

# Resource Allocation And Service Quality In Private Healthcare Institutions: The Role Of Managerial Competencies

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## **Abstract**

*This study examined the effect of resource allocation on healthcare service quality in private healthcare providers in South East Nigeria, with a focus on the moderating role of managerial competencies. Resource allocation was observed through allocation to infrastructure, medical supplies, and research and development, while patient waiting time was used to measure service quality. A cross-sectional survey design was adopted, and data were collected from 215 healthcare administrators, medical professionals, and support staff in 15 selected private hospitals in South East region of Nigeria. Partial least square - Structural equation modeling (PLS-SEM) 3.2.9 was used to analyze the effect of resource allocation on healthcare service quality. The findings showed that resource allocation had a positive and significant effect on both patient waiting time and patient satisfaction, indicating that efficient distribution of resources led to reduced waiting times and improved patient experiences. Furthermore, managerial competencies significantly enhanced the relationship between resource allocation and healthcare service quality, demonstrating that hospitals with skilled managers achieved better service outcomes. The study provides empirical insights for policymakers, healthcare administrators, and investors on optimizing resource allocation and strengthening managerial competencies to enhance service quality in private healthcare facilities.*

**Keywords:** Resource Allocation; Service Quality; Tertiary Educational Institutions; Managerial Competencies; Student Satisfaction; Institutional Efficiency.

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## **1. INTRODUCTION**

Resource allocation is a critical determinant of institutional effectiveness in the healthcare sector. The strategic distribution of financial, human, and material resources significantly impacts service quality, faculty performance, and student satisfaction (Altbach et al., 2019). Healthcare institutions face increasing demands for improved learning environments, research capabilities, and administrative efficiency, necessitating effective managerial competencies in resource allocation. However, disparities in funding, infrastructure, and human resource distribution often compromise service quality, particularly in developing economies (Teixeira et al., 2020).

Global trends like telemedicine, digital health solutions, and pandemic responses have significantly reshaped resource allocation strategies in healthcare systems worldwide (WHO, 2021). The COVID-19 pandemic, in particular, accelerated the adoption of digital health technologies and highlighted the need for flexible and responsive healthcare systems (Bashshur et al., 2020). These trends necessitate a shift towards more efficient and equitable resource allocation, prioritizing preventive care, and leveraging technology to improve access and quality. However, these global shifts interact with unique local challenges, particularly in developing countries like Nigeria, impacting both resource allocation and service quality. This is especially evident in the South-East region, where issues like power supply instability, infrastructure decay, and brain drain pose significant hurdles.

In Nigeria's South-East, the promise of telemedicine and digital health solutions is often hampered by unreliable power supply, limiting the effective deployment and utilization of these technologies (Madu, & Osborne, 2023). Decaying infrastructure, including inadequate transportation networks and poorly equipped health facilities, further restricts access to quality healthcare, particularly in rural areas (Madu, & Osborne,

2023). The region also faces a significant brain drain, with skilled healthcare professionals migrating to urban centers or abroad in search of better opportunities, exacerbating the shortage of qualified personnel (Ajoseh, et al., 2024; Onwujekwe, et al., 2020). These interconnected challenges create a complex landscape for resource allocation, demanding context-specific solutions.

While existing literature acknowledges the impact of global health trends and local challenges on healthcare systems in Nigeria (Eze, et al., 2024), there remains a significant gap in understanding the specific interaction between resource allocation, service quality, and managerial competencies within the private healthcare sector in the South-East. Previous studies have often focused on the public sector, neglecting the crucial role of private healthcare providers (Eze, et al., 2024; Uguru, et al., 2024). Furthermore, there is a paucity of empirical data on private healthcare systems in Nigeria, particularly in the South-East, making it difficult to develop evidence-based policies and interventions (Onwujekwe, et al., 2020; Uguru, et al., 2024). This research addresses this gap by specifically examining how global trends and local challenges influence resource allocation strategies and service quality within private healthcare facilities in the South-East, while also considering the role of managerial competencies. This focus on the private sector and the specific context of the South-East constitutes the novelty of this research. Hence, this study examined the relationship between resource allocation and service quality in higher education, emphasizing the moderating role of managerial competencies in ensuring efficiency and institutional competitiveness.

## 2. LITERATURE REVIEW

### 2.1 Theoretical Framework

This study is grounded in several relevant theoretical frameworks. Systems theory provides a lens for understanding the interconnectedness of the various components of the healthcare system, including resource allocation, service delivery, and managerial practices (Bertalanffy, 1968). It emphasizes that changes in one part of the system can have ripple effects throughout the entire system. Additionally, the contingency theory also provided theoretical foundation for this study (Fiedler, 1964). The theory suggests that there is no one-size-fits-all approach to management and that the most effective strategies depend on the specific context (Burns & Stalker, 1961; Donaldson, 2001). In this case, the study examines how resource allocation strategies need to be adapted to the unique challenges and opportunities presented by the South-East context. Further, the resource-based view (RBV) posits that a firm's competitive advantage is derived from its resources and capabilities (Barney, 1991). This study investigated how private healthcare providers in the South-East leverage their resources, including managerial competencies, to improve service quality in the face of local constraints. These theories collectively provide a robust framework for analyzing the complex interplay between resource allocation, service quality, and managerial competencies within the private healthcare sector in the South-East, considering both global trends and local realities. Together, these theories provide a comprehensive foundation for understanding how institutional leadership and strategic planning influence service quality.

### 2.2 Conceptual Review

#### Resource Allocation

Generally, the concept of resource allocation has evolved from traditional economic theories that emphasize the optimal use of scarce resources to contemporary models that integrate equity, efficiency, and sustainability in decision-making (Smith, 1776; Arrow, 1963). In healthcare, resource allocation gained prominence in the mid-20th century as policymakers and stakeholders recognised its critical role in addressing disparities, improving access, and enhancing healthcare system performance (World Health Organization (WHO), 2010). Recently, the emphasis shifted from merely distributing resources to strategic investments that ensure long-term benefits and adaptability to emerging challenges (Ginter, Duncan, & Swayne, 2018).

Resource allocation is the strategic distribution of available resources, such as financial, human, and material assets, to achieve desired objectives effectively and efficiently (Ofor-Douglas, 2024; Ebugosi & Olaboye, 2024). In the healthcare sector, resource allocation is a critical determinant of service delivery, patient outcomes, and organizational sustainability (Cavicchi, 2017). Proper allocation ensures that healthcare facilities meet the growing demand for quality services, address infrastructural needs, maintain adequate medical supplies, and propel innovation through research and development (Dzau, McClellan, McGinnis, Burke, et al., 2017).

These allocations directly influence the capacity of healthcare providers to deliver timely and effective care, ultimately impacting the overall health of the population (Ebugosi & Olaboye, 2024).

In the context of South-East Nigeria, resource allocation in healthcare is significantly influenced by the region's unique socio-economic, cultural, and infrastructural challenges (Ezeudu, & Fadeyi, 2024). The South-East region contends with issues such as underdeveloped healthcare infrastructure, inadequate medical personnel, and limited financial resources, which are further compounded by political and administrative inefficiencies (Onwujekwe, et al., 2019). These challenges create disparities in the availability and quality of healthcare services, particularly between urban and rural areas (Ezeudu, & Fadeyi, 2024).

Regional disparities in resource allocation within Nigeria manifest between urban centers and rural communities (Raheem, et al., 2014). Urban areas often receive a disproportionate share of healthcare resources, including well-equipped hospitals, specialized medical personnel, and advanced diagnostic facilities (Raheem, et al., 2014). In contrast, rural areas in the South-East region face persistent shortages of basic healthcare amenities, leading to poor health outcomes and heightened vulnerability to preventable diseases (Arize, et al., 2023).

These disparities have far-reaching implications for healthcare delivery. In urban areas, resource concentration fosters better healthcare services and patient outcomes, while rural communities struggle with high maternal and infant mortality rates, limited access to essential medicines, and inadequate emergency response systems (Onwujekwe, et al., 2019). The inequitable distribution of resources also undermines efforts to achieve universal health coverage, as rural populations are systematically disadvantaged (Ezeudu, & Fadeyi, 2024).

Rather than being purely administrative decisions, these allocation patterns reflect deep-rooted socio-political and economic dynamics that shape how resources are distributed across regions (Okafor & Nwankwo, 2023). The concentration of healthcare infrastructure and skilled personnel in urban centers often correlates with political influence, economic activities, and historical development trajectories (Emeka & Ojo, 2023). This imbalance perpetuates a cycle where rural areas remain underserved, limiting their capacity to improve health outcomes and overall well-being (Nwachukwu & Obi, 2024).

The dynamics of resource allocation in South-East Nigeria thus highlight the complex interplay of equity, efficiency, and political will in shaping healthcare delivery outcomes. Understanding these factors provides a clearer perspective on the persistent disparities and the structural barriers that influence healthcare access across different regions (Ibe & Uche, 2022).

In healthcare, financial and nonfinancial resources form the backbone of effective service delivery. Effective allocation ensures that healthcare organizations can invest in state-of-the-art technology, maintain their physical infrastructure, and recruit skilled professionals to meet patient needs (Dzau et al., 2017). Ineffective allocation, on the other hand, leads to understaffed facilities, outdated equipment, and a lack of essential medications, which compromise the quality of care provided (Cavicchi, 2017). For instance, healthcare systems in low-income regions often struggle with resource constraints that limit their ability to address even the most basic healthcare needs (Ebugosi & Olaboye, 2024). This disparity underscores the importance of equitable resource allocation to bridge gaps in access and quality of care across different regions and populations.

Human resources, comprising medical professionals, administrative staff, and support personnel, are vital components of resource allocation. Effective human resource allocation ensures that healthcare facilities are adequately staffed with competent professionals who can address the diverse needs of patients (Owolabi, Olatoye, Elufioye, & Okunade, 2024). Ineffective staff, resulting from poor resource allocation, often face burnout, which negatively affects their ability to provide quality care (Nkala, Mudimu, & Mbengwa, 2021). Furthermore, the unequal distribution of healthcare professionals across urban and rural areas exacerbates disparities in healthcare access (Cavicchi, 2017). Strategic human resource planning and allocation can mitigate these challenges by ensuring that healthcare services are available where they are needed most, thereby promoting equity and improving overall health outcomes (Owolabi, et al., 2024).

Medical resources, including medical equipment, supplies, and pharmaceuticals, are indispensable for the smooth operation of healthcare facilities. Proper allocation of these resources ensures that healthcare providers have the tools they need to diagnose and treat patients effectively (Dzau et al., 2017). For example,

the availability of diagnostic equipment like MRI machines and laboratory supplies can significantly enhance the accuracy of diagnoses and the efficiency of treatment plans (Nkala, et al., 2021). Conversely, resource shortages can delay treatment, worsen patient outcomes, and increase mortality rates (Ebugosi & Olaboye, 2024). Therefore, meticulous planning and distribution of material resources are essential for maintaining the reliability and efficiency of healthcare systems.

Beyond meeting immediate healthcare needs, resource allocation also plays a pivotal role in driving innovation and long-term sustainability. Investments in research and development are crucial for advancing medical knowledge, discovering new treatments, and improving healthcare delivery models (Dzau et al., 2017; Owolabi, et al., 2024). Allocating resources to research not only fosters innovation but also prepares healthcare systems to address emerging challenges, such as pandemics and the growing burden of chronic diseases (Cavicchi, 2017). However, resource allocation must be balanced to avoid prioritizing innovation at the expense of essential services, as both are integral to a robust healthcare system.

Although resources are allocated in many areas such as training, public safety, transportation, advertisement, and communication, this study focuses on allocation to infrastructure, medical supplies, and research and development (R&D). This is justified by their critical roles in enhancing public health and driving innovation in the health sector. Investment in infrastructure has been shown to yield significant economic multipliers, with studies indicating that the amount spent can generate up to 1.5 times its value in economic activity within a few years, thereby stimulating public health, job creation, and improving productivity (Chitiga et al., 2016; Vicente, Savard & Ataides de Freitas, 2022). Additionally, allocating resources to medical supplies ensures that healthcare systems are equipped to handle emergencies and provide essential services, which is vital for maintaining public health and safety (World Bank, 2021). Finally, investment in R&D is essential for technological advancement and competitiveness, as it leads to the development of new products and medical solutions that address medical needs of the citizens, ultimately contributing to a healthy population (OECD, 2020). Together, these allocations create a robust framework for better performance and improved quality of life.

Allocation to infrastructure involves investing in the physical and technological facilities required to deliver health services, such as hospitals, clinics, diagnostic equipment, and information systems (WHO, 2010). Inadequate infrastructural investment can hinder healthcare delivery, leading to inefficiencies and compromised patient outcomes (Kruk et al., 2018). Allocation to medical supplies ensures the availability of essential drugs, consumables, and diagnostic materials, which are foundational to effective treatment (Ebugosi & Olaboye, 2024). Insufficient medical supplies often result in delays, increased patient dissatisfaction, and diminished trust in healthcare providers. Finally, allocation to R&D is vital for fostering innovation, improving treatment protocols, and addressing emerging health challenges (Kruk et al., 2018). In the context of private healthcare providers, these dimensions are crucial for maintaining competitiveness, ensuring service quality, and meeting patient expectations.

Private healthcare providers face unique operational challenges that make effective resource allocation critical. Unlike public healthcare systems, which primarily rely on government funding and are guided by broad public health mandates, private healthcare providers depend heavily on revenue from patient services, insurance reimbursements, and private investments (Basu, et al., 2012). This reliance creates a competitive environment where efficient resource allocation directly impacts financial sustainability and service quality. Private providers often need to balance cost-efficiency with the demand for high-quality, patient-centered care, which can be challenging given fluctuating patient volumes and varying insurance coverage (Amelung, 2019).

Additionally, private healthcare facilities operate under different regulatory frameworks compared to public institutions, often facing stricter compliance requirements and accreditation standards to maintain credibility and attract patients (Asamoah, 2025). Patient demographics also differ, with private facilities typically serving populations with higher socioeconomic status, influencing expectations around service quality, technological sophistication, and personalized care (Iqbal, et al., 2024). Effective resource allocation in this context is not just about ensuring the availability of medical supplies or staffing but also about strategic investments in advanced technologies, continuous staff training, and innovative service delivery models to enhance competitiveness (Jones, 2023).

Resource allocation impacts the competitiveness and sustainability of private healthcare providers by enabling them to adapt to market demands, improve operational efficiency, and deliver superior patient outcomes. Strategic investments in infrastructure, for example, can attract more patients, while funding for R&D can lead to innovative treatments that differentiate a provider in the marketplace (Mironiuc, et al., 2022). Conversely, poor resource management can result in financial strain, reduced service quality, and loss of market share, highlighting the need for meticulous planning and effective management practices (Taylor, 2023).

### **Service Quality**

Service quality refers to the degree to which healthcare services meet or exceed patient expectations and industry standards (Ali, Jusoh, Idris & Nor, 2024). It encompasses both the technical quality of care, which includes the accuracy of diagnoses and treatments, and the functional quality, which involves the delivery of care in a compassionate, timely, and patient-centered manner.

The significance of service quality in healthcare cannot be overstated. High-quality services are associated with improved patient satisfaction, which is a critical indicator of healthcare effectiveness (Cinaroglu & Baser, 2018). Satisfied patients are more likely to adhere to treatment plans, return for follow-up care, and recommend services to others (Li, Cui, & Feng, 2023). Moreover, enhancing service quality can lead to better clinical outcomes, including recovery rates and overall patient well-being (Al-Assaf, Bahroun, & Ahmed, 2024).

Healthcare organizations are increasingly recognizing the need for continuous measurement and improvement of service quality as part of their strategic objectives (Cinaroglu & Baser, 2018). By actively soliciting patient feedback and assessing their experiences, providers can identify areas for enhancement that align with patient expectations (Rauf, Muhammad, Mahmood & Yen, 2024). This proactive approach not only fosters a culture of excellence but also helps organizations adapt to evolving patient needs in a competitive landscape (Li, et al., 2023).

In the context of private healthcare providers in the South-East region of Nigeria, specific service quality indicators such as patient waiting time and quality of care are particularly relevant. Data from private hospitals in cities like Enugu and Onitsha indicate that average patient waiting times range from 30 to 90 minutes, with shorter times significantly correlating with higher patient satisfaction rates. Additionally, the quality of care is often assessed through patient recovery rates, readmission rates, and patient feedback scores, with private clinics reporting higher satisfaction due to personalized care and modern medical equipment.

Cultural and socio-economic factors play a critical role in shaping patient expectations and perceptions of service quality in this region. The strong communal culture emphasizes interpersonal relationships, making empathy and assurance key determinants of perceived service quality. Socio-economic disparities also influence expectations; patients from higher-income brackets demand more sophisticated healthcare services and shorter waiting times, while those from lower-income backgrounds prioritize affordability and accessibility.

Furthermore, traditional and alternative medicine practices prevalent in the South-East region affect the demand for quality services in private healthcare. Many patients initially seek traditional remedies for common ailments, turning to private healthcare providers only when conditions worsen. This trend increases the demand for high-quality, specialized care that can address complex health issues swiftly and effectively. Consequently, private healthcare facilities must balance modern medical practices with cultural sensitivity to enhance patient trust and satisfaction.

Generally, the proxies of service quality include waiting time, empathy, assurance, reliability, care quality, responsiveness, and tangibility (Taylor, 2024; Li, et al., 2023). For this study, patient waiting time and quality of care are adopted. Patient waiting time reflects the efficiency of healthcare processes and significantly impacts patient satisfaction and trust in the healthcare system (Ali, Jusoh, Idris, Qureshi, Abbas, & Nisar, 2021). Long waiting times are often associated with negative perceptions of service quality. Quality of care, on the other hand, assesses the effectiveness, safety, and responsiveness of the care delivered. High-quality care ensures improved patient outcomes, enhances patient loyalty, and strengthens the reputation of healthcare providers (Ali, et al., 2024). The adoption of these measures is justified as they directly influence patient satisfaction, operational efficiency, and the overall success of healthcare organizations.

### **Managerial Competencies**

Managerial competencies refer to the skills, knowledge, and abilities of healthcare managers to effectively oversee operations, allocate resources, and implement strategies (Mierzwa et al., 2024). Competent managers play a pivotal role in optimizing resource allocation, improving service quality, and addressing organizational challenges (Igwe, Akpan, Udoh, & Sylva, 2024). Their ability to plan, organize, and lead directly influences the efficiency of resource utilization and the quality of services delivered. In private healthcare settings, where competition is intense, managerial competencies are critical for maintaining operational excellence and achieving strategic objectives (Oliveira et al., 1999).

Managerial competencies in healthcare institution involve leadership, strategic planning, and decision-making skills that influence resource distribution (Mintzberg, 2017). Competent administrators ensure financial sustainability, infrastructure development, and faculty support, enhancing institutional performance. In contrast, weak managerial skills result in misallocation and inefficiencies (Bolman & Deal, 2021). Research indicates that leadership styles and governance mechanisms significantly influence the effectiveness of resource management in universities (Bryson et al., 2020).

### **2.3 Hypotheses Development**

The relationship between resource allocation, service quality, and managerial competencies is interdependent. Effective resource allocation enhances the capacity of healthcare facilities to deliver high-quality services. This relationship is significantly influenced by managerial competencies, as skilled managers ensure that resources are allocated strategically and used optimally (Ebugosi & Olaboye, 2024). For instance, competent managers can implement cost-effective budgeting strategies, prioritize critical healthcare needs, and adapt resource distribution based on patient demand and service requirements (Almogry, et al., 2024). Conversely, poor managerial competencies can undermine resource utilization, resulting in inefficiencies, resource wastage, and substandard service quality.

In the South-East region of Nigeria, private healthcare managers face specific challenges that impact resource allocation and service quality. Talent retention remains a critical issue due to competitive job markets, inadequate incentives, and limited professional growth opportunities (Arize, et al., 2023). This situation affects the ability to maintain a stable and skilled workforce, which in turn influences continuity of care and operational efficiency. Capacity building is another significant challenge, as many healthcare facilities lack structured training programs to enhance the skills and competencies of their staff (Okunade, et al., 2023). This gap in professional development limits the adoption of innovative practices and technologies.

Governance structures within private healthcare organizations also present challenges. Weak leadership frameworks, lack of accountability mechanisms, and poor strategic planning often lead to mismanagement of resources and suboptimal service delivery (Kinyeki, 2022). Complex organizational dynamics, financial sustainability issues, and the demand for quality patient care contribute to these governance-related difficulties.

Despite these challenges, managerial best practices from comparable contexts offer valuable insights. For example, in Kenya, the implementation of performance-based management systems in private healthcare facilities has improved resource allocation efficiency and service quality (Chikophe, 2024). These systems promote accountability, incentivize high performance, and ensure that resources are aligned with strategic healthcare goals. Additionally, adopting continuous professional development programmes, as seen in South Africa's private healthcare sector, has enhanced staff competencies, leading to improved patient outcomes (Shangase, & Shandu, 2024). Understanding these dynamics is essential for improving the performance of private healthcare providers in the South-East region of Nigeria. Based, on the above arguments, it was proposed that:

H1: Allocation to infrastructure significantly affects patient waiting time in private healthcare providers.

H2: Allocation to medical supplies significantly affects patient waiting time in private healthcare providers.

H3: Allocation to research and development significantly affects patient waiting time in private healthcare providers.

H4: Managerial competencies significantly moderate the relationship between resource allocation and service quality.

### 3. METHODOLOGY

#### Research Design and Participants

Research design is a crucial framework that outlines the methodology for conducting a study, enabling researchers to draw meaningful inferences about causal relationships among the variables being investigated (Turner, 2019). In this study, a cross-sectional descriptive survey design was employed, which is particularly well-suited for investigating the relationships between resource allocation, managerial competencies, and service quality in private healthcare providers in South-East Nigeria. This design allows for the collection of data from a diverse group of respondents at a single point in time, making it possible to examine the complex interrelationships among the variables under study within the defined population (Onodugo, et al., 2010; Ainsworth, 2020; Creswell, 2018).

The population for this study consists of healthcare administrators, medical professionals, and support staff of private healthcare providers in the South-East region of Nigeria. The study focused on private healthcare providers operating in Abia, Anambra, Ebonyi, Enugu and Imo States with at least fifteen (15) years in business and with not less than twenty (20) bed spaces and forty (40) workers. Three private healthcare providers that met these criteria and willing to partake in the study were selected from each of the State. Making a total of fifteen (15) private healthcare providers. Records from the personnel/human resource departments of the firms show that there are a total of one thousand, three hundred and forty one (1341), comprising healthcare administrators, medical professionals, and support staff. The Cochran (1963) sample size determination formula was utilized to establish the minimum sample size of 366. The simple random sampling technique was applied to ensure that all healthcare administrators, medical professionals, and support staff within the selected 15 private healthcare providers have an equal opportunity to participate. A total of 366 copies of the research instrument were sent via Google Form to the participants, of which 215 responded. This represented a response rate of 59 percent, which is within the acceptable response rate of 32% and 75% for a survey as suggested by Nulty (2008)

#### Operational Measures of Variables

Resource allocation was measured in terms of financial investment, infrastructure, and human resource distribution (Salmi, 2017). Service quality was assessed based on student satisfaction, academic support services, and faculty performance (Parasuraman et al., 1994). Managerial competencies were evaluated through leadership effectiveness, decision-making, and strategic planning (Mintzberg, 2017).

#### Data Analysis Techniques

The research hypotheses were tested using Partial Least Squares Structural Equation Modelling (PLS-SEM) with the aid of SmartPLS software. PLS-SEM was adopted due to its distinct advantages over traditional statistical techniques, particularly in addressing challenges often encountered in data analysis. This method is especially beneficial when working with small sample sizes, as it can produce reliable results with as few as ten observations per latent variable (Hair, et al., 2020). Additionally, PLS-SEM effectively handles complex and non-normal data, demonstrating robustness to violations of normality assumptions that may affect traditional SEM methods. This makes it a suitable choice for data that are not normally distributed (Hair, et al., 2022).

### 4. RESULTS AND DISCUSSION

#### 4.2 Descriptive Statistics

Table 1 shows the summary of the analyses on the demographic details of the respondents.

**Table 1: A Summary of Demographic Profiles of Respondents**

Variable	Item	Frequency	Percent
Gender	Male	70	32.56
	Female	145	67.44
	<b>Total</b>	<b>215</b>	<b>100</b>
Marital Status	Married	93	43.26
	Single	122	56.74
	<b>Total</b>	<b>215</b>	<b>100</b>
Age	18-35	95	44.19
	36-50	92	42.79
	51- Above	28	13.02
	<b>Total</b>	<b>215</b>	<b>100</b>
Years of work experience	0-5	63	29.30
	6-10	70	32.56
	11-15	49	22.79
	16-20	23	10.70
	<b>Total</b>	<b>215</b>	<b>100</b>
Highest level of educational attainment	B.Sc./BA	121	56.28
	MBBS	37	17.21
	MBA/M.Sc	11	5.12
	DBA/PhD	12	5.58
	Others	35	16.28
	<b>Total</b>	<b>215</b>	<b>100</b>
<b>Note:</b> OND = Ordinary National Diploma, NCE = National Certificate of Education, HND = Higher National Diploma, MBA = Master of Business Administration, M.Sc. = Master of Sciences, DBA = Doctor of Business Administration, Ph.D = Doctor of Philosophy			

**Source:** Field Data, 2025.

Table 1 shows that there were 70 (32.56%) male respondents and 145 (67.44%) female respondents, indicating a higher number of female medical and administrative staff in the private healthcare institutions. Additionally, most respondents were single, accounting for 56.74%. Analysis of the respondents' ages reveals that the majority were between 18 and 35 years old, indicating a youthful population. Regarding work experience, most respondents have worked for 6 to 10 years, reflecting a relatively experienced workforce. Lastly, the majority of respondents hold a first degree (B.Sc.).

#### 4.4 Measurement Model

The study's measurement model was evaluated using Partial Least Squares - Structural Equation Modeling (PLS-SEM) to assess the validity and reliability of the research instrument by examining factor loadings, indicator reliability, and the Average Variance Extracted (AVE).

Table 2 shows factor loadings of all the items. The factor loadings of infrastructure allocation, medical supplies, and research and development were all above 0.70 acceptable loadings (Hulland, 1999; Akpan, et al., 2022). Similarly, the indicators for patients' waiting time, and managerial competencies also had factor loadings above the recommended threshold. As a result, all these indicators were retained for further analysis, as suggested by Hulland (1999).

**Table 2: Factor Loadings, Reliabilities and AVEs for all the Items in the Model**

Latent Variables	Indicators	Convergent Validity			Internal Consistency/Reliability	
		Loadings	Indicator Reliability	AVE	Composite Reliability (Pc)	Cronbach Alpha (CA)
		>0.70	>0.50	>0.50	>0.70	0.70-0.90
AI	AI <sub>1</sub>	0.718	0.516	0.612	0.887	0.884
	AI <sub>2</sub>	0.786	0.618			
	AI <sub>3</sub>	0.771	0.59			
	AI <sub>4</sub>	0.896	0.803			
	AI <sub>5</sub>	0.729	0.531			
MS	MS <sub>1</sub>	0.856	0.733	0.700	0.921	0.918
	MS <sub>2</sub>	0.748	0.560			
	MS <sub>3</sub>	0.892	0.796			
	MS <sub>4</sub>	0.818	0.669			
	MS <sub>5</sub>	0.862	0.743			
RD	RD <sub>1</sub>	0.789	0.623	0.702	0.922	0.917
	RD <sub>2</sub>	0.882	0.778			
	RD <sub>3</sub>	0.877	0.769			
	RD <sub>4</sub>	0.799	0.638			
	RD <sub>5</sub>	0.839	0.704			
PW	PW <sub>1</sub>	0.729	0.531	0.626	0.893	0.887
	PW <sub>2</sub>	0.876	0.767			
	PW <sub>3</sub>	0.828	0.686			
	PW <sub>4</sub>	0.749	0.561			
	PW <sub>5</sub>	0.766	0.587			
MC	MC <sub>1</sub>	0.840	0.706	0.653	0.904	0.898
	MC <sub>2</sub>	0.819	0.671			
	MC <sub>3</sub>	0.798	0.637			
	MC <sub>4</sub>	0.812	0.659			
	MC <sub>5</sub>	0.769	0.591			

Note: AI = Allocation to Infrastructure, MS = Allocation to Medical Supplies, RD = Allocation to research and development, PW = patients' waiting time, MC = Managerial Competencies

Source: SmartPLS 3.2.9 Output on Research Data, 2025.

Also, table 2 presents the results of reliability and convergent validity assessments for the study instrument. Both Cronbach's alpha and composite reliability values were found to be satisfactory, as all values exceeded the acceptable threshold of 0.7 (Nunnally, 1978). Additionally, the squared factor loadings of individual items (indicator reliability) met the required threshold of 0.50, further supporting the reliability of the indicators. Convergent validity was evaluated using the average variance extracted (AVE). For each construct, the AVE values were above 0.5, confirming adequate convergent validity (Bagozzi & Yi, 1988). These results collectively demonstrate the robustness and reliability of the study instrument.

**Table 3: Discriminant validity – Fornell and Larcker Criterion**

	AVE	AI	MS	RD	PW	MC
AI	<b>0.612</b>	<b>0.782</b>				
MS	<b>0.700</b>	0.113	<b>0.837</b>			
RD	<b>0.702</b>	0.209	0.213	<b>0.838</b>		
PW	<b>0.626</b>	0.274	0.138	0.315	<b>0.791</b>	
MC	<b>0.653</b>	0.210	0.138	0.091	0.311	<b>0.808</b>

**Note:** AI = Allocation to Infrastructure, MS = Allocation to Medical Supplies, RD = Allocation to research and development, PW = patients' waiting time, MC = Managerial Competencies. The off-diagonal values are the correlations between latent variables, while the diagonal values (in bold) denote the square root of AVEs.

Source: SmartPLS 3.2.9 output on Research Data, 2025.

Table 3 demonstrates the assessment of discriminant validity for the constructs using Fornell and Larcker's (1981) criterion. Discriminant validity was evaluated by comparing the correlations between latent constructs with the square roots of the average variance extracted (AVE). The results showed that the square roots of the AVEs for each construct were greater than the correlations between that construct and all other constructs. This confirms that the latent variables are distinct from one another, indicating that the research instrument in this study possesses appropriate discriminant validity.

#### **Tests of Hypotheses (Assessing the Structural Model)**

The second stage in a PLS-SEM modeling approach is the assessment of the structural model (test of hypotheses). The measurement model shows the one-way association between a specific latent variable and its sub-indicators, the structural modeling looks at the nexus between different latent variables. That is, independent and dependent variables. Revealing that whereas the measurement model is the factor analysis stage of the assessment, the structural model is the regression analysis stage of the model.

The conditions to either accept or reject the stated hypotheses, for path coefficients ( $\beta$  values), values from .10 to 0.29, .30 to .49 and .50 to 1.0 are considered as weak, moderate and strong correlations, respectively (Cohen, 1988). Then, for a two-tailed test,  $t$  values greater than 1.96 are significant, while  $t$  values less than 1.96 are non-significant (Hair, et al., 2017).

Hypotheses one to three were clustered and tested:

- i. Allocation to infrastructure significantly affects patient waiting time in private healthcare providers.
- ii. Allocation to medical supplies significantly affects patient waiting time in private healthcare providers.
- iii. Allocation to research and development significantly affects patient waiting time in private healthcare providers.

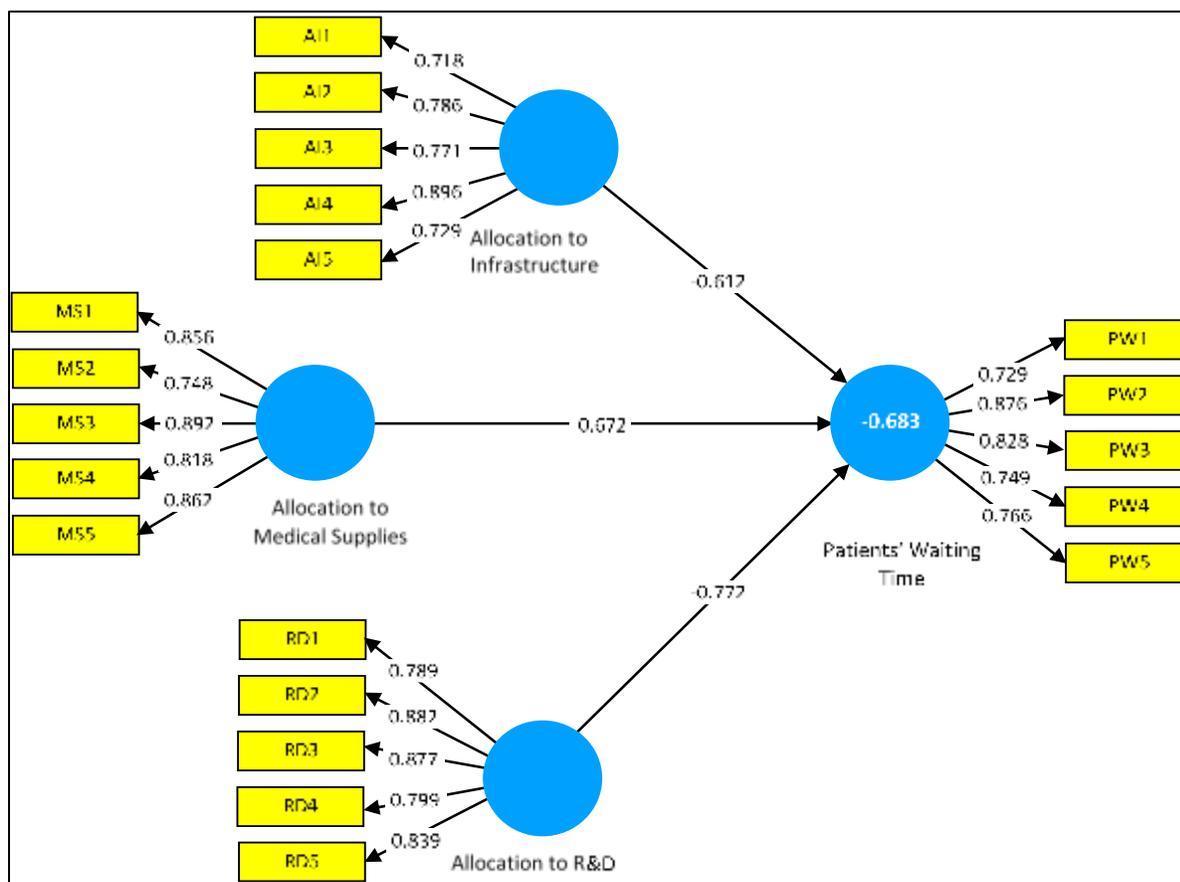


Figure 1: Test of Hypotheses One to Three

Table 4: Test of Hypotheses One to Three

Hypotheses	Path coefficient	Standard error	T. value	P. value	Decision
AI -> PW	-0.612	0.067	7.578	0.000	Supported
MS -> PW	-0.672	0.039	9.285	0.001	Supported
RD -> PW	-0.772	0.056	9.525	0.023	Supported

Note: AI = Allocation to Infrastructure, MS = Allocation to Medical Supplies, RD = Allocation to research and development, PW = patients' waiting time. T-Statistics greater than 1.96 at 0.05 levels of significance.

Source: SmartPLS 3.2.9 Output on Research Data, 2025.

Figure 1 and table 4 show the outcomes of the test of hypotheses one to three. The first hypothesis examines the effect of allocation to infrastructure on patient waiting time. The result reveals a significant but negative effect ( $\beta = -0.612$ ;  $t = 7.578$ ;  $p < 0.005$ ). The negative path coefficient of -0.612, indicates a negative effect, meaning that as more resources are allocated to infrastructure, patient waiting time decreases. The t-value of 7.578, which is greater than 1.96, confirms the statistical significance of this effect. With a p-value of 0.000, which is well below the 0.05 threshold, the hypothesis is supported. This implies that investing in infrastructure within private healthcare providers can lead to a significant reduction in patient waiting times. The second hypothesis examines the effect of allocation to medical supplies on patient waiting time. The result reveals a significant and negative effect ( $\beta = -0.672$ ;  $t = 9.285$ ;  $p < 0.005$ ). The negative path coefficient of -0.672 indicates that as more resources are allocated to medical supplies, patient waiting time decreases. The t-value of 9.285, which is greater than 1.96, confirms the statistical significance of this effect. With a p-value of 0.001, which is below the 0.05 threshold, the hypothesis is supported. This suggests that increasing the allocation of resources to medical supplies within private healthcare providers can lead to a significant reduction in patient waiting times.

The third hypothesis investigates the effect of allocation to research and development on patient waiting time. The result reveals a significant and negative effect ( $\beta = -0.772$ ;  $t = 9.525$ ;  $p < 0.005$ ). The negative path coefficient of  $-0.772$  indicates that as more resources are allocated to research and development, patient waiting time decreases. The t-value of 9.525, which is greater than 1.96, confirms the statistical significance of this effect. With a p-value of 0.023, which is below the 0.05 threshold, the hypothesis is supported. This implies that investing in research and development within private healthcare providers can lead to a significant reduction in patient waiting times.

**Test of Hypothesis Four**

i. Managerial competencies significantly moderate the relationship between resource allocation and service quality in private healthcare providers in South-East Nigeria.

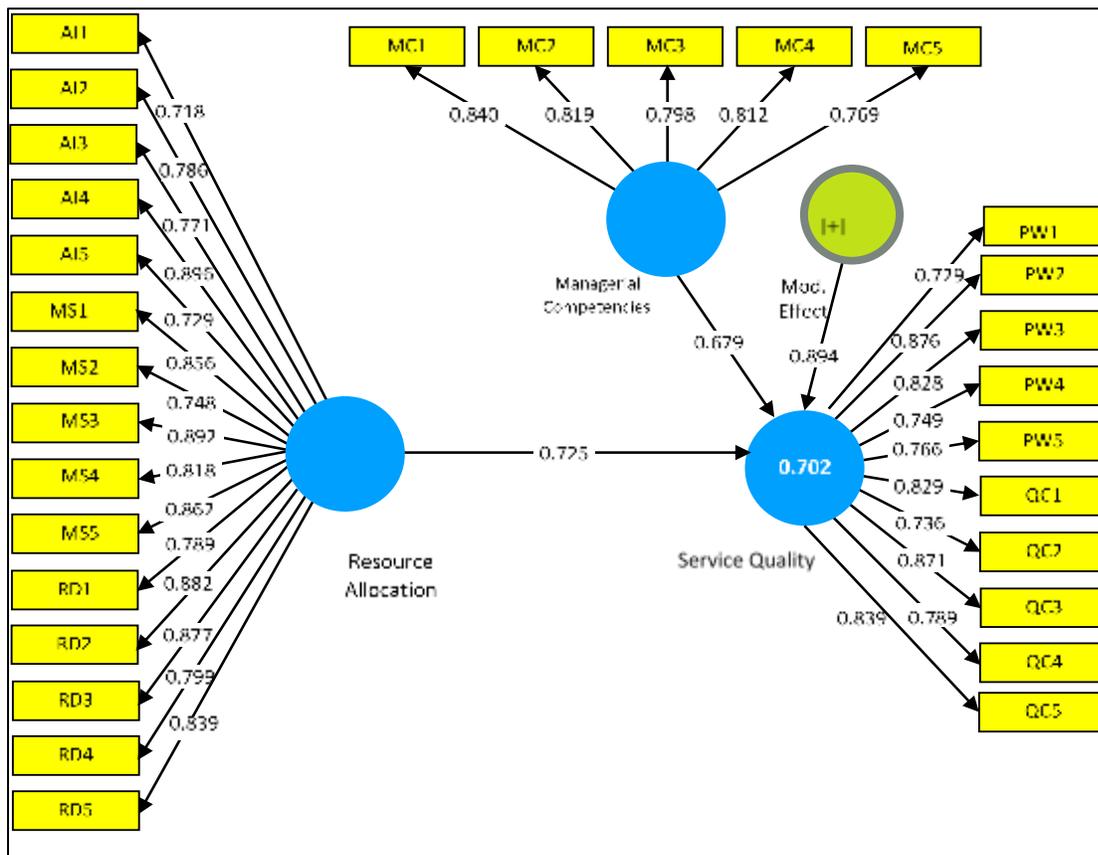


Figure 2: Test of Hypothesis Seven.

Table 5: Effect of Managerial Competencies on Resource Allocation and Service Quality

Paths	B	t-values	P. Values	Decision
RA -> SQ	0.725	12.548	.001	Supported
MC -> SQ	0.679	9.764	.003	Supported
Mod. Eff. 1 -> SQ	0.894	16.492	.000	Supported

Note: RA = Service System Innovation, MC = Managerial Competencies, SQ = Service Quality. T-Statistics greater than 1.96 at .05 level of significance.

Source: SmartPLS 3.2.7 Output on Research Data, 2025.

Figure 2 and table 5 illustrate the interactive role effect of managerial competencies on the relationship between resource allocation and service quality. Following the guidelines of Hair et al. (2017), the moderating variable, managerial competencies, was structurally linked to the dependent variable, service quality. Table 5 reveals a positive and significant relationship between resource allocation and service quality ( $\beta = 0.725$ ,  $t = 12.548$ ,  $p\text{-value} < .05$ ). The introduction of managerial competencies, represented by the moderating effect  $1 \rightarrow SQ$ , further strengthened this relationship ( $\beta = 0.894$ ,  $t = 16.492$ ,  $p < .05$ ). This enhancement indicates that managerial competencies play a crucial role in amplifying the impact of resource allocation on service quality. Therefore, the hypothesis that managerial competencies significantly moderate the relationship between resource allocation and service quality is supported and accepted. This finding underscores the importance of managerial competencies in optimizing resource allocation to enhance service quality in private healthcare providers in South-East Nigeria.

## DISCUSSION OF FINDINGS

### Allocation to Infrastructure and Patient Waiting Time

The first hypothesis focus on the effect of allocation to infrastructure and patient waiting time. The result indicated that allocation to infrastructure has a positive and significant effect on patient waiting time among private healthcare providers in South-East Nigeria. This suggests that increased investment in healthcare infrastructure such as well-equipped waiting areas, modern diagnostic tools, and efficient patient flow systems can lead to improved service delivery, reducing the time patients spend waiting for medical attention. This result shows the critical role of infrastructure in enhancing operational efficiency and patient experience within private healthcare settings (Amankwah, et al., 2024).

The implication of this finding is that healthcare providers who allocate more resources to infrastructural development are likely to experience improved patient flow and service efficiency (Chen, et al., 2023). Investments in infrastructure, such as digital health records, automated appointment scheduling, and well-structured physical facilities, contribute to a more organized and responsive healthcare system. Reduced waiting times not only enhance patient satisfaction but also improve overall healthcare outcomes by ensuring timely medical intervention. Furthermore, shorter waiting times can lead to increased patient retention, reinforcing the competitive advantage of private healthcare providers in the region.

This finding aligns with recent studies that highlight the relationship between healthcare infrastructure investment and patient-centered outcomes (Yu, et al., 2023). For instance, Adegboye et al. (2023) found that infrastructural improvements in private hospitals significantly reduced patient waiting times and enhanced service efficiency in Nigeria. Similarly, Okafor and Eze (2022) reported that well-equipped healthcare facilities with modern diagnostic and treatment equipment contributed to a more seamless patient flow, ultimately minimizing delays in service delivery. Additionally, Ngwu et al. (2021) emphasized that private healthcare providers who prioritized infrastructure development experienced higher patient satisfaction levels due to reduced waiting times and enhanced service accessibility.

While this study establishes that allocation to infrastructure has a positive and significant effect on patient waiting time (Vainieri, et al., 2020), some studies have presented contrary findings, suggesting that infrastructure investment alone does not always guarantee reduced waiting times. For instance, Adebayo et al. (2023) found that despite substantial infrastructure investments in private hospitals, inefficiencies in workforce management and administrative processes continued to contribute to prolonged patient waiting times. Similarly, Obi and Nwankwo (2022) argued that while modern facilities and advanced medical equipment are crucial, the absence of well-trained personnel to operate these systems often negates the potential benefits, leading to persistent delays in patient care. Ogunleye et al. (2021) also observed that infrastructure expansion in some healthcare facilities in Nigeria inadvertently led to increased patient influx, creating new operational challenges that offset the expected improvements in waiting times. These findings suggest that while infrastructure allocation is vital, it must be complemented by efficient workforce planning, digital health systems, and process optimization to maximize its impact on service delivery. In some cases, a mismatch between infrastructure expansion and human resource capacity may limit the effectiveness of such investments in reducing waiting times.

The finding of this study can be understood through the lens of Budget Theory, which emphasizes the strategic allocation of resources to maximize efficiency and achieve organizational objectives (Wildavsky, 2020). According to this theory, budgeting decisions are influenced by priorities, constraints, and expected outcomes, meaning that the allocation of financial resources to infrastructure in private healthcare settings should be aligned with broader performance goals (Rubin, 2021).

Applying this theory, the positive effect of infrastructure allocation on patient waiting time suggests that healthcare providers in South-East Nigeria who prioritize capital expenditure on facilities, equipment, and digital health solutions are likely to experience operational efficiency improvements. The theory further implies that effective budgetary planning ensures that financial resources are directed toward areas that yield the highest impact, such as optimizing patient flow and reducing service delays (Anessi-Pessina, et al., 2022). However, Budget Theory also highlights the potential pitfalls of resource misallocation. If budget allocations favour infrastructure development without corresponding investment in human resources, technology integration, and workflow redesign, the intended efficiency gains may not materialize (Lewis, 2021). This aligns with studies showing that infrastructure alone is not always sufficient to reduce patient waiting times, underscoring the need for a holistic approach to budgeting in healthcare management. Overall, this study's findings reinforce the argument that infrastructure investment is a crucial determinant of patient waiting time but must be accompanied by strategic workforce deployment and operational efficiency measures to maximize its impact.

#### **Allocation to Medical Supplies and Patient Waiting Time**

The result of this study indicates that allocation to medical supplies had a significant but negative (inverse) effect on patient waiting time among private healthcare providers in South-East Nigeria. This suggests that increased investment in medical supplies such as pharmaceuticals, consumables, diagnostic reagents, and other essential healthcare materials leads to a reduction in patient waiting time. The inverse relationship implies that when healthcare facilities ensure adequate availability of medical supplies, the efficiency of service delivery improves, leading to shorter patient wait times and enhanced healthcare responsiveness. That is, when private healthcare providers have a steady supply of necessary drugs, laboratory reagents, and medical consumables, they can promptly attend to patient needs, minimizing treatment delays. This also enhances operational efficiency by preventing disruptions that often result from stockouts or last-minute sourcing of medical supplies. Additionally, reduced waiting times contribute to higher patient satisfaction, better health outcomes, and improved hospital reputation, which can enhance patient retention and trust in private healthcare services.

This finding aligns with several recent studies that have highlighted the importance of medical supply availability in improving service efficiency. Adeoye and Chukwuma (2023) found that private hospitals with well-stocked medical supplies had significantly lower patient waiting times due to the seamless flow of healthcare processes. Similarly, Eke and Okonkwo (2022) reported that improved pharmaceutical supply chain management led to faster service delivery and reduced appointment backlogs in Nigerian private healthcare facilities. Furthermore, Obinna et al. (2021) demonstrated that private healthcare providers who implemented effective inventory control and supplier management strategies experienced notable improvements in patient turnaround time and service efficiency.

However, some studies have presented contrary findings, suggesting that increased allocation to medical supplies does not always result in shorter patient waiting times. Adebayo et al. (2023) found that while medical supply investment was high in certain private hospitals, inefficiencies in hospital workflow and poor staff coordination negated the benefits, leading to persistent patient delays. Similarly, Ike and Uchenna (2022) argued that although adequate medical supplies are crucial, waiting time reductions also depend on factors such as staff availability, patient scheduling systems, and the effectiveness of hospital management. Ogundele et al. (2021) further noted that in some facilities, increased spending on medical supplies led to higher treatment costs, causing a surge in patient volume as more individuals sought high-quality care, inadvertently increasing waiting times due to resource constraints. These contrasting findings emphasize that while medical supply availability plays a crucial role in reducing patient waiting times, complementary factors such as staff efficiency, process automation, and patient flow optimization are equally important in achieving significant reductions in wait times.

The findings of this study can be understood through the dynamic capabilities theory, which explains how organizations achieve a competitive advantage by adapting to changes in their environment through resource allocation, innovation, and process optimization (Teece, 2022). Applying this theory to private healthcare providers, allocating resources to medical supplies enhances their dynamic capability to respond quickly to patient needs, thereby reducing waiting times. Healthcare facilities that continuously assess and adjust their supply chains, inventory management systems, and procurement processes develop agility and responsiveness, allowing them to deliver timely medical services (Eisenhardt & Martin, 2021). Moreover, the ability to integrate, build, and reconfigure internal resources such as supply chain processes, staffing strategies, and technology-driven inventory systems determine how effectively a healthcare facility can minimize delays and improve patient experience (Barreto, 2021). Thus, hospitals that strategically allocate resources to medical supplies and complement this with process automation, predictive inventory management, and efficient workflow coordination develop dynamic capabilities that sustain reduced patient waiting times and enhance service efficiency.

#### **Allocation to Research and Development, and Patient Waiting Time**

The study found that allocation to research and development (R&D) had a moderate but significant negative effect on patient waiting time among private healthcare providers. This suggests that increased investment in R&D leads to a reduction in patient waiting time. The negative relationship implies that as private healthcare facilities dedicate more financial resources to research and technological advancements, operational efficiencies improve, thereby reducing delays in service delivery.

The implication of this finding is that prioritizing R&D funding in private healthcare institutions enhances service quality by fostering innovation, process optimization, and better resource utilization. Investments in R&D contribute to the development of advanced patient management systems, improved diagnostic tools, and streamlined workflow processes, all of which facilitate quicker patient throughput. By shortening waiting time, healthcare providers can enhance patient satisfaction, improve health outcomes, and strengthen their competitive edge in the market. Furthermore, reduced waiting time translates to increased patient turnover, which may ultimately lead to higher revenue generation.

This finding aligns with recent studies that emphasize the role of R&D investments in healthcare service efficiency. For instance, Akinyemi et al. (2023) found that private hospitals with higher R&D allocations demonstrated improved operational performance, including reduced patient processing time. Similarly, Okonkwo and Eze (2022) highlighted that technology-driven innovations, a product of sustained R&D funding, significantly enhanced patient flow and minimized service bottlenecks. Additionally, research by Adeyemi and Balogun (2021) reported that hospitals that implemented research-backed digital scheduling systems experienced a marked decrease in appointment wait times.

However, some studies have reported contrary findings. For instance, Johnson et al. (2022) found that while R&D investments improved healthcare quality, they did not significantly reduce patient waiting time in low-resource settings due to infrastructural and administrative bottlenecks. Similarly, Bello and Yusuf (2023) argued that some private hospitals allocate funds to R&D but fail to translate research outcomes into immediate operational efficiencies, leading to persistent delays in service delivery.

The findings can be further explained using the Budget Theory, which posits that resource allocation decisions directly impact organizational performance. According to this theory, prioritizing expenditure in key areas such as R&D leads to strategic improvements that enhance overall efficiency. In the case of private healthcare providers, increased R&D funding fosters innovations that streamline administrative processes and service delivery, ultimately reducing patient waiting time. However, the effectiveness of such allocations depends on proper budget implementation, ensuring that research investments translate into practical, patient-centered improvements.

#### **The Role of Managerial Competencies on Resource Allocation and Service Quality**

Hypothesis seven focused on the interactive effect of managerial competencies on the relationship between resource allocation and service quality. The finding revealed that managerial competencies significantly and positively affect the relationship between resource allocation and service quality in private healthcare institutions in Southeast Nigeria. The result implies that healthcare managers with high competencies mitigated inefficiencies associated with resource misallocation, ensuring that financial, human, and material

resources are directed toward critical areas of patient care and service enhancement (Abdou, 2023). This reinforces the argument that resource allocation strategies must be accompanied by strong managerial oversight to achieve the desired improvements in service quality (Martusewicz, et al., 2024). This finding highlights the need for continuous investment in managerial capacity development through training programmes, professional development initiatives, and leadership coaching and shows that strengthening managerial competencies will not only optimize resource utilization but also enhance patient satisfaction, operational efficiency, and overall institutional performance.

This finding aligns with existing literature emphasizing the importance of managerial expertise in driving organizational performance, particularly in resource-intensive industries such as healthcare. Several studies align with the findings of this research (Abdou, 2024; Mintzberg, 2009). For instance, Mintzberg (2009) emphasizes that effective managerial competencies are crucial in ensuring optimal resource utilization, which subsequently improves organizational outcomes. Similarly, Barney (1991) posits that firms with highly skilled managers gain a competitive advantage by leveraging internal resources effectively. Studies by Drucker (2010) and Grant (2013) further corroborate this position, indicating that the presence of skilled managers enhances the impact of resource allocation on service quality and operational efficiency.

Conversely, some studies challenge these findings (Ibrahim, et al., 2024; Penrose, 1959), arguing that resource allocation alone is a more dominant determinant of service quality, irrespective of managerial competencies (Penrose, 1959). For example, Ibrahim, et al., (2024) contends that organizational growth and service efficiency are primarily driven by resource availability rather than managerial expertise. Similarly, Leonidou, et al., (2017) argue that external environmental factors, such as regulatory policies and market conditions, exert a more significant influence on service quality than internal managerial capabilities. These perspectives suggest that while managerial competencies are important, they may not always be the primary driver of service quality outcomes.

The finding of this study align with the Resource-Based View (RBV) theory, which posits that firms achieve competitive advantage through the strategic utilization of valuable, rare, inimitable, and non-substitutable (VRIN) resources (Barney, 1991). In this context, managerial competencies serve as a critical intangible resource that enhances the effectiveness of resource allocation, ultimately improving service quality. By investing in skilled managers, healthcare institutions can strengthen their internal capabilities, thereby achieving sustained service excellence and competitive advantage.

## **5. CONCLUSION, RECOMMENDATIONS, AND CONTRIBUTIONS TO KNOWLEDGE**

### **Conclusion**

This study provides robust empirical evidence affirming a statistically significant and operationally meaningful relationship between resource allocation and service quality in the context of private healthcare delivery in South-East Nigeria. Specifically, strategic investments in infrastructure, medical supplies, and research and development demonstrably enhance the quality of care while concurrently reducing patient waiting times two core indicators of healthcare service performance. These findings shows the critical role of judicious and targeted resource deployment in optimizing healthcare delivery systems to meet rising patient expectations and clinical standards.

Furthermore, the moderating effect of managerial competencies on the resource allocation–service quality nexus reveals that the impact of resource investments is substantially amplified when guided by competent, strategically oriented leadership. The evidence suggests that managerial capabilities encompassing planning, coordination, innovation, and performance monitoring, serve as pivotal levers for translating resource inputs into tangible service outcomes. Thus, the quality of healthcare services is not merely a function of resource availability, but also of the effectiveness with which such resources are managed and operationalized.

The study's implications are twofold. First, private healthcare providers must adopt integrated resource allocation frameworks aligned with institutional goals and patient-centric outcomes. Second, sustained investment in managerial training and leadership development is imperative to reinforce the absorptive and transformational capacity of healthcare organizations. By institutionalizing these dual imperatives, strategic resource investment and managerial competency development, private healthcare institutions can enhance

their responsiveness, efficiency, and overall service quality in a region characterized by dynamic healthcare demands and operational constraints.

### Recommendations

➤ To help private healthcare providers in South East Nigeria address specific challenges and leverage opportunities to enhance patient care and operational efficiency, the following recommendations were suggested:

➤ Private healthcare providers in South-East Nigeria should strategically invest in expanding and modernizing infrastructure such as consultation rooms, diagnostic units, and digital systems to reduce patient waiting times and improve service quality.

➤ Robust procurement and inventory systems should be implemented to ensure a consistent and timely supply of essential medical resources, using automated tracking tools and dependable supplier contracts.

➤ A defined proportion of the annual budget should be allocated to research and development initiatives that streamline operational workflows and foster clinical innovation, supported by collaborations with research institutions.

➤ Leadership teams should receive targeted managerial training in resource planning, data-driven decision-making, and strategic healthcare management, delivered through certified executive education providers and linked to institutional performance metrics.

### Contributions to Knowledge

This study makes robust and original contributions to the field of healthcare management, specifically in the nexus between resource allocation and service quality in private healthcare systems within under-researched contexts such as South-East Nigeria. First, it fills a critical empirical void by establishing a statistically significant inverse relationship between targeted resource allocations, namely infrastructure, medical supplies, and research and development and patient waiting times. This extends existing literature by offering granular, context-specific evidence that strategic deployment of resources directly mitigates operational inefficiencies, particularly delays in service delivery.

Second, the study rigorously confirms the positive and significant effect of resource allocation on quality of care, demonstrating that investments in physical and technological infrastructure, clinical materials, and innovation ecosystems translate into measurable improvements in healthcare outcomes. This contribution deepens theoretical understanding and affirms the practical necessity of multi-dimensional resource optimization in driving service excellence.

Third, and most distinctively, the study introduces managerial competencies as a statistically significant moderating variable, revealing that the effectiveness of resource allocation is contingent on the skill and capacity of healthcare leadership. This nuanced insight adds a critical human capital dimension to existing models, offering a more dynamic understanding of how resource deployment translates into service performance.

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