

Assessing the Holistic Impact of Accreditation Standards on Healthcare Professionals at a Tertiary Care Setting in India: A Cross-sectional Study

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ABSTRACT

Introduction: Healthcare accreditation systems, such as the National Accreditation Board for Hospitals and Healthcare Providers (NABH), aim to improve the quality and safety of patient care by implementing structured frameworks. However, limited research exists to measure NABH's impact on healthcare professionals.

Aim: To assess healthcare professionals' perceptions of NABH's influence on service quality and adaptability in a tertiary care setting, examine the role of designation and years of experience, and identify implementation challenges.

Materials and Methods: A cross-sectional study was conducted at SRM Medical College Hospital and Research Centre and SRM Global Hospitals in the Chengalpattu district of Tamil Nadu, India, from June 2024 to October 2024. A total of 321 healthcare professionals were selected using simple random sampling. Data were collected via a semi-structured questionnaire focusing on service quality and adaptability. Chi-square and multivariate

logistic regression were used for statistical analysis. A p-value of less than 0.05 was considered statistically significant.

Results: Favourable perceptions were observed regarding patient safety among 226 (70.4%) participants and infrastructure among 184 (57.3%) participants. In contrast, perceptions were less favourable for adaptability metrics, including updating procedures among 145 (45.2%) participants and role confidence among 152 (47.4%) participants. Multivariate regression analysis indicated that nurses (p-value=0.009), pharmacists (p-value <0.001), and those with less than five years of experience (p-value=0.001) were significantly associated with variations in perceptions of service quality, while health administrators (p-value=0.046, p-value=0.034) were significant for service quality and adaptability post-accreditation. Challenges such as time constraints and excessive workload hindered implementation.

Conclusion: NABH positively impacted adaptability but revealed gaps in service quality. Targeted interventions addressing workload and training may enhance the integration of accreditation standards.

Keywords: Adaptability, National accreditation board for hospitals and healthcare, Service quality

INTRODUCTION

The healthcare sector has experienced a notable transition in recent years, focusing on quality improvement measures to enhance patient care outcomes, ensure safety, and promote overall healthcare excellence. The implementation of accrediting standards is fundamental to this endeavour, providing comprehensive frameworks that guide healthcare institutions in attaining and sustaining high-quality care standards [1]. The NABH, as a vital component of the Quality Council of India (QCI), aims to improve the healthcare system nationwide by fostering continuous quality enhancement and ensuring patient safety. Accreditation programmes often strengthen the organisation and procedures of patient care, concurrently enhancing clinical outcomes [2].

Accreditation is an established concept, as demonstrated by the efforts of the US healthcare system to enhance hospital quality by closing performance gaps, providing principles, regulations, and frameworks to improve outcomes, reinforce patient-clinician relationships, and implement evidence-based practices, while simultaneously tackling systemic challenges [3]. Healthcare accreditation programmes have accelerated global initiatives to enhance healthcare standards. The accreditation procedure entails an external peer evaluation that enables healthcare organisations to obtain formal certification for fulfilling performance requirements [4,5]. The adoption of NABH standards marks a crucial milestone in improving quality healthcare delivery in India, especially within tertiary care institutions, benefitting all major stakeholders, including patients, the general public, hospitals, and staff members [6].

These standards address various facets of healthcare delivery, including patient safety, clinical governance, infrastructure, and process management, among others. In addition to covering hospitals, the NABH accreditation and certification programme includes 21 distinct speciality areas, including but not limited to blood banks, allopathic clinics, primary health centres, dental care, Ayurveda hospitals, homoeopathy centres, and wellness facilities [7]. It has also been acknowledged worldwide on par with other global certification standards and is accredited by the International Society for Quality Assurance in Healthcare (ISQua) [8]. NABH has delineated three tiers of accreditation: 'entry level certification', 'progressive level certification', and 'complete accreditation', allowing hospitals to apply for their preferred level [9].

Healthcare professionals serve as the cornerstone of successful healthcare delivery, playing a crucial role in the establishment and preservation of quality standards within healthcare organisations. Their proficiency, commitment, and flexibility are essential for the effective implementation of accrediting schemes like NABH [10]. By directly interacting with these standards in their day-to-day clinical and administrative tasks, healthcare practitioners bridge the gap between theoretical benchmarks and actual execution [11]. Their perspectives, experiences, and challenges not only affect the efficacy of NABH standards but also highlight opportunities for development in the certification process. Ensuring their active engagement, addressing their concerns, and fostering a culture of collaboration are critical for achieving lasting gains in patient care and organisational performance [12].

The quality of treatment is of essential significance, as the lives of patients are at stake regularly. Healthcare service quality is a continual process whereby the needs of patients are satisfied effectively and efficiently [13]. The ultimate purpose of any certification procedure is to promote healthcare service quality and to ensure healthcare professionals can adapt to new and evolving accrediting criteria. Therefore, understanding the overall impact of NABH standards on healthcare workers becomes crucial for enhancing both workforce satisfaction and healthcare quality outcomes. While several studies [14,15] have explored the impact of accreditation on patient outcomes and organisational performance, very little focus has been dedicated to understanding the holistic influence of NABH standards on healthcare professionals themselves. Therefore, this cross-sectional study intends to analyse the influence of NABH on healthcare personnel in a tertiary care hospital setting. The objectives of this study are threefold: 1) To identify the barriers faced by healthcare professionals in implementing NABH standards in daily practice; 2) To assess their perceptions regarding the impact of NABH on healthcare service quality and adaptability; 3) To determine the role of various determinants influencing perceptions.

MATERIALS AND METHODS

This is a cross-sectional study conducted at SRM Medical College Hospital and Research Centre and SRM Global Hospitals in the Chengalpattu district of Tamil Nadu, from June 2024 to October 2024. Healthcare professionals employed in these institutions who had experienced at least one hospital accreditation procedure and who were willing to give informed consent were included in the study. Ethical approval for the study was obtained from the Institutional Ethics Committee (SRMIEC-ST0224-903).

Inclusion criteria: Healthcare professionals aged 18 years and above, employed in the institution for a minimum of six months, with experience in at least one previous accreditation process, were included in the study.

Exclusion criteria: The healthcare professionals recruited for the study included physicians (consultants, residents, and duty medical officers), staff nurses, pharmacists, health administrators/managers, and paramedical personnel. Participants who did not provide informed consent were excluded from the study.

Sample size calculation: The sample size for the study was computed based on an overall favourable response of 84.5% from a study conducted by Joseph L et al., [12]. Using the formula:

$$\frac{Z^2pq}{d^2}$$

where $z=1.96$ (taken at a 95% confidence interval), the margin of error was taken at 5%, with a non response rate of 20%, resulting in a final sample size of 242. Simple random sampling via the lottery method was used to select participants from a sampling frame of hospital personnel collected from the human resources department of both tertiary care institutions, after gaining prior consent.

Study Procedure

Data were collected using a self-administered semi-structured questionnaire. Questions addressing the assessment of perceptions regarding the impact of NABH were adapted from a study conducted by Rawal K and Pareek N as well as the Hospital Accreditation Questionnaire [16,17]. This adapted instrument was then validated for internal consistency (Cronbach's alpha) through a pilot study conducted with 40 participants who were not included in the final study. Senior hospital administration experts were consulted to ensure relevance and clarity. Cronbach's alpha was found to be 0.786, indicating good internal consistency.

While the 11 questions were finalised without issue during the pilot study, participants identified challenges through an open-ended format, which were grouped into four categories: excessive

workload, inadequate staffing, overly complex procedures, and time constraints. Service quality encompasses patient safety protocols, infrastructure, staff competence, patient satisfaction, rights and responsibilities, and infection control measures, whereas adaptability comprises clinical care practices and outcomes, policy updating, continuous learning, feedback, and acclimatisation to new roles and responsibilities. Participants were asked whether they agreed or disagreed that accreditation had enhanced the aforementioned components; the final scores were computed separately for service quality and adaptability. For each question, a 'yes' response was assigned one point, while a 'no' response received no points. A score of four and above was recognised as a favourable perception of service quality, and a score of three and above was recognised for adaptability.

STATISTICAL ANALYSIS

Data analysis was conducted using IBM Statistical Package for Social Sciences version 26.0. Continuous data were reported as mean and standard deviation, while categorical data were expressed as intervals and ratios. Radar charts were used to depict challenges. The Chi-square test and multivariate logistic regression analysis were performed to assess the relationship between the independent variables and service quality and adaptability. A p-value of <0.05 was considered significant.

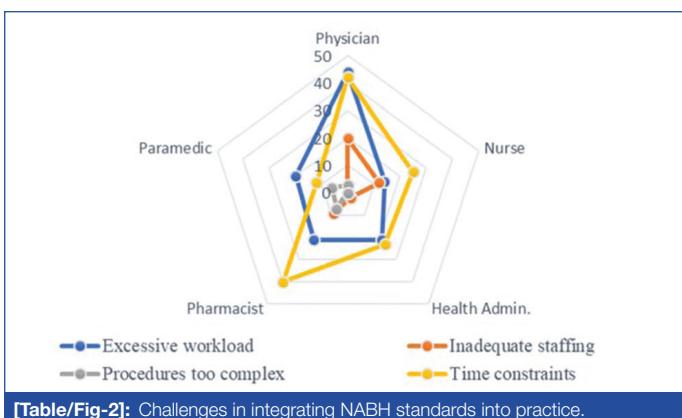
RESULTS

A total of 363 healthcare professionals were approached for the study, out of which 321 participants took part, yielding a response rate of 88.4%. The mean age of the participants was 34.82 years. The final median and Interquartile Range (IQR) for service quality and adaptability were 3.1 and 2.2, respectively. The majority of the participants belonged to the 30 to 44 years age group 188 (58.6%). A total of 109 (34%) participants were physicians, followed by pharmacists 77 (24%) and nurses 51 (15.9%). Additionally, 165 (51.4%) participants had more than five years of work experience in hospitals [Table/Fig-1].

Variables	Category	n (%)
Age	18 to 29 years	83 (26)
	30 to 44 years	188 (58.6)
	45 and above	50 (15.6)
Gender	Male	177 (55.1)
	Female	144 (44.9)
Designation	Physician	109 (34)
	Nurse	51 (15.9)
	Health admin	46 (14.3)
	Pharmacist	77 (24)
	Paramedic	38 (11.8)
Years of experience	Less than 5 years	156 (48.6)
	More than 5 years	165 (51.4)

[Table/Fig-1]: Socio-demographic and designation distribution of participants.

A radar chart is presented to visualise the challenges faced by different professional groups in implementing NABH standards [Table/Fig-2]. Each axis on the chart corresponds to a specific professional group, and the data points indicate a challenge identified by the respective group. The most frequently indicated problem was time constraints, which was most noted among physicians 42 (29.6%) and pharmacists 40 (28.2%). Excessive workload was the second most cited difficulty, particularly among physicians 40 (28.2%), followed by health administrators 21 (17.5%) and pharmacists 21 (17.5%). Lack of adequate staff was perceived as a significant issue among physicians 20 (46.5%), followed by nurses 12 (27.9%). A few participants believed the processes were excessively complicated.



[Table/Fig-2]: Challenges in integrating NABH standards into practice.

Regarding service quality, perceptions were favourable towards safety protocols 226 (70.4%), infrastructure upgrades 184 (57.3%), staff competency 186 (57.9%), patient satisfaction 220 (68.5%), and infection control measures 172 (53.6%). However, perceptions regarding adaptability were generally not positive, except for improved workflow 172 (53.6%) [Table/Fig-3].

Variables	Yes n (%)	No n (%)
S1 - Has there been improvement in patient safety protocols?	226 (70.4)	95 (29.6)
S2 - Have there been improvements in infrastructure?	184 (57.3)	137 (42.7)
S3 - Has NABH contributed to improved staff competence?	186 (57.9)	135 (42.1)
S4 - Has there been improvement in patient satisfaction?	220 (68.5)	101 (31.5)
S5 - Do patients adequately perceive their rights and responsibilities?	108 (33.6)	213 (66.4)
S6 - Are Infection control measures effective post-NABH?	172 (53.6)	149 (46.4)
A1 - Has NABH significantly affected clinical care practices and outcomes?	104 (32.4)	217 (67.6)
A2 - Has NABH encouraged your department to update its procedures and policies?	145 (45.2)	176 (54.8)
A3 - Has NABH promoted continuous learning in your department or workplace?	157 (48.9)	164 (51.1)
A4 - Have you incorporated NABH feedback to improve workflow?	172 (53.6)	149 (46.4)
A5 - Do you feel confident in adapting to new roles and responsibilities during accreditation?	152 (47.4)	169 (52.6)

[Table/Fig-3]: Overall perception of participants on impact of accreditation.

S: Service quality; A: Adaptability

For service quality, age ($\chi^2=18.64$, p-value <0.001) and designation ($\chi^2=54.103$, p-value <0.001) were found to be statistically significant predictors. The 18 to 29 years and 40 to 44 years age groups provided 60 (72.3%) unfavourable and 102 (54.3%) favourable responses, respectively. Physicians offered 76 (69.7%) favourable responses

to service quality, while nurses provided 36 (70.6%) unfavourable responses and pharmacists provided 61 (79.2%) unfavourable responses. For adaptability, gender ($\chi^2=4.997$, p-value=0.016) was identified as a statistically significant predictor [Table/Fig-4].

Participants aged 18 to 29 years demonstrated a statistically significant association with service quality (p-value <0.001, 0.37). Additionally, males were significantly associated with adaptability (p-value <0.005). Nurses (p-value=0.009), health administrators (p-value=0.046), and pharmacists (p-value <0.001) were significant predictors of poor service quality. Participants with job experience of less than five years {p-value=0.001, Adjusted Odds Ratio (AOR)=2.6, 1.467-4.609} had a favourable perception of better service quality. For adaptability, health administrators (p-value=0.034, AOR=2.783, 1.08-7.171) were favourable towards the impact on adaptability [Table/Fig-5].

DISCUSSION

This study analysed healthcare professionals' perspectives on the impact of NABH on service quality and adaptability. While perceptions of service quality were generally favourable, adaptability showed room for improvement. Nurses and pharmacists viewed NABH positively regarding service quality, but health administrators were less supportive of its influence on adaptability.

Time constraints and excessive workload were identified as significant obstacles in the application of accreditation requirements. A study conducted by Kamalasanan A et al., highlights that poor physical facilities and insufficient human resources are key impediments to gaining hospital accreditation in India [18]. These findings align with the issues reported in Tamil Nadu, where healthcare workers, particularly pharmacists and administrators, encounter similar limitations, further complicating the implementation of NABH standards.

Contrary to observations from a study by Smits H et al., which noted that complexities in documentation and the adoption of information technology are pertinent issues faced by low- and middle-income countries, complexity in procedures related to accreditation was not considered an issue and would not impede successful accreditation and improvement of healthcare quality [19].

A qualitative study conducted by Krishnamoorthy Y et al., on barriers and facilitators to the implementation of the National Patient Safety Implementation Framework found that secondary and tertiary care facilities in the state had innovative or best practices. This aligns with the 70.4% of participants in our study who felt that NABH had improved patient safety protocols, indicating a broader trend of enhanced patient safety measures in the region [20]. While there is a favourable trend, issues persist due to a lack of knowledge and the need for increased assistance for patient safety research.

Variables	Category	Service quality			Adaptability		
		Yes n (%)	No n (%)	p-value	Yes n (%)	No n (%)	p-value
Age	18 to 29 y	23 (27.7)	60 (72.3)	<0.001	35 (42.2)	48 (57.8)	0.111
	30 to 44 y	102 (54.3)	86 (45.7)		85 (45.2)	103 (54.8)	
	45 y and above	29 (58)	21 (42)		30 (60)	20 (40)	
Gender	Male	84 (47.5)	93 (52.5)	0.837	72 (40.7)	105 (59.3)	0.016
	Female	70 (48.6)	74 (51.4)		78 (54.2)	66 (45.8)	
Designation	Physicians	76 (69.7)	33 (30.3)	<0.001	50 (45.9)	59 (54.1)	0.288
	Nurse	15 (29.4)	36 (70.6)		24 (47.1)	27 (52.9)	
	Health admin.	23 (50)	23 (50)		28 (60.9)	18 (39.1)	
	Pharmacist	16 (20.8)	61 (79.2)		33 (42.9)	44 (57.1)	
	Paramedic	24 (63.2)	14 (36.8)		15 (39.5)	23 (60.5)	
Years of experience	Less than 5 years	80 (51.3)	76 (48.7)	0.249	65 (41.7)	91 (58.3)	0.077
	More than 5 years	74 (44.8)	91 (55.2)		85 (51.5)	80 (48.5)	

[Table/Fig-4]: Association of the demographic details with service quality and adaptability.

Chi-square test, p<0.05- significant

Variables		Service quality			Adaptability		
		p-value	AOR	95% CI	p-value	AOR	95% CI
Age	18 to 29 y	0.01	0.280	0.107-0.734	0.387	0.682	0.287-1.623
	30 to 44 y	0.037	0.436	0.2-0.951	0.424	0.746	0.365-1.528
	45 y and above*	-	-	-	-	-	-
Gender	Male	0.377	1.282	0.738-2.227	0.005	0.479	0.288-0.798
	Female*	-	-	-	-	-	-
Designation	Physicians	0.709	1.166	0.521-2.612	0.749	1.137	0.519-2.487
	Nurse	0.009	0.289	0.114-0.734	0.939	1.035	0.426-2.515
	Health admin.	0.046	0.377	0.145-0.983	0.034	2.783	1.08-7.171
	Pharmacist	<0.001	0.118	0.043-0.325	0.387	1.504	0.596-3.794
	Paramedic*	-	-	-	-	-	-
Years of experience	Less than 5 years	0.001	2.6	1.467-4.609	0.157	0.688	0.409-1.155
	More than 5 years*	-	-	-	-	-	-

[Table/FIG-5]: Multivariate logistic regression between independent variables and perceptions.

*Reference category was assigned to these groups. AOR: Adjusted odds ratio; CI: Confidence interval

Infrastructure improvements and better staff competence were also favourably perceived among the participants, which is supported by a study conducted by Singh V et al., where the positive impact of NABH-recommended training on patient care standards—particularly concerning infrastructure and staff competence—is emphasised [21]. Their findings reveal that NABH-trained hospital blocks demonstrated greater compliance in several other categories, such as patient rights, inputs, support services, and clinical services. This underscores the importance of accreditation-driven training in enhancing healthcare quality.

A key component of NABH is infection control procedures, which minimise hospital-acquired infections and any related errors in treatment [22]. A total of 53.6% of the participants agreed that successful execution of infection control protocols occurred after accreditation. This indicates that adherence to NABH standards leads to substantial improvements in infection control measures, which is further substantiated by a study conducted by Kadur SB, where there was a marked decrease in hospital-acquired infections in intensive care units following the implementation of guidelines [23].

This study also indicated that nurses were not convinced that service quality had improved. This underscores the crucial role of nurses in enhancing service quality post-accreditation. They are at the forefront of patient care and play a vital role in adopting and sustaining quality improvement strategies [24]. While physicians provided a higher favourable response regarding service quality and a balanced response to adaptability, no significant link appeared in the logistic regression model. Although the important role of physicians in shaping the accreditation process is recognised, being a physician in isolation does not independently impact views on service quality, presumably due to the diverse opinions among various physician roles [25].

While pharmacists did not agree with improvements in service quality, there is scope for better integration of their role in accreditation processes. A study conducted by Sah N et al., revealed that clinical pharmacists, in particular, could collaborate with physicians and nurses to improve prescribing patterns in accredited hospitals [26].

This present study also revealed that individuals with fewer than five years of work experience had a favourable perception of improvements in service quality. This suggests that employees with greater experience may be less motivated to adopt certification procedures. Veteran staff might require different engagement strategies that acknowledge their experience and address their specific concerns regarding changes to established practices. Additionally, newer staff could be engaged as “accreditation champions” or peer trainers, as they may be more receptive to new standards.

Views on adaptation post-accreditation differed across groups, with administrators expressing a more favourable perspective compared to other groups. While this illustrates reluctance to change within healthcare management, it also suggests that healthcare staff, in general, may reject change due to individual, interpersonal, and organisational issues [27]. To address this leadership gap, administrators could establish ongoing, formal inter-professional committees. These committees would serve not only for feedback and problem-solving but also for continuous education and training [28].

The presence of significant differences in perceptions among different professional groups is noteworthy. In contrast to health administrators, whose roles focus on systemic oversight, policy-making, and risk management, frontline staff—particularly nurses and pharmacists—are heavily involved in direct patient care and medication management. They may perceive the additional accreditation documentation and procedural requirements as administrative burdens that detract from patient care, which explains their unfavourable view of its impact on service quality.

The key strengths of this study included a well-defined methodology, such as random sampling and the use of a semi-structured questionnaire to consider two crucial elements linked to certification: service quality and adaptability. Relevant statistical analyses, such as multivariate logistic regression, were applied to adjust for covariates such as age and gender.

Limitation(s)

However, the study has certain shortcomings. Causality between variables cannot be fully demonstrated. The binary structure of the result variables may oversimplify complex views and impressions. Finally, biases could arise from self-reported data.

CONCLUSION(S)

This study emphasises the considerable importance of designation and experience in shaping healthcare professionals' perceptions of NABH certification. These findings underscore the necessity for specialised communication and training efforts to address diverse perceptions across different professional roles. Role-specific implementation toolkits, such as simplified digital checklists integrated into existing Electronic Health Record (EHR) systems, could make workloads more straightforward and efficient. Furthermore, inter-professional feedback committees could enhance the implementation of accreditation standards by addressing differences in perceptions. Future research should focus on longitudinal studies that could track changes in perception over time. Qualitative investigations could explore perspectives and obstacles faced in greater depth.

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