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Healthcare Workers' and Patients' Perspectives on Barriers to Effective Service Delivery at Bayero University, Kano Health Centre

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ABSTRACT

Background: University health centres serve as critical primary care access points for students and staff, yet their effectiveness is often undermined by multifaceted barriers. Understanding these barriers from both healthcare workers' and patients' perspectives is essential for strengthening service delivery and advancing universal health coverage goals in Nigerian tertiary institutions.

Methods: A mixed-methods cross-sectional study was conducted at Bayero University, Kano Health Centre. Quantitative data were collected from 118 healthcare workers using a structured questionnaire and from 392 patients using an exit survey. Qualitative data were obtained through 14 in-depth interviews with healthcare workers and 22 focus group discussions with patients. Data were analysed using descriptive and inferential statistics, with thematic analysis for qualitative data.

Results: Healthcare workers identified inadequate staffing (88.1%), poor remuneration (81.4%), drug shortages (77.1%), and inadequate funding (84.7%) as the most significant barriers. Patients identified long waiting times (82.4%), drug unavailability (74.5%), poor staff attitudes (69.1%), and inadequate facilities (62.4%) as major barriers. Significant differences were observed between healthcare worker and patient perceptions regarding staff attitudes ($p<0.001$). Qualitative findings revealed systemic challenges including workforce attrition, inadequate infrastructure, and the spillover effects of regional insecurity on health service delivery. Compliance with primary healthcare minimum standards in Kano State was found to be below 50% across facilities, with major gaps in infrastructure, human resources, and essential medicines.

Conclusion: The study reveals significant barriers to effective service delivery in university health centres from dual perspectives. Addressing these barriers requires comprehensive interventions including improved staffing, enhanced remuneration, consistent drug supply, infrastructure upgrading, and security measures. These findings have implications for achieving universal health coverage in Nigerian university communities and beyond.

Keywords: Healthcare barriers, university health centre, service delivery, healthcare workers, patients, Kano, Nigeria, universal health coverage

1.0 INTRODUCTION

University health centres constitute a critical component of Nigeria's healthcare delivery system, serving as the first point of contact for millions of students and staff across the nation's tertiary institutions by providing accessible, affordable, and comprehensive primary healthcare services that support the academic mission through maintaining the health and wellbeing of students and personnel, while also playing vital roles in disease prevention, early detection, and health promotion within university populations (Lawal et al., 2026; National Primary Health Care Development Agency, 2021). Bayero University, Kano (BUK), established in 1975, is one of Nigeria's foremost universities serving a diverse population of over 40,000 students and thousands of staff members, with its health centre providing primary healthcare services yet facing significant challenges that undermine its effectiveness, including exponential growth of student and staff populations, evolving health needs, chronic underfunding, inadequate technological integration, and the demand for higher standards of care (Umar, 2023; Ahmed, 2023). Decades of underfunding, inadequate staffing, drug shortages, and infrastructure decay have compromised the quality of care provided at university health centres across Nigeria, challenges further compounded by the broader crisis facing Nigeria's healthcare system including acute workforce shortages, insecurity, and the migration of skilled health professionals (Federal Ministry of Health, 2020; WHO, 2022). In Kano State specifically, the healthcare system remains chronically underfunded and overburdened, with state-run hospitals lacking essential equipment and medical personnel stretched thin, and research has demonstrated that more than 20% of the rural population has extremely poor access to primary health clinics with significant disparities between urban and rural areas (Umar, 2023; WHO AFRO, 2021).

The gap between the promise and reality of university health services in Nigeria has become increasingly pronounced, with reports indicating that many university health centres operate with severe staff shortages requiring three times the number of doctors they currently employ, while students and staff report

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long waiting hours, drug shortages, and unprofessional conduct as barriers to utilising these facilities, and healthcare workers face poor working conditions, inadequate remuneration, and limited career progression opportunities contributing to low morale and high turnover (Lawal et al., 2026; Jinah et al., 2024). Despite the growing body of literature on healthcare barriers in Nigeria, limited research has simultaneously examined the perspectives of both healthcare workers and patients within university health settings in Kano State, yet understanding these dual perspectives is essential for developing comprehensive interventions that address the systemic challenges facing these facilities, as research conducted in Kano State has revealed that adequate human resources remain the major challenge of the healthcare service delivery system with inadequacy evident even in comparison to national standards (Ahmed, 2023; Umar, 2023).

2.0 MATERIALS AND METHOD

2.1 Study Design and Setting

This study employed a mixed-methods cross-sectional design, combining quantitative surveys with qualitative interviews and focus group discussions to allow for triangulation of findings and a comprehensive understanding of barriers from multiple perspectives (Creswell & Creswell, 2018). The study was conducted at the Health Centre of Bayero University, Kano (BUK), which provides primary healthcare services to a population of approximately 40,000 students and 4,000 staff members, with the centre staffed by doctors, nurses, pharmacists, laboratory scientists, and administrative staff operating below the recommended staffing levels for its population, serving as a critical access point for healthcare in a state where significant gaps in primary healthcare provision exist (Umar, 2023; National Primary Health Care Development Agency, 2021).

2.2 Participants

The study population comprised two groups: healthcare workers (all healthcare workers employed at the Bayero University Health Centre including doctors, nurses, pharmacists, laboratory scientists, and administrative staff) and patients (students and staff who had utilised the university health centre services within the six months preceding the study) (Lawal et al., 2026). For the quantitative component, sample sizes were calculated using the Cochran formula, with a total of 118 healthcare workers recruited using purposive sampling (all eligible healthcare workers were included), and for patients, a sample size of 392 was calculated based on a 50% prevalence of barriers, 95% confidence level, and 5% margin of error, with patients recruited using systematic random sampling as they exited the health centre (Cochran, 1977). For the qualitative component, 14 in-depth interviews were conducted with healthcare workers (stratified by cadre), and 22 focus group discussions were conducted with patients (stratified by student/staff status and gender) (Patton, 2015).

2.3 Data Collection

Quantitative data were collected using structured instruments including a Healthcare Worker Questionnaire comprising four sections (socio-demographic characteristics, work-related factors, perceived barriers to service delivery with 30 items on a 5-point Likert scale, and suggested solutions) and a Patient Exit Survey comprising three sections (socio-demographic characteristics, perception of barriers with 25 items on a 5-point Likert scale, and overall satisfaction), with both instruments adapted from validated tools used in previous Nigerian studies and pre-tested in a similar setting (Lawal et al., 2026; Bamidele et al., 2023). Qualitative data were collected using an In-depth Interview Guide (semi-structured guide exploring healthcare workers' experiences, challenges, and perspectives on service delivery barriers) and a Focus Group Discussion Guide (semi-structured guide exploring patients' experiences, perceptions, and suggestions for improvement) (Krueger & Casey, 2015). Quantitative data were collected over eight weeks (January–March 2026), with healthcare workers completing self-administered questionnaires during staff meetings and patients completing exit surveys after receiving services, while qualitative data were collected over four weeks through in-depth interviews conducted with healthcare workers in private settings lasting 45–60 minutes and focus group discussions with patients in groups of 6–8 participants lasting 60–90 minutes, with all qualitative sessions audio-recorded with participants' consent and transcribed verbatim (Braun & Clarke, 2006).

2.4 Data Analysis

Quantitative data were entered into SPSS version 26.0 and analysed using descriptive statistics (frequencies, percentages, means, standard deviations) and inferential statistics (chi-square tests, independent t-tests), with statistical significance set at $p<0.05$ (Field, 2018). Qualitative data were analysed using thematic analysis conducted with NVivo 12.0, where data were coded inductively with themes emerging from the data, and coding was conducted independently by two researchers with disagreements resolved through discussion to ensure reliability and validity of findings (Braun & Clarke, 2006; Lincoln & Guba, 1985). Ethical approval was obtained from the Bayero University, Kano Health Research Ethics Committee, with written informed consent obtained from all participants, and participation was voluntary with confidentiality maintained throughout the study (World Medical Association, 2013).

3.0 RESULTS

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3.1 Socio-demographic Characteristics of Participants

Table 1: Socio-demographic Characteristics of Healthcare Workers (n=118)

Characteristic	Category	Frequency (n = 118)	Percentage (%)
Gender	Male	48	40.7
	Female	70	59.3
Age Group	<30 years	26	22.0
	30–39 years	44	37.3
	40–49 years	30	25.4
	≥50 years	18	15.3
Professional Cadre	Doctors	14	11.9
	Nurses	36	30.5
	Pharmacists	8	6.8
	Laboratory Scientists	12	10.2
	Administrative/Ancillary	48	40.7
Years of Experience	<5 years	32	27.1
	5–9 years	40	33.9
	10–19 years	28	23.7
	≥20 years	18	15.3

Table 2: Socio-demographic Characteristics of Patients (n=392)

Characteristic	Category	Frequency (n = 392)	Percentage (%)
Gender	Male	182	46.4
	Female	210	53.6
Age Group	<20 years	64	16.3
	20–24 years	188	48.0
	25–29 years	80	20.4
	≥30 years	60	15.3
Status	Student	318	81.1
	Staff	74	18.9
Years of Study/Work	<1 year	88	22.4
	1–3 years	156	39.8
	4–6 years	98	25.0
	>6 years	50	12.8
Number of Visits (past 6 months)	1–2	174	44.4
	3–5	150	38.3
	>5	68	17.3

3.2 Healthcare Workers' Perspectives on Barriers

Table 3: Perceived Barriers Affecting Healthcare Service Delivery (n = 118)

Barrier Category	Barrier Item	Mean Score	SD	Agree/Strongly Agree (%)
Workforce	Inadequate staffing levels	4.38	0.74	88.1
	High staff turnover	4.02	0.86	75.4
	Lack of specialised staff	3.86	0.90	68.6
Remuneration/Motivation	Poor remuneration	4.26	0.78	81.4
	Lack of career progression	3.78	0.92	63.6
	Poor staff welfare	3.94	0.85	72.0
Drugs/Supplies	Drug shortages	4.18	0.82	77.1
	Inadequate medical equipment	3.90	0.88	70.3
	Inconsistent supply chain	3.74	0.91	60.2
Infrastructure	Inadequate facilities	3.96	0.86	73.7
	Poor maintenance	3.70	0.92	57.6
	Inadequate space	3.82	0.89	65.3
Funding	Inadequate funding	4.30	0.76	84.7
	Bureaucratic bottlenecks	3.76	0.90	61.9
Workload	High patient load	4.10	0.80	78.8
	Excessive working hours	3.88	0.86	69.5
Security	Insecurity concerns	3.96	0.84	63.6
	Fear of attacks/kidnapping	3.54	1.00	49.2

Scale: 1=Strongly Disagree, 5=Strongly Agree

The most significant barriers identified by healthcare workers were inadequate staffing (88.1%), inadequate funding (84.7%), poor remuneration (81.4%), high patient load (78.8%), and drug shortages (77.1%). These findings align with the broader challenges facing

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Kano State's healthcare system, where adequate human resources remain the major challenge.

3.3 Patients' Perspectives on Barriers

Table 4: Perceived Barriers to Accessing Healthcare Services (n = 392)

Barrier Category	Barrier Item	Mean Score	SD	Agree/Strongly Agree (%)
Waiting Time	Long waiting times	4.30	0.77	82.4
	Delays in receiving treatment	4.04	0.84	75.3
Drugs/Supplies	Drug unavailability	4.14	0.81	74.5
	Need to buy drugs outside	3.86	0.90	66.3
Staff Attitudes	Poor staff attitude	4.06	0.86	69.1
	Unfriendly approach	3.78	0.92	61.2
	Lack of empathy	3.70	0.94	57.7
Facilities	Inadequate facilities	3.94	0.87	62.4
	Poor cleanliness	3.58	0.96	53.1
	Lack of privacy	3.50	1.00	49.2
Access	Clashing with lectures/work	3.90	0.88	63.3
	Limited operating hours	3.74	0.91	58.9
Cost	High cost of services	3.46	1.02	46.4
	Hidden charges	3.40	1.04	44.4
Referral	Inadequate referral services	3.64	0.94	55.9
Communication	Poor communication	3.56	0.97	52.3

Scale: 1=Strongly Disagree, 5=Strongly Agree

The most significant barriers identified by patients were long waiting times (82.4%), drug unavailability (74.5%), delays in receiving treatment (75.3%), poor staff attitude (69.1%), and clashing with lectures/work (63.3%). These findings are consistent with previous research showing that long waiting times and perceived staff attitudes are major barriers to utilization (Lawal et al., 2026).

3.4 Comparison of Healthcare Worker and Patient Perspectives

Significant differences were observed between healthcare worker and patient perceptions regarding staff attitudes ($p<0.001$). Healthcare workers rated staff attitudes less negatively than patients did. This disconnect between provider intentions and patient experiences has been documented in previous research (Lawal et al., 2026).

Table 5: Comparison of Mean Barrier Scores between Healthcare Workers and Patients

Barrier Category	Healthcare Workers Mean	Patients Mean	Mean Difference	t-value	p-value
Drug Availability	4.18	4.14	0.04	0.398	0.691
Staffing	4.38	–	–	–	–
Waiting Time	–	4.30	–	–	–
Staff Attitudes	3.44	4.06	-0.62	-4.912	<0.001*
Facilities	3.96	3.94	0.02	0.186	0.853
Cost	–	3.46	–	–	–
Funding	4.30	–	–	–	–
Workload	4.10	–	–	–	–

***Statistically significant (p<0.05)**

3.5 Qualitative Findings

Theme 1: Workforce Crisis and Its Ripple Effects

Healthcare workers consistently highlighted the workforce crisis as a fundamental barrier. A senior nurse explained:

"We are severely understaffed. At any given time, we have maybe two nurses and one doctor attending to over 100 patients. It is impossible to provide quality care under these conditions. The staff we have are overworked and burnt out. Many of our colleagues have left for better opportunities." (IDI, Nurse, 14 years experience)

A doctor elaborated on the consequences:

"The workload is overwhelming. I see 60-70 patients in a single clinic session. There is no time to properly examine patients, no time to counsel them, no time to document properly. This leads to errors and poor outcomes. The brain drain is real, we lose good staff every year." (IDI, Doctor, 9 years experience)

Patients confirmed these observations:

"The doctors are always in a hurry. They don't listen to you properly. They just prescribe something and move to the next person. I understand they are many, but it makes you feel like just a number. You wait for hours only to be seen for five minutes." (FGD, Female Student)

Theme 2: Drug Shortages and Patient Costs

Drug shortages emerged as a critical barrier from both perspectives. A pharmacist described the situation:

"We have a drug supply problem. Essential medicines are often out of stock. We have to tell patients to go and buy from private pharmacies, which is expensive. Some

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patients cannot afford it and go without treatment. The supply chain is inconsistent and unreliable." (IDI, Pharmacist, 7 years experience)

Patients expressed frustration:
"Three times I have come to this clinic, and each time they told me the drugs I need are not available. I had to buy them outside at double the price. What is the point of a free clinic if you still have to pay? Sometimes I just go straight to the pharmacy without seeing the doctor." (FGD, Male Student)

Theme 3: Infrastructure Deficits
Both groups identified infrastructure deficits as significant barriers. A laboratory scientist noted:
"Our equipment is outdated. The microscope we use is from the 1990s. We cannot perform many basic tests because the equipment is broken or non-existent. Patients have to be referred to outside laboratories. The facility itself is old and in need of repair." (IDI, Laboratory Scientist, 11 years experience)

Patients observed:
"The building is old and falling apart. Some rooms have no windows, the ventilation is poor. The toilets are dirty. It does not feel like a place where you can get proper medical care. Sometimes I wonder if it is safe to be treated here." (FGD, Female Staff)

These findings align with research showing major gaps in health infrastructure and essential equipment in Kano State (Ogundeji et al, 2023).
Theme 4: Staff Attitudes and Patient-Provider Relationships

Patients expressed concerns about staff attitudes, while healthcare workers attributed their demeanor to workload and stress:
"Sometimes the nurses are rude. They talk to you like you are a child. You are already sick and worried, and then you are treated badly. It makes you not want to come back. I know some students who prefer to go to private clinics because of how they are treated here." (FGD, Male Student)

A healthcare worker responded:
"We are not rude intentionally. We are tired, overworked, and underpaid. When you have seen 50 patients and someone comes complaining about a minor issue, it is hard to maintain a smile. We need support, not criticism. The conditions we work under are demoralising." (IDI, Nurse, 6 years experience)

Theme 5: Insecurity and Its Spillover Effects
Insecurity concerns affected the health centre in multiple ways:
"Some of our staff live in areas affected by insecurity. They come to work scared. Some have left for safer locations. We have lost good staff because of the security situation. The problem is getting worse, not better." (IDI, Doctor, 16 years experience)
"I have heard of students attacked on their way to the clinic. Some students now avoid coming unless it is an emergency because they fear for their safety. The insecurity affects everything." (FGD, Female Student)

Theme 6: Systemic and Policy Gaps
Healthcare workers highlighted systemic issues beyond their control:
"The problem is at the policy level. The university does not prioritise health. The budget for health is a fraction of what it should be. We make recommendations, but nothing changes. The minimum standards for PHC facilities are not being met." (IDI, Senior Administrator, 21 years experience)
"There is no clear career progression. You can work here for 20 years and still be at the same level. There is no incentive to stay. That is why people leave. The Consolidated Medical Salary Scale (CONMESS) was established to provide a universal career progression, but implementation has been poor." (IDI, Nurse, 15 years experience).

3.6 Correlates of Barriers

Table 6: Association Between Respondents' Characteristics and Mean Barrier Scores Among Healthcare Workers (n = 118)

Factor	Category	Mean Barrier Score	t/F-value	p-value
Gender	Male	3.84	0.512	0.610
	Female	3.78		
Professional Cadre	Doctor	3.96	2.456	0.052
	Nurse	3.90		
	Pharmacist	3.74		
	Laboratory Scientist	3.80		
	Administrative/Ancillary	3.66		
Years of Experience	<5 years	3.84	1.298	0.278
	5–9 years	3.80		
	10–19 years	3.88		
	≥20 years	3.70		

Table 7: Association Between Respondents' Characteristics and Mean Barrier Scores Among Patients (n = 392)

Factor	Category	Mean Barrier Score	t/F-value	p-value
Gender	Male	3.74	0.946	0.346

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	Female	3.70		
Status	Student	3.76	1.512	0.132
	Staff	3.60		
	1–2	3.58		
Number of Visits (Past 6 Months)	3–5	3.80	4.012	**0.019***
	>5	3.94		
	<20 years	3.64		
	20–24 years	3.76		
Age Group	25–29 years	3.72	0.946	0.420
	≥30 years	3.60		

***Statistically significant (p<0.05)**

Patients who had visited the health centre more frequently (>5 visits) reported significantly higher perceived barriers (mean=3.94) compared to those with fewer visits (mean=3.58), p=0.019.

3.7 Overall Satisfaction

Overall patient satisfaction was low, with only 31.6% reporting being satisfied or very satisfied. The lowest satisfaction was with waiting time (16.0% satisfied/very satisfied) and drug availability (21.4%). These findings are consistent with research showing that students' experiences do not translate into strong confidence or recommendations to others

Table 8: Patients' Satisfaction with Healthcare Services (n = 392)

Satisfaction Domain	Very Satisfied (%)	Satisfied (%)	Neutral (%)	Dissatisfied (%)	Very Dissatisfied (%)
Overall Services	7.9	23.7	27.6	27.3	13.5
Waiting Time	4.3	11.7	18.4	35.2	30.4
Staff Attitude	8.9	21.9	24.2	27.0	18.0
Drug Availability	6.1	15.3	20.4	31.1	27.0
Facility Quality	4.8	17.9	25.0	29.6	22.7
Cost of Services	13.8	29.8	22.2	19.1	15.1

4.0 DISCUSSION OF FINDINGS

The study identified significant barriers to effective service delivery at Bayero University, Kano Health Centre from both healthcare worker and patient perspectives, with workforce shortages (88.1%) emerging as the most critical barrier, reflecting the broader Nigerian healthcare workforce crisis where doctor-patient ratios (3.95 per 10,000) fall far below WHO recommendations (Ahmed, 2023; WHO, 2022). This shortage, exacerbated by health worker migration driven by poor remuneration, insecurity, and limited career progression, creates a vicious cycle where understaffing increases workloads, compromises care quality, and drives further attrition (Jinah et al., 2024; Federal Ministry of Health, 2020). Similarly, drug shortages identified by 77.1% of healthcare workers and 74.5% of patients align with previous research on university health centres, forcing patients to purchase medications at higher costs and undermining UHC affordability (Lawal et al., 2026; NPHCDA, 2021). From the patient perspective, long waiting times (82.4%) and poor staff attitudes (69.1%) were most significant, with a notable disconnect between healthcare worker and patient perceptions of staff attitudes (p<0.001), where workers attributed their demeanor to workload and stress while patients perceived it as rudeness (Lawal et al., 2026). Infrastructure deficits reflect Kano State's major gaps in health infrastructure with compliance below 50% across facilities (Umar, 2023), while insecurity concerns (63.6%) reflect the broader northern Nigerian security crisis affecting healthcare delivery (WHO AFRO, 2021). Healthcare workers additionally highlighted systemic issues including inadequate funding, bureaucratic bottlenecks, and poor leadership, with a persistent gap between policy commitments and implementation (Federal Ministry of Health, 2020). Patients who visited more frequently reported significantly higher perceived barriers (p=0.019), suggesting experience leads to greater awareness of deficiencies (Lawal et al., 2026). Collectively, these barriers, workforce shortages, drug unavailability, long waiting times, poor staff attitudes, infrastructure deficits, and insecurity, undermine all three UHC pillars (access, quality, financial protection), indicating Nigeria is off track for achieving UHC by 2030, though findings point to actionable interventions (WHO, 2023). The mixed-methods design and triangulation enhance validity, though limitations include single-site focus limiting generalisability and potential social desirability bias (Ahmed, 2023; Lawal et al., 2026).

5.0 CONCLUSION

This study comprehensively analysed barriers to effective service delivery at Bayero University, Kano Health Centre, revealing significant challenges

including workforce shortages, drug shortages, long waiting times, poor staff attitudes, infrastructure deficits, and insecurity concerns that collectively undermine quality, accessibility, and affordability of care with profound implications for universal health coverage (Lawal et al., 2026; WHO, 2023). The interconnectedness of these barriers is evident: workforce shortages contribute to long waiting times and poor staff attitudes; drug shortages increase patient costs; infrastructure deficits compromise care quality; and insecurity affects access and workforce stability, necessitating comprehensive multi-sectoral interventions (Ahmed, 2023; Jinah et al., 2024). These findings align with broader research demonstrating Kano State's failure in health provision for its population, with primary healthcare compliance below 50% across facilities and significant urban-rural disparities (Umar, 2023; NPHCDA, 2021). The chronic underfunding, inadequate human resources, weak supply chains, and implementation gaps reflect systemic challenges extending beyond the university setting, where Nigeria's doctor-patient ratio of 3.95 per 10,000 falls far below WHO recommendations and brain drain continues depleting the workforce (Federal Ministry of Health, 2020; WHO, 2022). Addressing these barriers requires urgent interventions including increased staffing with competitive remuneration, consistent drug supply through strengthened supply chains, infrastructure upgrading, enhanced security, improved governance, and patient-centred approaches addressing the provider-patient disconnect (WHO AFRO, 2021; Lawal et al., 2026). Without comprehensive action, university health centres will fall short as primary healthcare access points, and Nigeria will remain off track in achieving UHC by 2030 (Umar, 2023; World Health Organization, 2023).

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