A GAP STUDY OF RURAL HEALTHCARE SERVICE QUALITY IN NAGALAND, INDIA

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Abstract

In Northeast India, the scenario of the rural healthcare system is improving in terms of health infrastructure but the presence of various prevailing problems such as the non-availability of health workers, geographical polarity, and difficult terrain contribute to the uneven expansion of health infrastructure in this region. This research paper attempts to present a gap study on the rural healthcare service quality in Nagaland. The study consists of two sets of a population. It includes 385 respondents for healthcare service users and 250 respondents for the public healthcare workforce. The result indicates a negative gap score for the government-established health centers in rural areas of Nagaland, India. Using the five dimensions of the SERVQUAL instrument, the study shows that the perception of healthcare service providers falls below the patient expectation.

Introduction

A service is an act of non-physical transaction offered to someone or something. It provides valuable service to the recipient, which simply means delivering a quality output. Service quality is different from product quality due to the absence of physical presence, the behavioral aspect of the service delivery, and the subjective nature of consumers' perspectives regarding the quality (Parasuraman et al. 1985; Yoo & Park, 2007). Within the service industry, healthcare is one such domain that reflects complexity as it deals with healthcare service processes that involve both service providers and service users. Discussing service quality in the healthcare industry involves the interest and perspective of quality of both the healthcare service providers and the service users. To achieve patient satisfaction in terms of quality, it is important to understand the perspective of service providers regarding patient expectations. This approach can contribute

to addressing the service gap and improving performance standards.

Nowadays, several private healthcare institutes have discovered the significance of delivering standard service quality. Incorporating the culture of hospitality concept is one of those features of healthcare service to promote patient satisfaction (Gomes, & Pareek, 2014). Furthermore, the service users (patients) have increasingly become more quality conscious particularly, when choosing or obtaining any healthcare services (Lim and Tang, 2000). A desire to improve healthcare and deliver quality service has become an active topic of discussion, but to access those healthcare facilities is somehow limited for those sections of people living in rural areas. About 40 million individuals in India are forced into poverty because of having to pay for their health treatment (Nagarajan, 2018). Addressing the challenges of the healthcare scenario in

India, the tussle to access basic medical ailments in most rural areas, the struggle is real. It is a matter of concern looking at the scenario of infrastructural set-up and under-utilization of healthcare facilities that continue to be relaxed in India (Panagariya, 2014). In addition to these prevailing problems, the lack of human resources mostly in government-established health centers is another drawback that needs immediate attention. An online published article from "The Times of India" states that during the outbreak of the novel Covid-19, the healthcare in Maharashtra rural hospitals suffered a major downfall due to a shortage of manpower. It was claimed that a single medical officer directed the management of Primary Health Centers (PHC) and served a population of 30,000. Rural healthcare infrastructure is established in a three-tier system and functions based on the population norms presented in Table I.

Table I *(Source: Rural Health Statistics Report 2019-2020)*

Center	Population Norms	
	Plain Area	Hilly/Tribal/Difficult Area
Sub-center	5000	3000
Primary Health Center	30000	20000
Community Health Center	120000	80000

The central government has initiated various funds and schemes for healthcare provision. But the proper utilization of the allotted funds remains a matter of concern. Building physical infrastructure and facilities alone do not attribute to delivering a standard quality service. Within the Agenda

for 2030 Sustainable Development Goals, the Universal Health Care coverage program is an initiative undertaken by the United Nations (UN) member states to cater to concerns related to inequality and lack of access to vital health services for most of the world's population.

The scenario of the rural healthcare system in Northeast India is improving in terms of health infrastructure (Lyngdoh, 2015; Gogoi et al. 2021). But the presence of various prevailing problems such as the non-availability of sufficient health workers, geographical polarity, and difficult terrain contribute to the inadequate expansion of health infrastructure in this region (Ngaihte, 2020; Gogoi et al. 2021). In addition, the mismanagement on the part of government HR functions in the healthcare system, demands an urgent need to strengthen and boost workforce productivity and quality outcomes.

Under the initiative of the Government of India, the National Rural Health Mission (NRHM) was launched in 2005. The NRHM aims to improve rural healthcare infrastructure and deliver health services to .

rural people, especially women and children. In Northeast India, most people have a high dependence on government-established public health centers. Undoubtedly, under NRHM, the improvement in health infrastructure has made considerable progress. But the accessibility to healthcare services remains limited to many backward regions. A few private hospitals have flourished with potential advancements in healthcare. For instance, in the Northeast region, Assam is considered the new hub for health treatment. But the question remains as to whether patients in rural areas can afford the facilities and services of private hospitals. Table II presents a comparative disclosure of the number of health centers functioning in rural areas of Northeast states

Table II *(Source: Rural Health Statistics Report 2019-2020)*

Sl.no.	State	2005			2020		
		Sub-centers	PHCs	CHCs	Sub-centers	PHCs	CHCs
1	Arunachal Pradesh	379	85	31	356	119	60
2	Assam	5109	610	100	4659	946	190
3	Manipur	420	72	16	418	85	17
4	Meghalaya	401	101	24	440	119	28
5	Nagaland	394	87	21	395	130	21
6	Sikkim	147	24	4	147	24	4
7	Tripura	539	73	10	965	107	22

With this background, the purpose of this research paper is to present a gap study with a focus on the rural healthcare service quality in Nagaland. An earlier version of

this paper is originally presented at International Conference on "Fostering Resilient Business Ecosystems and Economic Growth: Towards the Next

Normal" and was published at its conference proceedings (Murry, T.A., & Gupta, V, 2022). A gap analysis of patient expectations and service providers' perceptions of patient expectations will be addressed with the application of the use of the SERVQUAL instrument. Undoubtedly over the recent decades, the state has witnessed growth in creating a better status for health infrastructure but, the progress is still limited to the vast scattered population in terms of health service. For this prevailing reason, the context of the research study is enfolded in evaluating the service performance of the government-established health centers in rural areas of Nagaland.

Methodology

Questionnaire Design

The SERVQUAL instrument was developed by Parasuraman, Zeithaml, and Berry in 1985. The concept of this instrument is to measure service quality and capture consumers' expectations and perceptions. Some modification has been adopted to the questionnaire set to make the instrument more relevant to healthcare services. The questionnaire contained an 'expectation section' and 'healthcare service providers perception section' with 21 statements. Each section is grouped into the following five dimensions- tangibility (statement 1-3), reliability (statement 4-7), responsiveness (statement 8-13), assurance (statement 14-17), and empathy (18-21).

A five-point Likert scale was used to specify the level of agreement with each statement. For the public healthcare workforce, 1 represents 'very poor' and 5 represents 'excellent'. Whereas for the healthcare service users, 1 represents 'very unimportant' and 5 represents 'very important.

Data Collection

A descriptive research approach to three tiers of rural healthcare infrastructure (sub-Center, Primary Health Center, and Community Healthcare Center) is considered for this study. To gather the data 'quota sampling' and 'probability sampling' methods are used. Districts with major rural populations namely- Peren, Wokha, Phek, Kiphiri, Zunheboto, Mokokchung, Tuensang, Mon, and Longleng are surveyed. Slovin's formula (Slovin,1960) is used to validate the required sample size. The sample is drawn from two sets of a population which includes 385 respondents for healthcare service users and 250 respondents for the public healthcare workforce.

Reliability Test

The reliability test refers to the extent to which the attributes are strongly related to each other and the test measures without error. The term 'reliability' indicates the measurement of the research's consistency, precision, repeatability, and trustworthiness (Chakrabartty, 2013). With literature support from the previous studies, the acceptable value of alpha ranges from 0.70 to 0.95 (Nunnally and Bernstein, 1994;

Reliability Statistics

Cronbach's Alpha	N of Items
.974	21

Bland and Altman, 1997; DeVellis, 2003). The result of the Cronbach alpha reliability test is .0974, which implies that the set of items in the instrument is internally consistent.

Results and Discussion

The objective of the survey is to determine patient expectations of rural healthcare service quality and to understand the healthcare service providers' perceptions of patients' expectations. Table III shows the mean score of patient expectations and perception of healthcare service providers. This table aims to understand how much data are clustered around the mean value.

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Table III: Mean difference between patient expectations and perception of healthcare service providers

Dimensions	Perception of healthcare service providers (Service Perceived)		Patient expectation	
	Mean	SD	Mean	SD
TANGIBILITY	3.00	0.73	4.86	0.26
RELIABILITY	3.11	0.65	5.00	0.00
RESPONSIVENESS	3.29	0.71	4.92	0.12
ASSURANCE	3.62	0.59	5.00	0.01
EMPATHY	3.69	0.58	4.93	0.15

The following Table IV shows that there is a Mean difference between patient expectations and perception of healthcare service providers in all the dimensions, the service gap score, and the Mann-Whitney Test (z).

Table IV: The service gap score, and the Mann-Whitney test (z).

Statements	Perception of Healthcare Service Providers	Patient Expectation	Gap Score	Mann Whitney Test (z)	Hypothesis
TANGIBILITY:	3.00	4.86	-1.86	-22.087	Rejected
Well-maintained and modern-looking medical equipment	2.77	4.68	-1.91	-20.668	
Clean and visually appealing physical environment	3.19	4.89	-1.7	-22.170	
Privacy during treatment and	3.04	5.00	-1.96	-23.515	

enough waiting room					
RELIABILITY:	**3.11**	**5.00**	**-1.89**	**-24.248**	**Rejected**
Delivery of healthcare services at the appointed time	3.05	5.00	-1.95	-23.975	
Service performance should be executed right the first time	2.99	5.00	-2.01	-23.513	
Doctors/ staff should carry out their duties competently	3.20	5.00	-1.8	-23.150	
Prescribed medicines should be affordable and reliable	3.19	5.00	-1.81	-23.094	
RESPONSIVENESS:	**3.29**	**4.92**	**-1.63**	**-22.000**	**Rejected**
Doctors/ staff should be punctual with the service they deliver to the patient	3.09	4.94	-1.85	-21.944	
Responsive doctors/ staff who are willing to provide service at the time promised	3.31	5.00	-1.69	-22.964	
Doctors/ staff should be accessible at odd hours in case of emergencies	3.23	5.00	-1.77	-22.551	
Doctors/ staff should attentively communicate to patient's problem	3.48	5.00	-1.52	-21.910	
Doctors/ staff should be informative about healthcare schemes/ services and willing to answer questions	3.38	4.56	-1.18	-15.735	
Waiting time of not more than one hour	3.29	5.00	-1.71	-22.753	
ASSURANCE:	**3.62**	**5.00**	**-1.38**	**-23.548**	**Rejected**
Polite and friendly doctors/ staff	3.64	5.00	-1.36	-21.667	
The attitude of doctors/ staff should instill trust and confidence in the patient	3.67	5.00	-1.33	-22.487	
Doctors/staff should assure a	3.65	5.00	-1.35	-21.880	

relaxing transaction of communication with the patient					
Doctors/ staff should explain thoroughly medical condition and treatment to the patient	3.54	5.00	-1.46	-21.917	
EMPATHY:	**3.69**	**4.93**	**-1.24**	**-22.199**	**Rejected**
Doctors/ staff should understand patient's requirement	3.68	4.92	-1,24	-17.175	
Doctors/ staff should have patience in understanding and respond to patient's questions and worries	3.63	5.00	-1.37	-21.437	
Doctors should follow up with the patient about the medical treatment where necessary	3.64	5.00	-1.36	-20.997	
Doctors/ staff should have the patient's best interests at heart	3.81	4.80	-0.99	-16.589	

The gap value for each of the statements is determined by subtracting the perception of healthcare service providers from patient expectations (Gap score: Perception – Expectation). To make sure whether there is a difference in the mean value, the Mann-Whitney U test is applied. The Mann-Whitney U test is a nonparametric test, and it is used when data are not normally distributed.

The testing of normality is done to determine the significance of the K-S and Shapiro-Wilk tests. The value should be less than .05 (sig. different from normal) or greater than .05 (approximately normal). For both patient expectation and perception of the healthcare service providers' data, the distribution appears to be non-normal where $p < .05$. Hence, the findings suggest that a non-parametric test should be used. The hypothesis statement framed for the Mann-Whitney test is that there is no significant difference in the mean (patient expectation and perception of healthcare service providers). All dimensions of the questionnaire were tested. The result of the Mean rank is presented in Table V. Based on the Mann-Whitney U test result presented in Table

Table V: Mean Rank	
Category	**Mean Rank**
Tangibility	442.99
	125.52
Reliability	443.00
	125.50
Responsiveness	443.00
	125.50
Assurance	438.47
	132.47
Empathy	440.33
	129.61

IV, we reject the null hypothesis that the means are equal.

The main objective of the study is to identify the prevailing gap between patient expectations and service providers' perception of patient expectations in Northeast, Nagaland. The findings of the study present a negative gap in all the dimensions. The gap score for each of the 5 dimensions is ranked in order from the largest to the smallest gap as presented in Table VI. A comparison of the five dimensions indicates that the Reliability dimension has the largest gap score of -1.89. It means that the service providers are unable to perform the promised service to the rural population in Northeast,

Table VI: Overall gap score

Dimensions	Gap Score
Reliability	-1.89
Tangibility	-1.86
Responsiveness	-1.63
Assurance	-1.38
Empathy	-1.24

Nagaland. Although the reliability dimension denotes the largest gap, the negative gap score for all the remaining dimensions suggests that the healthcare service providers were unable to meet the expectation of the patients.

The overall result indicates that the government-established health centers (Sub-center, PHC, CHC) are unable to provide quality healthcare services, particularly in the dimensions of Reliability, Tangibility, and Responsiveness. To produce better results in these dimensions, the health workforce needs to understand the needs and expectations of the service users. Understanding the patients' perceptions can help healthcare service providers to establish a relationship with the patients and identify different aspects of healthcare. Furthermore, the study has demonstrated the use of SERVQUAL. This instrument helps healthcare service providers to identify various service characteristics that require attention. Using the five dimensions of the SERVQUAL instrument, the study shows that the perception of healthcare service providers falls below the patient expectation. Thus, in Nagaland, the healthcare service providers failed to meet the service expectation that is central to patient requirements.

Conclusion & Managerial Implications

Over recent years, the healthcare system in Nagaland has witnessed significant improvement. With the emergence of a few private healthcare institutes in major districts like- Kohima and Dimapur, the state has enhanced the service quality and service performance. Under the initiative of NRHM, the state has achieved improvement in the rural healthcare infrastructure and other health-related facilities. To ensure a quality healthcare service, the state has actively implemented National Quality Assurance Standards. This initiative was adopted to keep track of improving quality standards. But due to geographical diversity and the challenging terrain, the accessibility to healthcare during emergencies becomes a matter of concern. Across the Northeast states, the rural healthcare sector needs rigorous efforts to improve service deliverance to produce better results and reach out health services to those backward regions. In this context, this paper

demonstrates the application of the SERVQUAL instrument to measure the service gap in the government-established healthcare centers in the rural areas of Nagaland.

An analysis of the findings indicates that Reliability, Tangibility, and Responsiveness are the critical dimensions of the Nagaland rural healthcare center's service quality. However, based on the findings, it is found that rural healthcare service providers are unable to achieve the expected performance standard and therefore, fall short of patients' expectations. The implication of the negative score in all five dimensions suggests that healthcare service providers need to reflect on their poor service performance and re-evaluate their service performance considering patients' expectations.

The prevailing challenge is toward building a resilient healthcare system in the state. The achievement in improving the rural healthcare sector can be made possible only when a collective effort is addressed to meet and exceed service users' expectations and maintain a stable quality performance standard. The global outbreak of novel coronavirus has been an awakening experience to assimilate the importance of strengthening the healthcare system. As part of the solution, the state government should ensure the need for total quality management to direct healthcare providers and keep track of their service quality improvement. However, improving service quality requires proper planning, integrated effort, coordination, and approval of both the healthcare service providers and the state government.

The originality and value of this paper are that it presents the nature of service quality in the government-established healthcare institutes in Nagaland. The application of the SERVQUAL instrument has captured the prevailing service quality gaps in all dimensions. The findings of the study highlight the key reasons leading to unsatisfactory service delivery in the rural healthcare system in Nagaland. This paper enables researchers to obtain insights and to further explore and better understand the actual scenario of rural health centers in Nagaland and the Northeast as a whole.

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