

STAFF PERCEPTION OF TOTAL QUALITY MANAGEMENT FACTORS AT NATIONAL ORTHOPAEDIC HOSPITAL, ENUGU (NOHE), SOUTH-EAST, NIGERIA

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Abstract: Introduction: Total Quality Management (TQM) is a management-based approach that engages all members of an organization in improving processes, products, services, and culture to achieve higher levels of satisfaction among customers and stakeholders. TQM in healthcare focuses on patient satisfaction, continuous improvement, teamwork, and strong leadership, all contributing to enhanced healthcare service quality. Thus, this study focused on assessing staff perception of TQM factors at National Orthopaedic Hospital, Enugu (NOHE), Enugu State, South-East Nigeria. Methods: The study was a descriptive cross-sectional study involving a sample of 450 staff members which was conducted at NOHE. Data were collected using a validated, researcher-structured questionnaire. Data analysis was performed using the Statistical Package for Social Sciences (SPSS) Version 25. Results: The overall means and standard deviations for the different TQM domains were as follows: organizational factors (3.24±0.28), interpersonal factors (2.50±0.26), facility factors (3.02±0.28), environmental factors (3.17±0.37), and economic factors (2.78±0.34). The findings indicated that over 95% of the staff perceived the TQM factors positively. However, certain parameters, such as the location of the hospital in facility factors and the unavailability of adequate subventions from the government in economic factors, received relatively negative responses. No statistically significant differences in TQM perceptions based on grade level or job specialty were found. Most staff at NOHE judged the TQM factors to be good, although concerns regarding government subvention and hospital location were noted.

Keywords: Total quality management, healthcare quality, organisational factors, interpersonal factors, environmental factors, economic factors.

1. INTRODUCTION

Quality of care is defined by the World Health Organization (WHO) as the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with evidence-based professional knowledge ^[1]. This concept encompasses promotion, prevention, treatment, rehabilitation, and palliation, and underscores that quality can be measured and continuously improved by providing evidence-based care that meets the needs and preferences of patients, families, and communities.

Quality is a key factor in any organization's success, contributing to increased performance, productivity, and employee satisfaction. With growing global competition in healthcare services, effective quality management has become critical for leadership in healthcare organizations. Meeting the needs of customers (patients) and other stakeholders remains essential for organizational success. The WHO's Sustainable Development Goals (SDGs) emphasize the importance of quality in achieving Universal Health Coverage (UHC), with SDG target 3.8 focusing on access to quality essential health services, including financial protection for individuals ^[1].

In the context of healthcare institutions, the need for high-quality service is becoming increasingly important in light of market instability, rising consumer demand, and competitiveness. Providing quality healthcare is not only about offering the best service, but also about addressing customer needs, including those of patients, families, and communities, through productivity-focused operations. People, equipment, and procedures are essential components in delivering such services. Total Quality Management (TQM), a management approach that seeks to improve processes, products, services, and organizational culture, aligns well with this need for continuous improvement and customer satisfaction ^[2].

TQM is widely recognized as an essential tool for the long-term success of organizations. By engaging all members of an organization in the improvement of operations, TQM aims to meet customer and stakeholder satisfaction ^[2]. Its importance is particularly evident in healthcare settings, where patient safety, service quality, and operational efficiency are crucial. Researchers have long explored the link between TQM and organizational performance, identifying TQM as a significant factor in improving financial, operational, and quality performance across industries ^[3].

The healthcare sector, in particular, has increasingly adopted TQM to enhance efficiency and effectiveness. In the last few decades, hospitals worldwide, especially in Asia and Africa, have implemented TQM practices to address challenges such as customer satisfaction, regulatory compliance, and competitiveness ^[4,5]. TQM in healthcare focuses on patient satisfaction, continuous improvement, teamwork, and strong leadership, all contributing to enhanced healthcare service quality ^[6]. Several studies highlight the benefits of TQM, including improved healthcare quality, operational efficiency, patient safety, and employee satisfaction ^[7,8].

While TQM has been successfully implemented in various healthcare settings worldwide, many hospitals, particularly in developing countries like Nigeria, face significant challenges in applying these principles due to limited resources, inadequate funding, and weak management structures ^[9]. Despite these challenges, TQM remains a promising tool for enhancing service delivery, patient satisfaction, and overall healthcare performance.

Despite the increased emphasis on Total Quality Management (TQM) as a technique for enhancing healthcare delivery, TQM adoption in Nigerian hospitals, particularly in specialized institutions like the National Orthopedic Hospital Enugu (NOHE), presents major hurdles. These problems are caused by a variety of organizational, interpersonal, facility, environmental, and economic factors that influence employee perceptions and the overall performance of TQM initiatives. This study focuses on the perceptions of healthcare workers at the National Orthopedic Hospital, Enugu (NOHE), regarding the factors of TQM. Understanding how staff perceive various factors that influence the effectiveness of TQM can provide valuable insights into improving hospital management and service delivery.

2. METHODOLOGY

Study Area: The study was conducted at the National Orthopedic Hospital Enugu, located in Enugu State, Nigeria. The hospital serves the eastern and southern regions of the country, providing specialized services in Orthopedics, Trauma, Plastic and Reconstructive Surgery, and Rehabilitation. Enugu State, with a population of over 722,664, is one of the primary health hubs in Nigeria, with the hospital established in 1975. As one of the three National Orthopedic Hospitals in Nigeria, it plays a critical role in health service delivery and staff training.

Study Design: The study is a cross-sectional descriptive design adopted to evaluate the staff perception of TQM factors at National Orthopedic Hospital, Enugu (NOHE), Enugu, South- East Nigeria.

Study Population: The target population consisted of the staff of the National Orthopedic Hospital Enugu (NOHE) as listed in the personnel department's nominal roll. The total staff population at the time of the study was approximately 1,200.

Sample Size and Sampling Procedure: The minimum sample size was calculated using a power analysis, with an initial sample size of 422. The researcher increased the sample size to 450 to ensure a better representation. Quota sampling was

used across 25 hospital departments to determine the sample size for each, with participants selected based on availability and willingness. Only staff whose names appeared on the nominal roll were considered, excluding contract staff and those on leave.

Instrument for Data Collection: A self-developed questionnaire was used for data collection, adapted from previous studies^[10]. The questionnaire consisted of six sections. Sections A: collected demographic and socio-economic data, while Sections B to F used Likert scale questions to assess staff perceptions of various organizational, interpersonal, facility, environmental, and economic factors of TQM.

Validity and Reliability of the Instrument: The questionnaire was validated by the experts in health management to ensure content relevance and adequacy. A pre-test was conducted on a small group of staff at Enugu State University Teaching Hospital (ESUTH), Parklane, Enugu where a Pearson reliability coefficient of 0.811 was achieved, demonstrating the instrument's reliability.

Data Collection Procedure: Data collection was conducted after obtaining approval from the NOHE management. Two research assistants were trained to administer the questionnaires and ensure accurate data collection. The process took two weeks due to the busy schedule of hospital staff.

Method of Data Analysis: Data were analyzed using SPSS version 25. Descriptive statistics such as means, standard deviations, and percentages were computed for each factor. Chi-square tests were conducted to examine the relationship between staff demographics and their perception of TQM factors. Logistic regression was used to predict staff perceptions of TQM factors based on demographic characteristics.

Ethical Consideration: Ethical clearance with certificate number IRB/HEC/S.313/IV/2023/06/13 was obtained from the Institutional Review Board of National Orthopaedic Hospital Enugu, Nigeria. The respondents were furnished with information about the study using the attached information sheet and the study instruments, while as well ensuring their confidentiality, voluntary nature of participation and zero risks involved in the study. The respondent's consent to participate in the study was demonstrated by them signing a copy of the consent form.

3. RESULTS

Demographic Characteristics

The respondents' ages ranged from 20 to 64 years, with a mean of 38.44 ± 10.50 . The modal age group was 31-40 years (31.4%). A majority were males (55.4%), married (67.9%), and Christians (95.4%), with 93.1% identifying as Igbos. Educationally, 77.6% had university degrees, and 70.2% were medical specialists. Most respondents had been employed for 1-4 years (27.9%) or 10-14 years (26.6%).

Table 1: Demographic Characteristics (n = 433)

	Frequency	Percent	Range	M±SD
Age			20-84	38.44±10.50
- 20-30	126	29.1		
- 31-40	136	31.4		
- 41-50	111	25.6		
- 51+	60	13.9		
Gender				
- Male	240	55.4		
- Female	184	42.5		
- No response	9	2.1		
Marital status				
- Single	136	31.4		
- Married	294	67.9		
- Widow/widower	2	0.5		
- No response	1	0.2		

Religion		
- Christian	413	95.4
- Islam	4	0.9
- Traditional religion	6	1.4
- No response	10	2.3
Ethnic group		
- Igbo	403	93.1
- Hausa	17	3.9
- Yoruba	4	0.9
- No response	9	2.1
Highest level of education		
- Primary school	9	2.1
- Secondary	83	19.2
- University	336	77.6
- No response	5	1.2
How long have you been on the job		
- 1-4 years	121	27.9
- 5-9 years	104	24.0
- 10-14 years	115	26.6
- 15-19 years	86	19.9
- Greater than 20 years	5	1.2
- 7 months	1	0.2
- No response	2	0.5
Cadre/grade level		
- High (13-17)	124	28.6
- Middle (7-12)	220	50.8
- Low (1-6)	85	19.6
- Others: Corp member	1	0.2
- No response	3	0.7
What is your job specialty		
- Medical	304	70.2
- Paramedical	45	10.4
- Non-medical	78	18.0
- No response	6	1.4

The perceived organisational factors to TQM implementation in NOHE included all the factors listed in Table 2. Management’s commitment to the philosophy of implementing TQM in the hospital was the most perceived factor (3.34±0.50) followed by staff awareness of organisational objective (3.26±0.48) and management’s motivation of staff to achieve the goals of the hospital (3.25±0.43) respectively. In general, the organisational factors to TQM implementation in NOHE were perceived to be good by almost all staff (98.6%).

Table 2: Organizational Factors to TQM implementation in NOHE (n = 433)

Organizational factors	SD	D	A	SA	M±SD
Management is committed to the philosophy of implementing total quality management (TQM) in the hospital	-	6	274	153	3.34±0.50
Management makes conscious effort to train of staff	5	13	305	110	3.20±0.54
Resources of the hospital are adequate to achieve TQM	6	19	297	111	3.18±0.57
Management of NOHE motivates staff adequately to achieve the goals of the hospital	-	-	326	107	3.25±0.43
Staff awareness to organizational objectives is good	-	8	305	120	3.26±0.48
Overall perceived organizational factors					3.24±0.28
Overall perception grouped	Freq	%			
- Good (mean perception score > 2.5)	427	98.6			
- Poor (mean perception score ≤ 2.5)	6	1.4			

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From Table 3, the perceived interpersonal factors of TQM that were being implemented at NOHE included: openness of management to suggestions and ideas from employees (3.28±0.55), adequate quality personnel to achieve the goals of TQM (3.23±0.52), sufficient supervision of staff by management on service delivery (3.18±0.52) and available feedback mechanism for ensuring that goals are achieved (3.07±0.61). In general, almost all the staff perceived the interpersonal factors to TQM implementation in NOHE was good (98.2%).

Table 3: Interpersonal factors to TQM implementation in NOHE (n = 433)

Interpersonal factors	SD	D	A	SA	M±SD
Management is open to suggestions and ideas from employees	2	16	275	140	3.28±0.55
The quality of personnel to achieve the goals of TQM at NOHE is adequate	2	15	299	117	3.23±0.52
There is sufficient supervision of staff by management on service delivery	3	17	312	101	3.18±0.52
A feedback mechanism for ensuring that goals are achieved is put in place in NHOE	14	24	314	81	3.07±0.61
**Services rendered by staff to the public are poor	215	201	13	4	1.55±0.60*
**Staff attitude to clients/patients are not encouraging	191	223	15	4	1.61±0.60*
**Employee attitude to work is generally poor	219	191	18	5	1.56±0.63*
Overall perceived interpersonal factors					2.50±0.26
Overall perception grouped	Freq	%			
- Good (mean perception score > 2.5)	425	98.2			
- Poor (mean perception score ≤ 2.5)	8	1.8			

Item with mean (M) >2.5 was accepted by the respondents for their interpersonal factors; * indicates item with M < 2.5

All the listed factors in Table 4 were perceived as facility factors to TQM implementation in NOHE except that of location of the hospital affecting the achievement (1.63±0.74). Some of the factors highly perceived included the nursing service providing quality care to patients (3.28±0.52), the record department being computerised (3.28±0.55), pharmacy being well stocked with quality drugs (3.24±0.54) and radiology department having functional diagnostic equipment (3.20±0.59). Most of the staff perceived the facility factors to TQM implementation in NOHE was good (97.5%).

Table 4: Facility Factors to TQM Implementation in NOHE (n = 433)

Facilities factors	SD	D	A	SA	M±SD
The hospital has state of the art equipment	7	20	309	97	3.15±0.56
The hospital facilities can support the practice of TQM	1	16	325	91	3.17±0.48
The pharmacy is well stocked with quality drugs	4	12	292	125	3.24±0.54
The record department is computerized	4	11	279	139	3.28±0.55
Nursing service provides quality care to patients	2	9	288	134	3.28±0.52
All the laboratory services are functional diagnostic equipment	1	19	310	103	3.19±0.51
The radiology department has functional diagnostic equipment	10	11	293	119	3.20±0.59
The location of the hospital affects the achievement of TQM	212	182	25	14	1.63±0.74*
Overall perceived facilities factors					3.02±0.28
Overall perception grouped	Freq	%			
- Good (mean perception score > 2.5)	422	97.5			
- Poor (mean perception score ≤ 2.5)	11	2.5			

Item with mean (M) >2.5 was accepted by the respondents for their facility factors; * indicates item with M < 2.5

The perceived environmental factors to TQM implementation in NOHE included all the factors listed in Table 5. The most perceived factors were conducive working environment, which gives room for quality output (3.24±0.56) and periodic refresher training on the culture and bottom-line objectives of the hospital (3.20±0.57). In general, most of the staff perceived the environmental factors to TQM implementation in NOHE were positive (98.2%).

Table 5: Environmental factors to TQM implementation in NOHE (n = 433)

Environmental factors	SD	D	A	SA	M±SD
TQM standards are written and communicated to staff regularly	10	24	296	103	3.14±0.61
NOHE has consistently updated the regulations guiding TQM practice	8	17	322	86	3.12±0.55
NOHE conforms to prescribed TQM standards (customer focus, employee participation etc.)	4	12	329	88	3.16±0.49
There is a routine check on the conformity of staff on the prescribed TQM standards	6	15	304	108	3.19±0.55
There is periodic refresher training on the culture and bottom-line objectives of the hospital	4	23	288	118	3.20±0.57
The working environment is conducive and gives room for quality output	3	20	282	128	3.24±0.56
Overall perceived environmental factors					3.17±0.37
Overall perception grouped	Freq	%			
- Positive (<i>mean perception score > 2.5</i>)	411	94.9			
- Negative (<i>mean perception score ≤ 2.5</i>)	22	5.1			

The perceived economic factors to TQM implementation in NOHE included all the listed factors in Table 6 except that of subventions from the government being adequate (1.56±0.69). Some of the major factors were adequate accountability in terms of finance (3.24±0.59), using money made available to provide the necessary materials and equipment (3.21±0.51) and the cost of accessing services being cheaper compared with other hospitals (3.04±0.70). The economic factors to TQM implementation in NOHE were perceived as good by majority of the staff (84.3%).

Table 6: Economic factors to TQM implementation in NOHE (n = 433)

Economic factors	SD	D	A	SA	M±SD
Subventions from government are adequate	230	171	24	8	1.56±0.69*
Adequate imprest is disbursed to run the departments	7	104	269	53	2.85±0.64
The cost of accessing services in the hospital is cheap compared to other hospitals	13	60	258	102	3.04±0.70
Money being made available are used to provide the necessary materials and equipment	1	18	305	109	3.21±0.51
There is adequate accountability in terms of finance	6	18	276	133	3.24±0.59
Overall perceived economic factors					2.78±0.34
Overall perception grouped	Freq	%			
- Good (<i>mean perception score > 2.5</i>)	365	84.3			
- Poor (<i>mean perception score ≤ 2.5</i>)	68	15.7			

From Table 7, none of the staff's characteristics predicted their perception of factors TQM implementation in the hospital: age (p = .099), gender (p = .180), marital status (p = .117), educational level (p = .768), years of working experience (p = .857), cadre (p = .129) and job specialty (p = .098). The perception of the factors was independent of the staff's demographic and job characteristics.

Table 7: Predicting the Staff's Perception of Factors to TQM Implementation

	OR	p-value	95% C.I. for OR	
			Lower	Upper
Age	.926	.099	.846	1.015
Gender	.402	.180	.106	1.524
Marital status	4.137	.117	.699	24.468
Educational level	1.242	.768	.294	5.240
Years of working experience	1.072	.857	.502	2.287
Cadre	.325	.129	.076	1.386
Job specialty	2.652	.098	.836	8.415
Constant	348.506	.121		

Statistics used: Logistic regression; Staff perception of organisational, interpersonal, facility, environmental and economic factor were merged; the predictors except age were arranged or regrouped to have an order (e.g. marital status: single, married & once married)

From Table 8, there was no significant difference in the perception of TQM factors between the grade levels: organizational factors ($p = .253$), interpersonal factor ($p = .110$), facility factor ($p = .441$), environmental factor ($p = .372$) and economic factor ($p = .154$). The perception from the different grade levels were the same on the TQM factors.

Table 8: Difference in perception of TQM factors and various grade levels

	High grade (n = 124)	Middle grade (n = 220)	Low grade (n = 85)	F	Sig.
Organizational factors	3.25±0.25	3.22±0.28	3.27±0.28	1.378	.253
Interpersonal factors	3.30±0.29	3.26±0.29	3.34±0.27	2.215	.110
Facilities factors	3.24±0.26	3.22±0.31	3.26±0.33	.821	.441
Environmental factors	3.20±0.29	3.15±0.42	3.19±0.35	.991	.372
Economic factors	2.80±0.32	2.75±0.36	2.82±0.30	1.880	.154

Findings in Table 9 show that there was no significant difference in the perception of TQM factors among the different job specialities: organizational factors ($p = .350$), interpersonal factors ($p = .348$), facility factor ($p = .072$), environmental factors ($p = .756$) and economic factor ($p = .543$). The perception from the different specialities was the same on the TQM factors.

Table 9: Difference in perception of TQM factors and different job specialities

	Medical (n = 304)	Paramedical (n = 45)	Non-medical (n = 78)	F	Sig.
Organizational factors	3.25±0.26	3.19±0.31	3.22±0.29	1.052	.350
Interpersonal factors	3.29±0.29	3.24±0.33	3.32±0.24	1.057	.348
Facilities factors	3.25±0.28	3.14±0.39	3.25±0.29	2.648	.072
Environmental factors	3.18±0.36	3.14±0.46	3.19±0.34	.280	.756
Economic factors	2.77±0.34	2.79±0.43	2.82±0.27	.612	.543

4. DISCUSSION OF MAJOR FINDINGS

Organisational Factors

The organizational factors to TQM implementation at NOHE, Enugu State, were perceived as favorable by the majority of staff. Among these, management’s commitment to the TQM philosophy and staff awareness of organizational objectives stood out as the most influential factors. Management’s dedication plays a pivotal role in fostering a culture of quality, ensuring proper resource allocation, and engaging employees in achieving TQM goals. As Oakland ^[11] emphasized, the success of TQM initiatives begins with leadership at the helm of the organization. Similarly, Nicolaou and Kentas ^[12] and Mosadeghrad ^[13] noted that insufficient management commitment often leads to TQM failure.

In contrast, findings from Vincent *et al* ^[10] at a different tertiary facility in Enugu revealed a lack of management commitment and minimal staff training efforts, underscoring that leadership's involvement is not uniform across institutions. These variances suggest that while leadership remains critical, contextual adaptations are essential for successful TQM adoption.

Interpersonal Factors

Interpersonal factors were also perceived positively, with openness to staff suggestions and the presence of quality personnel being the most notable. Effective communication, fostered by management's openness, allows employees to contribute ideas and collaborate towards quality improvement, ultimately enhancing healthcare services. Adequate staffing of quality personnel further ensures robust implementation and monitoring of TQM practices.

The findings diverged from Vincent *et al* ^[10], where staff cited management's lack of openness as a barrier. This contrast highlights the importance of fostering an inclusive work culture to ensure the success of TQM strategies. Open communication and collaborative environments encourage a unified approach to TQM implementation.

Facility Factors

Facility factors were also judged favorably, with the availability of state-of-the-art equipment, such as functional radiology and laboratory tools, enhancing TQM success. Nursing services and a computerized records department were identified as

key contributors to quality care delivery, aligning with findings from Raddaha ^[14]. However, concerns were raised about the hospital's location, particularly the lack of alternative access routes, which could hinder service delivery during peak congestion periods.

These findings contrast with Anyansi ^[15] and Vincent et al. ^[10], who reported dissatisfaction with facilities and equipment at other healthcare facilities in Nigeria. This disparity underscores the variability in resource allocation and infrastructure development across institutions, emphasizing the need for standardized improvements nationwide.

Environmental Factors

Environmental factors were perceived as favorable, with a conducive working environment and periodic training on organizational objectives as the most impactful. Such an environment fosters employee morale, retention, and alignment with TQM goals. Erkan & Unal ^[16] and Min et al. ^[17] similarly stressed the significance of consistent communication and training in reinforcing TQM principles within healthcare organizations.

Economic Factors

Economic factors, such as financial accountability and the use of available funds for necessary resources, were perceived positively. These practices ensure sustained support for TQM initiatives, promoting quality outcomes and organizational efficiency. However, inadequate subvention remains a challenge, reflecting Nigeria's broader healthcare financing issues. Despite this, respondents noted that the cost of care at NOHE remains affordable, albeit partially due to patients bearing the financial burden.

Studies by Zehir and Zehir ^[18] and Hidayah et al. ^[19] corroborate the importance of financial accountability and resource management in supporting TQM practices. However, achieving full potential requires addressing systemic funding gaps, as Nigeria currently allocates only 5% of its national budget to health, far below the recommended 15%.

Uniform Perception across Demographics

Interestingly, the study found no significant differences in TQM perception across age, gender, educational level, or job specialty. This uniformity suggests a cohesive organizational culture where TQM principles are widely accepted. Such alignment is crucial for driving collective action towards quality improvement, consistent with Mosadeghrad ^[20] and Zeitz et al. ^[21], who noted the importance of shared cultural values in successful TQM adoption.

5. CONCLUSION

The study concluded that the implementation of TQM in NOHE is positively influenced by several factors, including strong organizational leadership, staff awareness, open communication, adequate facilities, and financial accountability. However, challenges such as inadequate subvention and the hospital's location need to be addressed to optimize TQM effectiveness.

Implications of the Study

This study provides valuable insights into the factors influencing TQM implementation in Nigerian hospitals, which can guide management strategies for enhancing healthcare quality. It emphasizes the importance of management commitment, staff training, and adequate resources for successful TQM adoption.

6. RECOMMENDATIONS

Based on the findings, the study recommends that NOHE continues to prioritize TQM principles, improve financial support, and conduct regular staff training. Additionally, further research on TQM implementation at inter-facility levels across the region and beyond would be beneficial to ensure widespread adoption of best practices in quality management.

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