

PUBLIC–PRIVATE PARTNERSHIPS AND HEALTH INFRASTRUCTURE DEVELOPMENT IN KADUNA STATE, NIGERIA: A QUALITATIVE STUDY OF SELECTED PUBLIC HOSPITALS

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Abstract

This article examines the contribution of PPPs to infrastructural development in selected public hospitals in Kaduna State, identifies implementation challenges, and proposes strategies for strengthening PPP sustainability. The study adopts a qualitative exploratory design based on semi-structured interviews with purposively selected stakeholders, including government health officials, hospital administrators, healthcare workers, private partners, and development-sector actors. Documentary evidence was also reviewed to support triangulation. Findings indicate that PPPs have contributed to hospital rehabilitation, diagnostic and laboratory upgrades, solar energy provision, improved patient flow, computerized records, and enhanced operational efficiency. Nevertheless, their effectiveness is constrained by delayed funding, bureaucratic bottlenecks, weak monitoring systems, fragmented regulation, political interference, poor stakeholder communication, and inadequate maintenance planning. The article argues that PPPs can support health-system strengthening in Kaduna State only when embedded within transparent procurement systems, predictable financing arrangements, inclusive stakeholder governance, and long-term maintenance frameworks. It contributes context-specific qualitative evidence on the institutional and governance conditions required for PPPs to deliver sustainable health infrastructure outcomes in subnational Nigeria.

Keywords: Public–Private Partnership; health infrastructure; Kaduna State; Nigeria; hospital governance; stakeholder engagement; qualitative research.

Keywords: health infrastructure development, Kaduna state, Nigeria, Public hospitals, Public–Private partnerships

Introduction

Globally, Public-Private Partnerships (PPPs) have become a prominent model for financing and delivering health infrastructure, driven by the need to augment limited public resources with private capital, innovation, and efficiency. High-income countries such as the United Kingdom and Australia have leveraged PPPs to modernize hospitals and digital health platforms, while emerging economies like India have used them to expand diagnostic services and health insurance coverage (Raman & Björkman, 2015; Raje & Sinha, 2018). However, international experience also cautions that PPPs can impose long-term fiscal

burdens, reduce transparency, and undermine equity if contractual and regulatory frameworks are weak (Hellowell & Pollock, 2010; Fabre & Straub, 2023).

In sub-Saharan Africa, PPP adoption in healthcare is mixed. South Africa and Kenya have achieved notable successes, such as the Inkosi Albert Luthuli Hospital redevelopment and the Managed Equipment Services project, yet many countries struggle with inadequate institutional capacity, political interference, and contract management deficits (Nduhura et al., 2020; Joudyian et al., 2021). In Nigeria, the health sector has been marked by chronic underfunding, deteriorating infrastructure, and significant disparities in access, especially in the northern states. Federal and state governments have increasingly turned to PPPs supported by agencies like the Infrastructure Concession Regulatory Commission and frameworks such as the Basic Health Care Provision Fund to revitalize primary healthcare centres, upgrade diagnostic facilities, and deliver equipment (Okafor, 2016; Igbokwe et al., 2024).

Kaduna State epitomises both the potential and the challenges of health PPPs in Nigeria. Despite notable initiatives, including solar-powered primary healthcare (PHC) installations under DFID and AGILE-supported infrastructure, as well as partnerships with faith-based organisations and private diagnostic providers, the state's health indicators remain sub-optimal. PHC facilities are often dilapidated, under-staffed, and poorly equipped, particularly in rural areas (Oaiya et al., 2022; Ogundeji et al., 2023). Studies have highlighted fragmented health financing, weak financial management capacity at the State Primary Health Care Board, and spatial inequities in facility distribution (Azubuike et al., 2020; Abdussalam et al., 2023; Doyani et al., 2020). Yet, there has been no systematic qualitative assessment of how PPP arrangements are actually designed, implemented, and experienced by the actors involved.

This study addresses that gap. We ask: (1) How have PPPs affected health infrastructure development in selected Kaduna hospitals? (2) What challenges impede their impact? (3) How can PPP interventions be improved? (4) How do stakeholders' perspectives shape PPP outcomes? By examining these questions through the combined theoretical lenses of New Public Management (Hood, 1991) and Stakeholder Theory (Freeman, 1984), the study provides an empirical, actor-centred analysis of PPP governance and performance, offering policy-relevant lessons for Kaduna and comparable sub-national contexts.

Literature Review and Theoretical Framework

Concept of PPPs in Health Infrastructure

A PPP in healthcare is a long-term contractual arrangement between a public authority and a private entity for the financing, construction, operation, or maintenance of health infrastructure and services, with shared risks and rewards (World Bank, 2018). Common models include Build-Operate-Transfer (BOT), Design-Build-Finance-Operate (DBFO), management contracts, and leasing arrangements (Yescombe, 2017). The core logic is that each sector concentrates on its comparative advantage: the public sector retains regulatory stewardship and ensures equity, while the private partner contributes capital, technical expertise, and managerial efficiency.

Health infrastructure encompasses not only physical facilities hospitals, PHCs, laboratories but also medical equipment, information systems, and support services such as energy, water, and waste management (WHO, 2022). In Kaduna, many PHCs lack consistent electricity and basic diagnostic tools, meaning PPPs must address both “hard” (buildings) and “soft” (systems) infrastructure deficits. Successful partnerships, therefore, are those that integrate physical asset delivery with operational and technological components, as seen in solar electrification and e-health initiatives.

Stakeholders in these partnerships are diverse and often hold competing interests. Government actors (ministries, health boards) seek public accountability and universal access; private investors prioritise financial returns; healthcare workers are concerned with working conditions; and communities expect accessible, quality care (Roehrich et al., 2014). The effectiveness of PPPs hinges on aligning these interests through transparent governance, participatory planning, and effective monitoring mechanisms a premise that Stakeholder Theory places at the analytical centre.

Empirical Review

Global evidence underscores the conditional nature of PPP success. Broadbent and Laughlin (2005) documented that while the UK’s PFI hospitals improved physical infrastructure, they often locked public authorities into rigid, costly contracts. Conversely, in India, PPPs expanded access to diagnostics and health insurance for the poor, but weak regulation led to quality disparities and high out-of-pocket expenses (Raje & Sinha, 2018; Singh et al., 2019). Mahoney and Segal (2020) found that clear risk-sharing and transparency in procurement were decisive for positive outcomes in Australia and Canada, a finding echoed in comparative studies from Spain and South Africa (McIntyre et al., 2008; Bloomfield & Ahern, 2011). The overarching lesson is that PPPs are not inherently beneficial; they require robust institutional frameworks and adaptive governance.

National studies from Nigeria reveal a similarly mixed picture. Adebayo and Olowookere (2019) reported infrastructure improvements at Lagos State University Teaching Hospital but noted transparency shortfalls. In Ogun and Enugu states, maternal health and diagnostic PPPs improved service availability but often introduced affordability barriers (Oluwatosin & Ajayi, 2021; Okeke & Nwosu, 2022). Cross-state analyses indicate that donor-supported PPPs can yield positive results, but sustainability remains contingent on local ownership and institutional capacity (Ibe & Ogbonna, 2023).

Local studies on Kaduna offer direct but fragmented insights. Azubuike et al. (2020) showed that donor and private funds constituted a significant share of health financing but operated largely outside formal PPP frameworks. Abdussalam et al. (2023, 2024) identified financial management weaknesses and coordination gaps at the State Primary Health Care Board that undermine partnership performance. Doyani et al. (2020) and Averik et al. (2023) used geospatial tools to demonstrate severe infrastructural inequities, suggesting PPPs could be strategically deployed in underserved areas. Haruna et al. (2020) documented an NGO-led reproductive health PPP that improved maternal access, while Nor (2024) highlighted the sustainability of faith-based PPPs. These studies collectively confirm that while PPPs hold promise, they are constrained by informal arrangements, weak monitoring, and a lack of systematic, qualitative evaluation of stakeholder experiences precisely the gap this study fills.

Theoretical Framework

This study integrates New Public Management (NPM) and Stakeholder Theory to explain both the rationale for PPP adoption and the relational dynamics that determine their outcomes. NPM, articulated by Hood (1991), advocates infusing public services with private-sector management principles performance measurement, competition, decentralisation, and contracting out. In Kaduna's health sector, PPPs are a direct expression of NPM logic: government seeks to overcome fiscal constraints and bureaucratic inefficiency by partnering with private actors who can finance, build, and manage infrastructure more effectively. NPM thus illuminates the policy drivers behind PPPs and provides criteria (efficiency, cost-effectiveness, quality) for evaluating their performance.

Stakeholder Theory (Freeman, 1984) shifts the focus to the web of relationships that shape organisational outcomes. Applied to PPPs, it posits that infrastructure projects succeed only when the interests of all relevant parties government agencies, private investors, healthcare professionals, patients, and local communities are recognised, negotiated, and balanced. In Kaduna, misalignment among stakeholders can lead to implementation delays, community resistance, or facility abandonment. Stakeholder Theory therefore guides the analysis of how interactions, power dynamics, and engagement processes influence PPP performance. While critics note that NPM can overemphasise efficiency at the expense of equity (Diefenbach, 2009), and that Stakeholder Theory may be difficult to operationalise when interests conflict (Jensen, 2002), their combined application offers a comprehensive framework. NPM explains the instrumental motivation for PPPs, while Stakeholder Theory captures the social and political realities that determine whether such partnerships deliver inclusive, sustainable infrastructure.

Materials and Method

A qualitative exploratory design was employed, suitable for investigating under-researched phenomena and capturing the depth of stakeholder experiences (Creswell & Poth, 2018). The study was conducted in Kaduna State, North-West Nigeria, focusing on public hospitals that have hosted PPP interventions, including primary, secondary, and tertiary facilities. Kaduna State's health system, comprising over 1,000 PHC facilities and a mix of secondary and tertiary hospitals, has seen multiple PPP initiatives in diagnostic services, solar electrification, and facility management, making it a rich site for inquiry.

Sampling and Participants

Purposive sampling was used to recruit 20 key informants with direct involvement in PPP projects. Participants were drawn from three categories: (a) public sector officials from the Kaduna State Ministry of Health, the State Primary Health Care Board, and PPP units; (b) private sector representatives including contractors, financial consultants, and hospital management firms; and (c) health facility managers and NGO/development partner staff. Respondents held roles such as Director of Planning, Head of PPP Unit, Medical Director, Project Engineer, and Programme Manager, with professional experience ranging from 6 to 15 years. Sampling ceased when data saturation was reached the point at which no new themes emerged.

Results and Discussion

Semi-structured interviews were the primary data source. An interview guide explored four domains: types and implementation of PPP arrangements; stakeholder roles and experiences; perceived outcomes on health infrastructure; and challenges and recommendations. Each interview lasted 45–60 minutes, was audio-recorded with consent, and transcribed verbatim. Field notes captured non-verbal cues and contextual observations. To triangulate findings, documentary evidence PPP policy frameworks, project progress reports, performance evaluations, and state health sector reviews (2018–2024) was collected and analysed. The matrix coding query heatmap described below, shows how many coded references each stakeholder group contributed to each theme.

Stakeholder Group	Infrastructure Impact	Challenges	Improvement Strategies	Sustainability Outlook
Public sector officials (n=10)	20	38	12	4
Private sector / contractors (n=6)	14	28	10	2
NGO / development partners (n=4)	4	14	4	4

Data were analysed using Braun and Clarke’s (2006) six-phase thematic analysis. Initial coding was performed in NVivo 12, generating over 50 open codes that were subsequently grouped into axial categories. These were refined into four core themes aligned with the study’s objectives. The trustworthiness of findings was ensured through triangulation of interview and documentary data, member checking with five participants, maintenance of a detailed audit trail, and peer debriefing.

The analysis generated four interconnected themes, with the distribution of coded references summarised in Table 1. Institutional and financial challenges overwhelmingly dominated the discourse (52% of all references), even as stakeholders acknowledged positive infrastructural outcomes.

Table 1: Thematic Summary and Coding Frequency

Theme	Subthemes (illustrative)	% of Total References
1. Effect of PPP on Hospital Infrastructure and Services	Facility modernization, equipment upgrades, improved patient flow	25%
2. Institutional and Financial Challenges of PPP	Bureaucratic delays, weak regulation, political interference, poor coordination	52%
3. Strategies for Improving	Policy clarity, stakeholder collaboration, capacity	17%

Theme	Subthemes (illustrative)	% of Total References
PPP Implementation	building, transparent procurement	
4. Stakeholder Perspectives and Sustainability Outlook	Maintenance culture, community participation, policy continuity	6%

Theme 1: Effect of PPP on Hospital Infrastructure and Services

Despite operational difficulties, participants unanimously reported that PPPs had delivered visible improvements. Hospitals gained new outpatient departments, modern diagnostic centres, and reliable solar-powered electricity, which in turn enhanced service efficiency and patient satisfaction. A Medical Director observed: “Before PPP, many of our facilities lacked modern wards and equipment. Through the partnership, we now have better diagnostic tools and more spacious patient wards.” (R5) A private contractor added: “PPP has improved the quality of hospital buildings and introduced modern technologies like solar energy systems and computerized record units.” (R9) Documentary evidence corroborated these accounts: performance evaluations recorded a 35% increase in functional diagnostic equipment and a 22% reduction in patient waiting times in PPP-supported hospitals. These findings align with global evidence that well-structured PPPs can catalyse infrastructure modernisation in resource-limited settings (Utomo et al., 2022).

Theme 2: Institutional and Financial Challenges of PPP

This was the most heavily coded theme. Participants from all sectors described chronic delays in the release of government counterpart funds, bureaucratic inertia, and an absence of a harmonised regulatory framework. A Ministry official explained: “Most of our PPP projects experience funding delays from both sides. Sometimes the government releases counterpart funds late, and private partners hesitate to continue until payments are made.” (R2)

A private contractor lamented: “The problem is not the idea of PPP; it is the way the agreements are managed. There are often inconsistencies in contract interpretation and monitoring.” (R8) Monitoring was a particular weakness. Only 43% of PPP health projects received the required quarterly monitoring visits, according to a 2022 state implementation review. Political interference and leadership turnover further destabilised projects: a budget officer noted, “Frequent changes in political leadership disrupt continuity... new administrations sometimes review or terminate existing contracts.” (R10) These institutional deficits embody the core concern of Institutional Theory: where formal rules and enforcement mechanisms are weak, hybrid governance models like PPPs falter.

Theme 3: Strategies for Improving PPP Implementation

Respondents proposed a raft of reforms centred on transparency, coordination, and capacity. A senior PPP Unit official recommended “clearer policy guidelines and training for both government and private partners on project management and risk-sharing.” (R1)

The call for a single-window PPP coordination office was widespread, as was the demand for transparent procurement and regular multi-stakeholder review meetings. An NGO programme manager stressed that “donor and NGO participation should be formally integrated into PPP policy to leverage external technical and financial support.” (R12)

These suggestions reflect a desire to operationalise the tenets of Stakeholder Theory: inclusive, iterative engagement that builds trust and shared ownership.

Theme 4: Stakeholder Perspectives and Sustainability Outlook

While optimism about PPPs' future prevailed, participants cautioned that gains could be short-lived without a structured maintenance plan and community involvement. A hospital manager warned: "New infrastructure is good, but without proper maintenance and funding for repairs, the facilities deteriorate quickly." (R17)

Policy continuity was another anxiety. A Medical Director expressed that "sustainability may be threatened if hospital managements fail to maintain the newly developed infrastructure after project handover." (R5) The documentary review confirmed that only 30% of required annual maintenance funds were approved, underscoring the fiscal neglect of post-project stewardship.

Discussion

This study sought to provide a stakeholder-centred assessment of PPPs in Kaduna State's health infrastructure. The findings confirm a paradox: PPPs have undeniably improved physical infrastructure and service delivery, yet their effectiveness is chronically undermined by institutional and financial weaknesses.

The substantial infrastructure gains modernised facilities, upgraded equipment, and enhanced patient flow are consistent with NPM expectations. By introducing private sector capital and managerial discipline, PPPs have partially offset the state's fiscal limitations and delivered tangible assets. This echoes results from India and South Africa, where PPPs accelerated healthcare modernisation when contractual frameworks were functional (Patouillard et al., 2007; Burger & Hawkesworth, 2011). However, the dominant discourse of institutional constraints accounting for 52% of references demonstrates that NPM's assumed efficiency is contingent on a robust regulatory backbone.

The preponderance of funding delays, bureaucratic bottlenecks, and political interference directly reflects the institutional environment. These findings reinforce Institutional Theory's assertion that organisational performance is shaped by the rules, norms, and enforcement capacities of the surrounding environment. In Kaduna, the absence of a harmonised PPP framework and weak monitoring mechanisms creates an environment where private partners bear disproportionate risk, leading to project delays and contractual disputes. This mirrors the experiences documented by Alao et al. (2024) and Ewiwile et al. (2024) across Nigerian PPP projects.

The proposed remedies clearer policies, a central coordinating unit, transparent procurement, and multi-stakeholder engagement align with Stakeholder Theory's prescription that sustainable collaboration requires balancing diverse interests. The stark reality, however, is that maintenance funding and community participation remain afterthoughts. Only 30% of required maintenance budgets were disbursed, and community engagement was minimal. Without embedding post-construction sustainability into PPP contracts, the state risks repeating a cycle of build-neglect-rebuild. Theoretically, this study demonstrates the value of combining NPM and Stakeholder Theory. NPM explains why Kaduna adopted PPPs (resource mobilisation, efficiency), while Stakeholder Theory explains why many

partnerships underperform (interest misalignment, exclusion of key actors). Together, they frame a more complete diagnosis than either could alone.

Practically, the findings yield clear policy priorities. First, Kaduna State should legally establish a dedicated health PPP unit with clear authority over project approval, monitoring, and dispute resolution, insulating contracts from political turnover. Second, a joint maintenance trust fund co-financed by government and private partners must be created to guarantee ongoing facility upkeep. Third, contract templates should mandate quarterly multi-stakeholder review meetings and community feedback mechanisms, turning participation from a rhetorical commitment into a procedural requirement.

Conclusion and Recommendations

The study's scope is limited to Kaduna State and a sample of 20 participants. While data saturation was achieved, the findings may not be directly generalizable to other Nigerian states with different political economies. Additionally, the research relied on self-reported perceptions, which, despite triangulation with documents, may carry institutional biases. Future studies could incorporate quantitative outcome metrics and comparative multi-state designs.

Public-Private Partnerships have delivered real improvements to hospital infrastructure in Kaduna State, modernising facilities and enhancing service capacity. However, these gains are precarious. Systemic weaknesses delayed funding, regulatory fragmentation, political interference, and a neglect of maintenance severely constrain PPP effectiveness and threaten long-term sustainability. The evidence compels a shift from ad hoc project-based partnerships to an institutionalised PPP governance model underpinned by legal clarity, transparent financing, and genuine multi-stakeholder ownership. Without such reforms, PPPs will remain a partial fix, unable to fulfil their promise of equitable, resilient health infrastructure for Kaduna's population.

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