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# Strategic SWOT analysis of the University of Nigeria Teaching Hospital using Modified Delphi Technique: implications for strengthening national and regional health systems

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## Abstract

**Background and aim** The perennial underperformance of the Nigerian Health System necessitated enhanced advocacy for health to be placed at the centre of a renewed social contract and as a means of bolstering public trust. The hospital management of the University of Nigeria Teaching Hospital (UNTH) introduced initiatives to improve the hospital's operational environment and service performance in response to the population served. Following these changes, an Organizational Capacity Assessment (OCA) is critical to direct further development in the organization.

**Methods** A comprehensive Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis was conducted for the UNTH across twelve broad areas. The Modified Delphi Technique was adopted for the identification and prioritization of the organizational SWOTs. Thirty key stakeholders and leaders in the organization were first consulted to identify the SWOTs. This was followed by a structured ranking of the SWOTs by 109 staff of UNTH to isolate the priority assets and needs of the organization.

**Results** The top strengths were mainly related to the hospital's resources like its large expanse of land, staff capabilities like their skills and training, as well as their prevailing language, and existing hospital partnerships. The identified weaknesses were associated with challenges such as transportation for staff to work, infrastructure (lack of staff accommodation and office space), and health workforce shortages due to migration. The highest ranked opportunity was in the Epidemiology and Disease Surveillance broad area while the highest ranked threat was in the leadership and governance broad area.

**Conclusion** This SWOT analysis has highlighted the strategic aspects of UNTH's operations. By identifying its internal strengths and weaknesses and external opportunities and threats, the hospital can thus formulate effective strategies to enhance its performance and maintain its position as a leading healthcare institution.

**Keywords** Health system, Organizational capacity assessment, SWOT analysis, Teaching hospital

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## Background

The health system (HS) is described by the World Health Organization (WHO) as a compendium of all organizations, institutions and resources that are devoted to protecting and improving the health of the people in a state that is good, responsive and financially fair to the population [1]. The Nigerian HS is structured, financed and delivered through the three tiers of government which respectively provides the three levels of healthcare system [2, 3]. However, each tier exercises great autonomy and authority in the allocation and utilization of their resources. There are roles and responsibilities ascribed to each level of the health care system for an efficient referral system by the National Health Policy [4] and National Health Act [5]. The Federal Government of Nigeria (FGN) provides tertiary health services through a network of teaching hospitals, Federal Medical centres, and Specialist Hospitals. The University of Nigeria Teaching Hospital (UNTH) Ituku-Ozalla, Enugu is one of the twenty Federal teaching hospitals in the country [6]. In addition to the above healthcare service delivery function, the FGN sets standards, formulates policies, implements guidelines, coordinates and regulates practices for the healthcare system. Ideally, the State government provides secondary level of health care though, most States of Nigeria currently operate tertiary health care services within their territories. On the other hand, the Local government operates the Primary level of health care which is the lowest and the entry point to health care services and comprises the health post and clinics, health centres and comprehensive health centres [3].

The UNTH Ituku-Ozalla is the pioneer teaching hospital in the South-East region of Nigeria. The over 500 bedded tertiary hospital offers both primary and multi-specialist health care services to residents of Enugu State and its environs. As a research institution and associate hospital of the University of Nigeria Nsukka, its primary roles also include the training of medical doctors (undergraduate and specialist training), nurses and other healthcare personnel; as well as the conduct and promotion of health research in several fields of medicine. In line with its vision of being the “best destination for specialized healthcare, training and research in West Africa by 2027, [7] the hospital management is committed to continued improvement of the hospital’s service performance while introducing meaningful changes in the hospital’s operational environment. These changes include the scale-up of the Public–Private Partnership (PPP) initiative to assist the hospital install capital-intensive equipment and service points such as Computerized Tomography (CT) scan and functional radiotherapy, digitalization of hospital records and bill payment system, the establishment of UNTH Foundation, upgrade of Multidisciplinary

Oncology Centre which is equipped with state-of-the-arts facilities and personnel for the provision of quality cancer care and research etc. Following these needed aggressive and progressive system changes in the hospital, an organizational capacity assessment (OCA) is critical to direct further development of the Institution.

OCA is a procedure for examining and identifying the overall potential of an organization with the aim of improving it [8]. It is an internally or externally driven process which should be done periodically depending on the stage of development of the organization. [9] OCA involves the analysis of the background of an organization’s successes and threats and thus, it is recommended for institutions like UNTH Ituku-Ozalla, that aims to sustain progressive change and development. The thematic areas often assessed in an organization include its governance, administration, finance, management, program and project performance [8]. Various OCA tools have been developed by various institutions to aid easy analysis of the organization’s structure, performance and need for improvement. One such tool is the strength, weakness, opportunities and threats (SWOT) analysis tool developed by Albert Humphrey, a management consultant at the Stanford Research Institute between 1960–1970 [10, 11].

The SWOT analysis tool is used for strategic planning and strategic management in organizations [12]. It is a methodological tool for both internal and external analysis [12] designed for optimizing performance, maximizing potential, managing competition, and minimizing risk in an organization [11]. During an external analysis, an organization is able to identify the critical threats and opportunities that can be found in its competitive environment, the likely evolution of competition as well as the implications of this evolution on the threats and opportunities [13]. On the other hand, internal analysis enables an organization to identify its strengths and weaknesses [13, 14]. In an organization, the internal and external environments must meet each other in a way to build a strategy that can create a competitive advantage and increase profit. [15] Based on SWOT Analysis, organizations can select the appropriate strategy that balances environmental opportunities with the organization’s strengths and adopt organizational policies and practices that are consistent with the strategy [13, 16].

SWOT analysis can be applied at different levels. [13] It provides the opportunity to explore new solutions to problems and identify barriers to objectives while revealing possibilities and limitations for change. [17] Outside the SWOT analysis tool’s ability to review every facet of an organization in detail, it is easy to use, and prepares the organization to identify strengths to develop, weaknesses to mitigate, opportunities to seize and threats to

avoid. [10, 11] SWOT analysis utilises key organizational priorities, like gender and cultural diversity while obtaining important and adequate information with which potentials can be maximised [17].

Despite its popularity and advantages, SWOT analysis has some limitations. SWOT analysis utilises ambiguous methods of data collection, evaluation, and decision-making, [18] does not focus on details and specific issues but broad generalisations thereby serving as a road map that guides from the general to the specific. [13, 18] Since it is usually tempting to conduct SWOT analysis qualitatively instead of quantitatively, it may be prone to bias by perceptions, personality types and preferences. [12, 18] Other critiques have argued that SWOT analysis is poorly formulated [12] and can be misused as a tool that is easily designed without critical thought thereby resulting in a misrepresentation of strengths, weaknesses, opportunities, and threats within an organization's internal and external environments. [17] Therefore, the effectiveness of SWOT analysis largely depends on the experience and training of the persons in charge of systematic construction and use. [12] This paper presents findings from an exploratory study of the strengths, weaknesses, opportunities, and threats of UNTH Ituku-Ozalla. It contributes knowledge that would be useful to ongoing conversations on how to strengthen and sustain clinical, research and teaching services of the hospital for improved health of the community.

## Methods

### Study area

The study was undertaken at the University of Nigeria Teaching Hospital (UNTH) in Enugu State. UNTH is the foremost tertiary hospital in southeast Nigeria. The institution was established in 1974 and for one and half decades it was the only tertiary hospital in the South-east region of Nigeria.

### Study design and Data collection

The modified Delphi technique was adopted for the identification and prioritization of the organizational strengths, weaknesses, opportunities, and threats (SWOT analysis) of UNTH. The Delphi technique is a consensus-building method of eliciting and refining judgements from a group of people, in order to generate knowledge that is currently not available. [19] The three main features of the technique – anonymous response, iteration and controlled feedback, and statistical group response – are designed to minimize the influence of dominant individuals in group interactions, and the biasing effects of irrelevant communication, and group pressure towards conformity.

The SWOT analysis was conducted in two phases. The first phase consisted of stakeholder consultation to identify the existing strengths and weaknesses of the institution, the potential opportunities that can be leveraged, and the threats that exist. In the second phase, the SWOTs were ranked by the staff of the institution to isolate the priority assets and needs of the institution. The detailed methods for each phase are discussed subsequently.

### Phase 1: Stakeholder consultation for identification of organizational SWOTs of UNTH

The stakeholder consultation activities were conducted virtually through a Zoom meeting, and subsequently through email interactions. Informed consent to participate was gotten from all participants who consisted of current and past senior management staff of the institution, including directors, departmental heads, and unit heads of clinical and non-clinical sections.

**Inclusion criteria:** Current and past heads of department and unit heads in clinical and non-clinical departments in the institution were included. Invitation letters were sent to all potential participants.

**Exclusion criteria:** Past heads of department and unit heads who had retired from service or had moved to another institution were excluded from the study.

### Defining broad areas for assessment

The purpose of the Zoom meeting was to identify, define and agree on the broad areas for the SWOT analysis, and to provide guidance to the stakeholders for the process of identifying organizational strengths, weaknesses, opportunities, and threats. A PowerPoint presentation on SWOT analysis was made, to explain the meaning, purpose, and relevance of SWOT analysis, and to describe with practical examples what constitutes a strength, weakness, opportunity, or threat within an organization. The Zoom meeting lasted for approximately 3 h and a total of 30 people attended the meeting.

An initial list of six broad areas that were adapted from the WHO health systems building framework, [20] was presented to participants. Following discussions and iterations of review, the broad areas were expanded to twelve. Table 1 highlights the broad areas that were assessed, and their operational definitions.

### Identifying SWOTs for each broad area

The second phase of the stakeholder consultation was facilitated through email and WhatsApp interactions. A framework matrix for data collection was designed in Microsoft Word, and this was used to collect stakeholders' responses on the organizational strengths,

**Table 1** Operational definitions of broad areas that were assessed in the SWOT analysis

Broad area	Operational definition
Leadership, and Governance	Organizational structure, lines of reporting, clarity of roles and responsibilities, regulation, coalition-building, accountability
Human Resource for Health	Workforce planning, recruitment, performance management, promotion, retention, information management
Education, Training and Capacity Building	All activities that are carried out by the hospital to strengthen the capabilities of staff and students to obtain, develop and improve the skills and knowledge needed to perform their roles or undertake new tasks competently or to a greater capacity
Service Delivery	Encompasses all the processes, procedures and methods that are used to provide and make health services available to clients within the organization
Health Information System	All the systems used to manage health care data in the hospital. Includes systems for collecting, storing, archiving, analysing, and transmitting patients' medical records. It also encompasses data availability and uses in the hospital's operational management as well as use in policy making
Digital Health	Availability and use of information and communications technologies to provide services within the organization. Digital health technologies include wearable devices, mobile health, telehealth, etc. <sup>19</sup>
Research & Innovation (basic, products, clinical, operational, health systems)	Healthcare innovations refer to any developments, simple or complex, that lead to improvements in health outcomes and patient experiences. <sup>20</sup>
Product Supply Chain	The network of systems, people, components, and processes that collectively work to ensure medicines and other healthcare supplies are manufactured, distributed, and provided to patients
Demand promotion, Community Engagement, community impact & outreaches development	Any activities undertaken to create or increase community (local, regional, etc.) awareness of the products and services that are available in the hospital with the goal to increase demand (uptake or utilization) for products and services
Partnerships	Past and current collaborations with stakeholders and different sectors including the private sector for organizational development and growth. It also captures the organization's capacity to form new collaborations and sustain existing ones
Health Financing	Encompasses the processes of revenue generation, mobilization, collection; revenue allocation; purchasing of services and products
Non-communicable & Communicable Diseases, Emerging Diseases and Surveillance	The hospital's capacity to detect and promptly respond to public health emergencies caused by communicable and non-communicable diseases, including emerging diseases. This implies the capacity for continuous, systematic collection, analysis, and interpretation of health data for better understanding of disease trends, and to guide priority-setting and resource allocation

weaknesses, opportunities, and threats of UNTH. A sample of the matrix is shown in Table 2.

The document was sent to the stakeholders' email addresses and their WhatsApp contacts. The email and WhatsApp messages were followed up with phone calls and frequent reminders. Data was collected over a period of two weeks.

At the end of the two weeks, responses in each broad area were aggregated across respondents into excel spreadsheet. The aggregated responses were then reviewed by the research team and duplicated responses were removed. A complete list of all the strengths, weaknesses, opportunities, and threats that were identified in each broad area was generated.

### **Phase 2: Ranking/prioritization of the organizational SWOTs of UNTH**

One hundred and nine (109) people participated in the ranking of the organization SWOTs.

The list of all the strengths, weaknesses, opportunities, and threats that were identified in each broad area was coded on the Open Data Kit software, and each statement was ranked on a five-point Likert scale from 'strongly agree to strongly disagree' depending on the respondent's perception of how much of a strength or weakness or threat or opportunity the statement is. On the Likert scale, 'strongly agree' was assigned a weight of 5, 'agree' was 4, 'neutral' was 3, 'disagree' was 2, and 'strongly disagree' was 1. Table 3 shows the ranking template.

**Table 2** Organizational SWOT analysis matrix for UNTH

S/Nos	Broad Areas	SWOTs			
		Strengths/ Achievements	Weaknesses/Challenges/ Gaps/(Root cause for the gaps)	Opportunities/ external privileges	Threat /Where to support (specific) (External factors you can protect against but cannot change)
1	Leadership, and Governance				
2	Human Resource for Health				
3	Education, Training and Capacity Building				
4	Service Delivery				
5	Health information System				
6	Digital Health				
7	Research & Innovation (basic, products, clinical, operational, health systems)				
8	Product Supply Chain				
9	Demand promotion, Community Engagement, community impact & outreaches development				
10	Partnerships				
11	Health Financing				
12	Non-communicable & Communicable Diseases, Emerging Diseases and Surveillance				

**Table 3** Ranking template for SWOT statements

SWOT statements	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
S1					
S2					
S3					
S4					
S5					
Etc.....					

**Data analysis**

Simple descriptive analyses were performed.

The weights/scores assigned to each SWOT statement were tallied across respondents, and the statement with the highest total score was considered the highest priority.

The maximum achievable priority score per question was 545 (5 × 109) and the minimum was 109 (1 × 109).

The average priority score of each statement was also calculated and means and standard deviations reported.

Gender analysis was performed to determine if there are differences in the ranking of SWOTs between male and female respondents. Means were compared and *p*-values of < 0.05 were considered as statistically significant.

**Results**

A total of 360 SWOT responses were generated across the twelve broad areas. This comprised 110 strengths, 135 weaknesses, 46 opportunities, and 69 threats. Table 4

shows the distribution of the strengths, weaknesses, opportunities and threats across all the broad areas. The highest numbers of strengths and weaknesses are in the service delivery broad area as in Tables 5 and 6.

The Service delivery broad area had the highest number of Strengths (486) while The Non-Communicable Disease & Communicable Disease, Emerging Diseases (NCD & CD, ED) and Surveillance broad area had the lowest number of strengths (449) (Table 5). The HRH had the highest number of weaknesses (498) while Digital health had the lowest number of weaknesses (475) (Table 6). NCD & CD, ED and Surveillance had the highest number of opportunities (452) while Digital health had the least number (404) (Table 7). Leadership and governance had the highest number of Threats (502) while Education, Training and Capacity building had the least number (482) (Table 8).

For Service Delivery broad area, the major strengths were the large expanse of land space for possible expansion; the fact that most of the staff can communicate in the local Igbo Language; and the availability of highly skilled and competent workers. The major weaknesses were the unstable internet connectivity that threatened Electronic Medical Recording (EMR) and delays in raising fund for minor repairs/maintenance. The broad area is however threatened by the poor remuneration of the staff and refusal to pay rural allowance to staff who consider the hospital to be located in the rural area.

For Human Resource for Health, the major strengths were accredited Basic and Post Basic Nursing and Midwifery training programmes; highly skilled professionals in various discipline and specialties; accredited



**Table 4** Distribution of SWOTs across the broad areas

Broad areas	Strengths	Weaknesses	Opportunities	Threats
Leadership, and Governance	10	14	4	7
Human Resource for Health	8	12	6	9
Education, Training and Capacity Building	7	6	7	8
Service Delivery	17	28	3	9
Health information System	2	8	5	7
Digital Health	5	12	2	2
Research & Innovation	9	8	4	3
Product Supply Chain	11	10	3	7
Demand promotion, community engagement, community impact & outreaches development	8	7	3	4
Partnerships	8	11	1	2
Health Financing	10	10	4	7
Non-communicable & Communicable Diseases, Emerging Diseases and Surveillance	15	9	3	4
<b>Total</b>	<b>110</b>	<b>135</b>	<b>46</b>	<b>69</b>

**Table 5** Top 10 strengths of UNTH and their respective broad areas

Strengths	Priority score	Mean (SD)	Broad area
Large expanse of land space for possible expansion	486	4.46 (1.01)	Service Delivery
Most of the staff can communicate in the local language (Igbo)	484	4.44 (0.87)	Service Delivery
Accredited Basic and Post-basic Nursing and midwifery training programmes	473	4.34 (0.94)	HRH
Highly skilled professionals/experts in various discipline and clinical specialties	466	4.28 (1.10)	HRH
Accredited undergraduate (MB.BS) and postgraduate (Residency) Training programmes	462	4.24 (1.08)	HRH
Availability of highly skilled and competent workers	457	4.19 (0.86)	Service Delivery
Annual reporting of Unit/Departmental plans and presentation of quarterly performance (QPR) reviews	456	4.18 (0.93)	Leadership and Governance
Routine childhood and adult immunization services	456	4.18 (0.95)	NCD & CD, ED and Surveillance
Existing Public–Private partnership in various departments/units of the hospital such as Radiation Medicine, Radiation and Clinical Oncology, Obstetrics & Gynaecology, Oxygen Gas production, etc	450	4.13 (1.02)	Partnerships
Presence of Isolation and Treatment Centre for highly infectious diseases	449	4.12 (1.07)	NCD & CD, ED and Surveillance

The top 10 strengths are shown in Table 5. The highest ranked strength was in the service delivery broad area ( $4.46 \pm 1.01$ ). The top 10 strengths were found in five out of 12 broad areas, and service delivery and HRH broad areas had the highest number of Strengths among the top 10

undergraduate (MB.BS) and postgraduate training programmes; while the major weaknesses were the high cost of transportation to the hospital; unavailability of staff quarters; long travel time to work due to the location of the hospital; inadequate office space; and poor transport services. It is threatened by the over taxation of staff by Enugu State Government relative to state employee workers.

The highest strength in Leadership and Governance was the annual reporting of units/departmental plans and presentation of Quarterly Performance Reviews (QPR), the opportunity was the Public Private Partnership (PPP) with investors while the threat was the rural location of the hospital which increased the travel cost for staff and

patients as well as expose them to insecurity situations. For partnership for health, the major strength was the existing PPP in various departments. The SWOTs for the rest of the broad areas were as in Tables 5, 6, 7 and 8.

The test of means of SWOT's rankings between male and female respondents (Table 9) shows that the differences are not statistically significant for most of the responses except for leadership and governance broad area for strength and threat, and product supply chain broad areas for opportunities.

**Table 6** Top 10 weaknesses of UNTH and the respective broad areas

Weaknesses	Priority score	Mean (SD)	Broad area
High cost of transportation	498	4.57 (0.74)	HRH
Unavailability of staff quarters (except for interns)	498	4.57 (0.89)	HRH
Long travel time to work due to the location of the hospital	495	4.54 (0.799)	HRH
Unsteady internet connectivity threatening the Electronic Medical Record (EMR)	487	4.47 (0.83)	Service Delivery
Inadequate office space for staff	486	4.46 (0.82)	HRH
Poor transportation services/facilities to the Hospital, and within the hospital	485	4.45 (0.897)	HRH
Poor mobile/internet network and connectivity	479	4.39 (0.83)	Digital Health
Delay in raising funds for minor repairs/maintenance	479	4.39 (0.88)	Service Delivery
Human resource limitations. Migration of specialists for greener pastures has reduced the available expertise for training. Brain-drain among those that went for overseas training or study depletes the full complement of team members	478	4.39 (0.82)	Education, Training and Capacity building
Unstable power supply	475	4.36 (1.12)	Digital Health

The top 10 weaknesses are shown in Table 6. The highest ranked weakness was in the HRH broad area (4.57 ± 0.74). The top 10 weaknesses were found in four out of 12 broad areas, and half of them were in the HRH broad area

**Discussion**

In this organizational capacity assessment, a comprehensive SWOT analysis was conducted for the University of Nigeria Teaching Hospital (UNTH) across twelve broad areas. The analysis involved collecting responses from participants to identify the internal strengths and weaknesses and external opportunities and threats faced by the institution. Our findings show that the strengths of the hospital in the broad areas of service delivery and human resources for health were ranked highest. This suggests that the hospital’s core service delivery and human resource capabilities are well-recognized, notably the availability of large expanse of land and highly skilled professionals, although there are areas where improvements are needed. SWOT analysis has been recognized as an efficient tool for improving the efficiency of medical institutions [21] and that healthcare service providers can provide useful perspectives on strengths and weaknesses of their institution as a whole and not just

from patient/clients as is often the case. SWOT analysis applied on Egyptian health system, to identify strengths, weaknesses, opportunities and threats, provided some directions for Egyptian health system reforms [22]. In Iran, SWOT was applied to develop a situation analysis model for Iran’s Hospitals’ Emergency Departments [23]. SWOT was effective in evaluating the public administration of the healthcare system in Ukraine [24].

In the same vein, this SWOT analysis has identified the strengths, weaknesses, opportunities and threats of the hospital, providing solutions and opportunities for healthcare improvement using scientific methods. The availability of large expanse of land for hospital expansion has positive implications for future growth and expansion, flexibility and adaptability, patient experience and comfort, infrastructure development, community engagement and partnerships, and financial viability. Many studies emphasize the importance of organizational flexibility and adaptability in the face of changing

**Table 8** Top 10 threats of UNTH and the respective broad areas

Threats	Priority score	Mean (SD)	Broad Area
Rural location of the hospital increases the travel cost for staff and patients	502	4.61 (0.88)	Leadership and Governance
Over-taxation of staff by Enugu State relative to State-employed workers	500	4.59 (0.82)	HRH
High cost of diesel for alternative source of power	499	4.58 (0.77)	HMIS
Poor remuneration and refusal to pay rural allowance to staff	492	4.51 (0.81)	Service Delivery
Epileptic power supply	490	4.50 (0.899)	HMIS
Poor internet/computer network	486	4.46 (0.86)	HMIS
High inflation rate	486	4.46 (0.73)	Product Supply Chain
Insecurity challenges in the country and the sub-region (cross-cutting)	484	4.44 (0.91)	Education, Training and Capacity building
Worsening economy and dwindling household income in the face of poor coverage of health insurance system	483	4.43 (0.797)	Service Delivery
Worsening depreciation of the naira currency	482	4.42 (0.93)	Education, Training and Capacity building

The top 10 threats are shown in Table 8. The highest ranked threat was in the leadership and governance broad area (4.61 ± 0.88). The top 10 threats were found in six out of 12 broad areas, and HMIS had the highest number of threats cumulatively among the top 10

**Table 7** Top 10 opportunities of UNTH and the respective broad areas

Opportunities	Priority score	Mean (SD)	Broad area
Existence of Nigerian Centre for Disease Control	452	4.15 (0.99)	NCD & CD, ED and Surveillance
Affiliation with University of Nigeria enriches global visibility and collaborative capacity of the hospital	447	4.10 (1.03)	Research & Innovation
Presence of large market for the products	424	3.89 (1.03)	Product Supply Chain
Supports research—source for information for research and statistics to the diaspora/ globally	419	3.84 (1.14)	HMIS
Engaging public -private partnership	413	3.79 (1.11)	HMIS
Public private partnership with investors	409	3.75 (1.02)	Leadership and Governance
Technical support and assistance from partners, agencies and NGOs	407	3.73 (1.07)	NCD & CD, ED and Surveillance
The availability of School of Health Information Management in UNTH for in-service training	406	3.72 (1.23)	HMIS
Potential sources of external funding	405	3.72 (1.08)	Health Financing
More collaboration and partnership with internal and external IT-based firms for technical and infrastructural support	404	3.71 (1.18)	Digital Health

The top 10 opportunities are shown in Table 7. The highest ranked opportunity was in the NCD & CD, ED and Surveillance broad area (4.15 ± 0.99). The top 10 opportunities were found in seven out of 12 broad areas, and HMIS had the highest number of opportunities among the top 10

**Table 9** Test of means of SWOTs rankings between male and female respondents

Broad area	F (p-value)			
	Strengths	Weaknesses	Opportunities	Threats
Leadership, and Governance	<b>8.04 (0.005)</b>	0.01 (0.907)	1.65 (0.202)	<b>4.50 (0.036)</b>
Human Resource for Health	1.87 (0.175)	1.09 (0.300)	0.08 (0.784)	1.25 (0.266)
Education, Training and Capacity Building	1.00 (0.320)	0.93 (0.334)	0.01 (0.934)	1.08 (0.302)
Service Delivery	0.80 (0.373)	0.49 (0.485)	2.79 (0.098)	0.17 (0.682)
Health information System	0.56 (0.456)	0.74 (0.393)	0.00 (0.962)	0.17 (0.684)
Digital Health	1.95 (0.165)	0.68 (0.410)	1.63 (0.205)	0.56 (0.455)
Research & Innovation	3.47 (0.065)	1.08 (0.300)	2.31 (0.132)	2.02 (0.156)
Product Supply Chain	1.45 (0.231)	0.05 (0.818)	<b>6.87 (0.010)</b>	1.21 (0.273)
Demand promotion, community engagement, community impact & outreaches development	0.10 (0.749)	0.04 (0.845)	2.26 (0.136)	0.20 (0.652)
Partnerships	1.73 (0.191)	0.01 (0.924)	1.51 (0.221)	0.08 (0.782)
Health Financing	3.24 (0.075)	0.01 (0.938)	3.03 (0.085)	0.56 (0.457)
Non-communicable & Communicable Diseases, Emerging Diseases and Surveillance	0.07 (0.789)	0.07 (0.791)	1.74 (0.190)	0.16 (0.690)

Table 9 shows a comparison of the means of the SWOTs rankings of male and female respondents indicating that the differences are not statistically significant for most of the responses. The only statistically significant mean differences were in the strengths and threats in leadership and governance broad area, and in the opportunities in product supply chain ( $p < 0.05$ )

healthcare demands and technological advancements [25, 26]. A hospital with ample land for expansion is better positioned to adapt to future healthcare needs, implement new services, and incorporate emerging medical technologies and state-of-the-art equipment, all of which contribute to improved service quality and patient outcomes. Patient satisfaction is a crucial aspect of healthcare service delivery, and hospitals that can provide a spacious and pleasant setting may be better positioned to achieve higher patient satisfaction scores [27, 28]. Therefore, hospitals that can expand their services and facilities

are more likely to attract a broader patient base and generate higher revenues. This resultant financial viability can contribute to the hospital’s sustainability and ability to invest in quality improvement initiatives. It is, however, important to note that while the availability of land for expansion is a significant strength, successful implementation of expansion plans requires careful strategic planning, resource allocation, regulatory approvals, and effective project management.

The recognition that the availability of highly skilled professionals/experts in various disciplines and clinical



specialties is a core strength of the hospital aligns with several themes and trends in literature [29]. Many developing countries, including Nigeria, have faced challenges related to HRH shortages in the healthcare sector [30, 31]. These shortages often lead to suboptimal service delivery and reduced access to quality healthcare. Therefore, the presence of highly skilled professionals/experts in various disciplines and clinical specialties in UNTH suggests that the hospital may have overcome or mitigated the common HRH shortages that are prevalent in many healthcare systems. The availability of highly skilled professionals is directly linked to the quality of care provided by a healthcare facility. Research suggests that hospitals with a strong and diverse workforce of skilled healthcare professionals tend to offer better diagnostic accuracy, treatment outcomes, and patient experiences [32, 33]. Moreover, having a diverse group of experts in various specialties promotes interdisciplinary collaboration, leading to more comprehensive and holistic patient care. With the ongoing exodus of skilled healthcare workers to better opportunities abroad (“brain drain”), which also featured as a weakness in the assessment, UNTH needs to implement strategies to retain its skilled professionals, as this is crucial for maintaining consistent service delivery.

Finding from the assessment also showed that the organization’s weaknesses in HRH were related to the conditions of work such as transportation, accommodation, and office space. This is consistent with existing literature on healthcare workforce challenges in developing countries [34]. Inadequate transportation, accommodation, and office space can negatively impact healthcare workers’ motivation and job satisfaction [35, 34]. Existing literature often highlights that poor working conditions contribute to staff burnout and attrition [36, 37]. Insufficient transportation options and lack of suitable accommodation can deter healthcare workers from accepting postings in some locations, while inadequate office space and infrastructure can impact the quality of patient care [38]. Healthcare professionals need appropriate workspaces for documentation, consultation, and collaboration. Limited office space might hinder effective communication among staff members and lead to administrative inefficiencies. Moreover, when healthcare workers have access to suitable and comfortable office spaces, they can perform their tasks more efficiently, leading to improved patient care and outcomes. Our findings reinforce the need for policy and advocacy efforts to address these workforce challenges, and the importance of government and organizational support in improving work conditions for healthcare professionals, especially in resource-limited settings.

The Non-Communicable Disease & Communicable Disease, Emerging Diseases and Surveillance broad area

emerged as having the highest number of opportunities, indicating potential areas for the hospital’s growth and development. Notably, the existence of the Nigerian Centre for Disease Control interventions and further opportunities for collaboration and technical support were seen as favourable prospects. Conversely, the broad area of Leadership and Governance faced the highest number of threats. These threats include challenges related to rural location, state government’s taxation on staff, and infrastructure again, which could all essentially, hinder the hospital’s effective functioning.

The study also investigated whether there were any significant differences in SWOT perceptions between male and female respondents. While most of the responses showed no statistically significant gender differences, some variations were observed in strengths and threats within the Leadership and Governance broad area and weaknesses in the Product Supply Chain broad area. These differences could potentially highlight gender-related perspectives on certain aspects of the hospital’s operations.

The research findings provide valuable insights for UNTH’s management to strategically leverage its strengths, address weaknesses, capitalize on opportunities, and mitigate threats. The strength of this study lies in the fact that data was collected from a representative sample of senior management staff of the institution who could provide insight about the situation of the hospital. The use of online survey also ensured that participants could freely express their views. However, the research is limited to the specific methodology of quantitative research method. More distinctive understanding of the SWOT factors can be achieved through in-depth interviews. Additionally, exploring the interconnectedness between different SWOT elements could provide a more comprehensive understanding of the hospital’s strategic position. The study is also limited in its generalizability since participants were drawn from a pool of senior management staff in one institution.

## Conclusions

In conclusion, this research through an organizational capacity assessment, has shed light on the strategic aspects of UNTH’s operations through a SWOT analysis. By identifying its internal strengths and weaknesses and external opportunities and threats, the hospital can thus formulate effective strategies to enhance its performance and maintain its position as a leading healthcare institution. The hospital can focus on enhancing its service delivery capabilities by building on existing strengths of land space and human resource capabilities. Proactive measures to improve infrastructure, staff welfare, and transportation services are also needed. The hospital

should further explore exiting and new partnerships, collaborations, and affiliations to enhance research and innovation and improve the overall quality of healthcare services provided.

#### Abbreviations

SWOT	Strength Weakness Opportunity Threat
UNTH	University of Nigeria Teaching Hospital
OCA	Organizational Capacity Assessment
FGN	Federal Government of Nigeria
PPP	Public-Private Partnership
CT	Computerized Tomography

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#### Authors' contributions

ODO, COM and CCD conceptualized the study, contributed to the design of this study, data analysis as well as supervision. All authors contributed to data collection, validation and manuscript drafting. COM, CCD and NOE edited the manuscript and managed the revisions. All authors reviewed the manuscript, approved the final manuscript and are accountable for their own contributions.

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#### Data availability

The data that support the findings of this study are available from UNTH Resource Development Research Group but cannot be made publicly available to protect the study participants who are also staff of the same institution. The data are however available from the authors upon reasonable request and with permission of UNTH Resource Development Research Group.

#### Declarations

##### Ethics approval and consent to participate

The study was a SWOT analysis of a teaching hospital, for quality improvement. It was submitted to and approved by UNTH Health Research Ethical Committee (UNTH-HREC) with reference number as NHREC/05/01/2008B-FWA00002458-1RB00002323. Informed consent was obtained from all the participants who were duly informed of the purpose of the research, the risks of participating in the research, and their rights to voluntary participation. Direct identifiers such as participants' email addresses and indirect identifiers such as participants' departments and units were encoded with unique identifiers before data analysis. Only the ODK consultant had access to these identifiers.

##### Consent for publication

Not applicable.

##### Competing interest

The authors declare no competing interests.

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