUAL) was initially used for assessing customer perceptions of service quality in service and retailing organizations.¹⁶ It was later modified according to the healthcare assessment. Concerning the treatment conditions and cultural contexts, standard scales have been developed in different countries, in multiple languages, cultural context and care settings. These tools measure the patients' perceptions and expectations of services in physical or concrete dimensions, reliability, responsiveness, assurance, and empathy. For instance, ServQual was used in Malaysia¹⁷ and Iran¹⁸ where patient satisfaction survey was used to assess the quality of care in a referral hospital, and then it was used to do a psychometric analysis of diabetes as well as stroke patients from six different European countries.¹⁹ Similarly in Spain, the Primary Care Satisfaction Scale (PCSS) of the EUprimecare,²⁰ a cross-sectional survey with an age limit of 18–65 years was developed to assess patient satisfaction with primary care. In China, the In-Patient Satisfaction Questionnaire was formulated to measure the satisfaction of Conscious patients who had stayed in the hospital for over three days. It had four Dimensions – Doctors' care quality, Nurses' care quality, Quality of the environment and facilities, and Comprehensive quality.²¹ A cross-sectional study was conducted in a teaching hospital in Maharashtra,²² on a scale with multiple domains, viz., ten improvement in health, infrastructure, availability of services, services providers, time spent, communication, billing, cleanliness, and confidentiality that whose validity and reliability were not calculated based on statistical parameters.

These tools have been developed from time to assess the conventional mode of treatment but are not used to assess the alternative mode of treatment in healthcare facilities. PSAT examines the general characteristics of homeopathic OPD settings in India. It is in English language with surveyor script being in English and Hindi, which enhances the outreach of the questionnaire to a large population in the country. Though tested in North India, it can be applied to homeopathic OPDs across the country. PSAT, therefore, will help assess the care provided at homeopathic OPDs. The tool can also be adapted for other Ayush settings after pilot testing in different set-ups. The pilot testing of our patient satisfaction survey tool demonstrated its

utility in capturing critical aspects of patient experiences in homeopathic care settings. The findings emphasize the importance of addressing operational aspects, such as waiting times and patient education, to enhance overall satisfaction.

Strengths of the study include the development of a tool which provides a framework for continuous quality improvement in alternative medicine OPDs. Firstly, knowing the health status of the patient and their awareness and consciousness about their health provides valuable insights for further health education and resource allocation. Second, the interaction between the patient and the consultant, especially when it comes to attending to the patient, plays one of the most effective roles for enhancing the quality of care and patient satisfaction. Also, patients who are aware of their health and conditions that can affect their health have higher-quality expectations.²³ Another strength of our study is that it is designed and tested for homeopathic/alternative medicine settings and outreach camps because less emphasis on the attractiveness of the immediate infrastructure facility is given and more on the communication and rapport built between the patient and the consultant. Factor analysis requires a satisfactory value of the Kaiser–Meyer–Olkin test, which should be more than 0.7 only then the Factor analysis is considered to be applicable. In our findings, we observed a 0.85 value of KMO test and a significant Bartlett’s test.

The study limitation includes validation done in a single homeopathic settings, which may affect the generalizability of the findings independent of specific diseases. This tool provides both options – self-administering and response to a surveyor. Script for the surveyor is needed for smooth application and better results. Bilingual testing has not been done, but it can be performed with the help of a translation tool with ease. The use of the Likert scale provides freedom of a graded response rather than a dichotomous response. Future research should involve multiple alternative medicine settings. This alternative medicine approach is particularly pronounced among the rural part of the Indian subcontinent because the treatment is provided in modest settings with basic facilities and equipment and almost no laboratory findings.

Conclusion

This survey was successfully developed, and the pilot tested a patient satisfaction assessment tool for alternative medicine OPDs. The tool can be effectively utilized to identify strengths and areas for improvement in patient care at a homeopathic setting. Ongoing use of such tools can contribute to enhancing patient-centered care and improving overall satisfaction in alternative medicine settings.

Abbreviations

AYUSH, Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homeopathy; CAM, Complementary and Alternative Medicine; CCRH, Central Council for Research in Homoeopathy; KMO, Kaiser-Meyer-Olkin; OPD, Out Patient Department; PSAT, Patient Satisfaction Assessment Tool.

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Disclosure

The authors report no conflicts of interest in this work.

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