World Nutrition, June 2026;17(2): 167-176
DOI: https://doi.org/10.26596/wn.2026172167-176

WORLD NUTRITION
The Official Journal of the World Public Health Nutrition Association
Journal homepage: https://www.worldnutritionjournal.org
ISSN: 2041-9775

Research Article

Capacity of primary health care facilities to deliver nutrition services in selected urban areas of Ibadan, Nigeria

Joseph Makinde[1], Kafayah Jidda[2], Oghenevwede Manawa[1], Naomi Ojo[1], Esther Oladejo[1], Oluwaseun Ariyo[1,*]

[1]Department of Human Nutrition and Dietetics, Faculty of Public Health, University of Ibadan, Ibadan City, Oyo State, Nigeria; [2]Department of Health Promotion and Environmental Health Education, University of Ilorin, Kwara State, Nigeria

OPEN ACCESS

***Corresponding Author**
Ariyo O.
ariyoseun@gmail.com
ORCID: 0000-0002-5269-5401

Article History
Received: April 21, 2026
Reviewed: May 31, 2026
Revised: June 21, 2026
Accepted: June 26, 2026
Published: June 30, 2026

Citation
Makinde J., Jidda K., Manawa O., Ojo N., Oladejo E., & Ariyo O. (2026). Capacity of primary health care facilities to deliver nutrition services in selected urban areas of Ibadan, Nigeria. *World Nutrition*, 17(2), June, 167–176. https://doi.org/10.26596/wn.2026172167-176

Academic Editor
Ted Greiner, PhD

Copyright © 2026 Makinde J. et al. Published by WPHNA. This is an open-access article distributed under the Creative Commons Attribution License (CC BY 4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Highlights/Key Messages

- PHC facilities in urban Ibadan show reasonable capacity for basic nutrition screening and preventive services.
- Critical gaps persist in human resources, clinical management, infrastructure, and quality improvement systems.
- No facility provided therapeutic or supplementary feeding despite the widespread malnutrition burden.
- Data use for local decision-making was critically weak, with only 12.5% analysing or displaying nutrition data.
- Targeted investments in workforce hiring, training, equipment, quality systems, and data utilisation are urgently needed.

Background
Strong primary health care (PHC) systems are essential for delivering nutrition interventions and achieving global nutrition targets, particularly in low- and middle-income countries facing high malnutrition burdens.

Objective
This study assessed the nutrition service capacity PHC facilities in three urban local government areas (LGAs) of Ibadan, Nigeria.

Methods
A descriptive cross-sectional study was conducted in 2023 across 40 public PHC facilities in the Ibadan North, Ibadan North-West, and Ibadan South-East LGAs. Data were collected using a semi-structured questionnaire (based on the Uganda Nutrition Service Delivery Assessment Tool), direct observation, and interviews with Officers-in-Charge. Nutrition service capacity was evaluated across 11 domains and categorised as poor, fair, good, or excellent based on pre-defined criteria. Data were analysed using descriptive statistics on SPSS 26.0.

Results
Most (85.0%) facilities offered nutrition services, with strong performance in basic anthropometric assessments for children under five: weight (100.0%), MUAC (97.5%), height (85.0%) and preventive interventions: vitamin A supplementation (97.5%), and iron-folic acid (97.5%) for pregnant women. Significant gaps existed: only 7.5% had a qualified nutritionist/dietitian; human resource capacity was poor in 70.0% of facilities; clinical management (counselling, referral, follow-up) was limited; no facility provided therapeutic or supplementary feeding; quality improvement systems were poor in 100.0%; and data use for decision-making was weak (only 12.5% analysed/displayed nutrition data). Overall, 75% of the facilities showed good service provision but limited readiness in infrastructure, equipment, and systems.

Conclusion
Despite the integration of preventive nutrition services, PHC facilities in urban Ibadan demonstrate gaps in comprehensive nutrition care. Targeted investments in workforce hiring and training, equipment, quality improvement and data systems are needed to strengthen nutrition service delivery.

Keywords: primary health care, nutrition services, health system capacity, urban health

Introduction

Achieving global nutrition targets depends on robust health systems, with primary health care (PHC) serving as the cornerstone for delivering preventive and promotive services. The 2018 Declaration of Astana reaffirmed PHC as the foundation for universal health coverage (UHC), emphasising integrated, people-centred care to improve population health outcomes (WHO, 2018; Walraven, 2019). In line with this, PHC facilities are expected to provide essential nutrition interventions, including growth monitoring and promotion (GMP), infant and young child feeding (IYCF) counselling, micronutrient supplementation, and early detection/management of malnutrition (Kraef & Kallestrup, 2019; Kraef et al., 2020).

Nutrition services at the PHC level are critical as the first point of contact for most individuals, enabling early risk identification and lifelong personalised care. In low- and middle-income countries (LMICs), integrating WHO-recommended Essential Nutrition Actions, a package of evidence-based nutrition interventions targeting maternal, infant, and young child nutrition, into routine maternal, newborn, child, and reproductive health services can significantly improve outcomes, given that malnutrition underlies nearly half of under-five deaths globally (Kpébo et al., 2022; Shenavar et al., 2025; UNICEF, 2021; WHO, 2013).

In Nigeria, malnutrition remains a major public health challenge. About 40% of children under five are stunted, 26.6% are underweight and 8.4% are affected by severe acute malnutrition which translates to an estimated 2 million children (FMoHSW/NPC/ICF, 2024). In Oyo State, the prevalence of stunting, underweight and severe acute malnutrition is 23.1%, 26.1%, and 14.4%, respectively, indicating that malnutrition is widespread despite better infrastructure access (FMoHSW/NPC/ICF, 2024). Knowing that malnutrition contributes to about 45% of under-five mortality, strengthening PHC capacity for nutrition interventions is vital for improving outcomes and advancing national and global nutrition targets (WHO, 2022).

Previous studies have reported persistent barriers in Nigerian PHC facilities, including shortages of trained personnel, inadequate equipment and supplies, poor infrastructure, and weak monitoring systems, all of which could undermine quality nutrition service delivery (Ogah et al., 2024). Nigeria's National Policy on Food and Nutrition (2016) and the National Multi-Sectoral Plan of Action for Food and Nutrition (2021–2025) both mandate the provision of essential nutrition interventions, including growth monitoring, micronutrient supplementation, and management of acute malnutrition, at the PHC level, and the National Primary Health Care Development Agency (NPHCDA) Minimum Standards for Primary Health Care in Nigeria specify facility-level norms for nutrition commodities, infrastructure, and trained personnel. However, the extent to which these national policy mandates and minimum standards are operationalised, monitored, or enforced at the facility level in practice remains poorly documented, particularly in rapidly urbanising settings such as Ibadan. Therefore, this study assessed the capacity of PHC facilities to deliver nutrition services in three selected urban LGAs of Ibadan, Nigeria, with reference to the extent to which observed practices align with existing national mandates and minimum standards.

Methods

Study Design and Setting

This descriptive cross-sectional study assessed nutrition service capacity in PHC facilities across three of the five urban LGAs in Ibadan (Ibadan North, Ibadan North-West, Ibadan South-East), Oyo State, Nigeria. Ibadan, with an estimated population of more than five million, is a major urban centre. Oyo State has 721 PHCs across 351 wards. Data collection occurred between February and April 2023.

Study Population and Sampling

Three of the five LGAs in Ibadan (Ibadan North, Ibadan North-West, and Ibadan South-East) were selected. A total sampling of all the 44 public PHCs in the three LGAs (Ibadan North (n=16), Ibadan North-West (n=10), Ibadan South-East (n=18) was conducted, with 40 participating (response rate 91%). Respondents were primarily Officers-in-Charge (OICs) of primary health care facilities (matrons or senior staff), selected for their comprehensive knowledge of facility operations and service delivery. In facilities where the OIC was unavailable, the most senior staff present assisted.

Data Collection

A structured questionnaire, adapted from the Uganda Nutrition Service Delivery Assessment Tool for Health Centres (Ministry of Health Uganda, 2015), was used. It was considered broadly relevant to urban Nigeria because both Uganda shares a comparable PHC architecture (facility-based outpatient, antenatal, and young child clinic platforms staffed predominantly by nurses, midwives, and community health workers), a comparable double burden of malnutrition, and a similar policy emphasis on integrating nutrition into routine maternal and child health services. It covered 11 domains: facility information, human resources, provision of nutrition services, community linkages, quality improvement, materials/supplies, equipment, key nutrition commodities, store management, logistics/supply chain, and monitoring/evaluation. Specific modifications made to the original Uganda instrument included: (i) replacing Uganda-specific commodity names, guideline titles, and cadre designations with their Nigerian equivalents (e.g., Community Health Extension Workers and Community Health Officers in place of Ugandan community cadre titles); (ii) aligning the classification thresholds and indicator checklist for materials, equipment, and infrastructure domains with the NPHCDA Minimum Standards for Primary Health Care in Nigeria, so that "poor/fair/good/excellent" classifications reflected Nigerian minimum service package requirements rather than the original Ugandan benchmarks; (iii) adding department-specific service items relevant to the Nigerian Antiretroviral/tuberculosis (ART/TB) clinic and young child clinic structure; and (iv) removing items not applicable to the Nigerian PHC system (e.g., specific Ugandan reporting form names), which were replaced with the equivalent Nigerian health management information system (HMIS) reporting tools. The adapted tool was reviewed by two public health nutrition experts for face and content validity and pre-tested in two PHC facilities not included in the final sample prior to use.

The instrument included a combination of binary (Yes/No) items, count-based inventories, and rule-based

criteria for classifying each domain as poor, fair, good, or excellent, based on predefined thresholds reflecting indicator functionality and completeness. Staff competencies in IYCF, Integrated Management of Acute Malnutrition (IMAM), Nutrition Assessment Counselling and Support, and other areas were assessed, along with community linkages and quality improvement mechanisms. Data collection involved three stages: (1) direct observation with a structured checklist for infrastructure, logistics, and equipment; (2) observation of nutrition service processes and delivery where feasible; and (3) interviewer-administered questionnaires to OICs. The observation checklist was developed a priori from the NPHCDA Minimum Standards for Primary Health Care in Nigeria and the adapted Uganda tool, covering services, equipment, infrastructure, and logistics. Research assistants were trained on all instruments and standardisation procedures prior to data collection. The principal investigator reviewed completed forms daily and resolved queries on the same day. All data were collected electronically using the KoboCollect application on Android smartphones.

Data Analysis

Capacity to deliver nutrition services was assessed across eleven domains. General facility information (A), human resources (B), community linkages (D), quality improvement (E), and monitoring and evaluation (K) were assessed using criterion-based scoring, where facilities were categorised as poor, fair, good, or excellent based on fulfilment of mandatory indicators and minimum domain-specific requirements. Materials and supplies (F), nutrition unit requirements (G), store management (I), and logistics management for nutrition commodities (J) were assessed by summing the number of available items or fulfilled requirements and classifying facilities into poor, fair, good, or excellent categories using predefined thresholds.

Provision of nutrition services (C) and facility nutrition equipment (H) were assessed at the departmental level, including the Nutrition Unit/Corner, outpatient department, young child clinic, antenatal clinic, postnatal clinic, and ART/TB clinic. Scores were computed by summing the available services or equipment within each department, classifying them using department-specific thresholds, and aggregating them to derive overall facility-level classifications. Facilities without nutrition units or nutrition commodities were classified as not applicable to the nutrition unit requirements and logistics management domains, respectively, in accordance with the assessment guidelines.

Statistical Analysis

Data were analysed using the IBM Statistical Package for the Social Sciences (SPSS) version 27.0. Descriptive statistics (frequencies, percentages) summarised variables. The frequency and percentage distributions of facilities across classification categories were computed for each domain to describe the capacity of facilities to deliver nutrition services.

Ethical Considerations

Ethical approval was obtained from the University College Hospital/University of Ibadan Ethics Committee (NHREC/05/01/2008a – UI/EC/23/0442). Informed consent was secured orally from all Officers-in-Charge (or their designees) after explaining the study purpose.

Results

The results presented below are organised to distinguish, for each domain, between the specific nutrition services delivered by facility staff (Tables 1 and 3) and the underlying capacity factors, including human resources, infrastructure, equipment, commodities, and systems that determine facilities' readiness to deliver and sustain those services (Tables 2, 4 and 5, and the Appendices). This distinction is intended to clarify, where a service was not delivered, the specific capacity constraint most plausibly responsible.

General Information on the Primary Health Care Facilities

General information on the sampled primary health care facilities is presented in Table 1. Of the 40 public PHC facilities, 85% offered nutrition services and 78% had a designated staff member for nutrition activities. Only 7.5% had a qualified nutritionist or dietitian. Among the staff responsible for nutrition, 65% had received in-service nutrition training within the past two years. Quality improvement (QI) teams were present in 48% of facilities, and 58% were functional. Continuous Professional Development schedules were available in 35% (n=14) of facilities, although nutrition topics were included in 93%. Nutrition was integrated into facility budgets and work plans in 38% of facilities, and 48% received regular support and supervision that included nutrition from the national/regional or district level. Updated bi-annual equipment inventories were available in 53%. Overall, 50% of the facilities rated excellent, 13% were good, 23% were rated fair, and 15% were poor in this general domain (Figure 1).

Table 1. General information on the primary health care facilities (N=40)

Variables	N	%
Offered nutrition services (N=40)	34	85.0
Had a nutritionist/dietitian (N=40)	3	7.5
Had staff in charge of nutrition (N=40)	31	77.5
*Person in charge of nutrition services had in-service training in nutrition in the past two years (n=31)	20	64.5
Had an established a quality improvement (QI) team (N=40)	19	47.5
*Components of QI team		
A. *Head of unit (n=19)	7	36.8
B. *Community representatives (n=19)	10	52.6
C. *Facility manager (n=19)	3	15.8
*Had a QI work plan and budget (n=19)	8	42.1
*Had a functional QI team (n=19)	11	57.9
*Facility leadership participated in monthly QI mee	11	57.9
Had a Continuous Professional Development schedule (n=40)	14	35.0
*Nutrition topics included in the CPD/CME** schedule (n=14)	13	92.9

Variables	N	%
Nutrition integrated in the budget and work plan (n=40)	15	37.5
Got regular integrated support supervision that includes nutrition from the national/regional or district (n=40)	19	47.5
*Got regular feedback from the support supervision teams (n=19)	16	84.2
Had an updated (bi-annual) equipment inventory (n=40)	21	52.5

*N value and % apply only to the subset of facilities.
**CPD/CME = Continuous Professional Development/ Continuous Medical Education

Human Resources Capacity for Nutrition

Information on human resource capacity for nutrition services in the PHCs over the past two years is presented in Table 2. In-service training in key nutrition-specific areas over the past two years was inadequate across most cadres. Community Health Extension Workers showed higher training in IMAM (92.5%) and Nutrition Assessment, Counselling and Support (43.2%), while nurses (50.0%) and Community Health Officers (55.6%) had better IYCF in-service training than other health worker cadres.

Training in food demonstration, Growth Monitoring and Promotion, and Quality Improvement was low, with less than 40% of health workers across most cadres trained in these areas. Training in the Baby-Friendly Hospital Initiative was also limited, with no training reported among medical officers, clinical officers, nurses, midwives, and nursing assistants, and only minimal coverage among Community Health Officers (3.7%) and Community Health Extension Workers (16.2%). Nursing assistants received no nutrition training. Overall, 70% of facilities were rated poor in human resource capacity, 20% were rated fair, 10% were rated poor, and none were rated excellent (Figure 1).

Table 2. Percentage of health workers trained in nutrition and quality improvement (last two years) across the PHCs (N=40)

The cadre of health workers	Percentage trained in each of the following in the last two years (N=40)						
	IMAM	IYCF	NACS	BFHI	FD	GMP	QI
Medical officers	11.1	11.1	22.2	0.0	11.1	11.1	22.2
Clinical officers	20.0	0.0	20.0	0.0	20.0	20.0	0.0
Nurses	25.0	50	41.7	0.0	16.7	17.5	8.3
Midwives	16.7	16.7	33.3	0.0	0.0	16.7	0.0
Nursing assistants	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Community health officers	25.9	55.6	11.1	3.7	29.6	18.5	7.4
Community health extension workers	92.5	32.4	43.2	16.2	2.7	33.3	18.91

IMAM = Integrated Management of Acute Malnutrition; IYCF = Infant and Young Child Feeding; NACS = Nutrition Assessment, Counselling, and Support; BFHI = Baby-Friendly Hospital Initiative; FD = Food Demonstration; GMP = Growth Monitoring and Promotion; QI = Quality Improvement

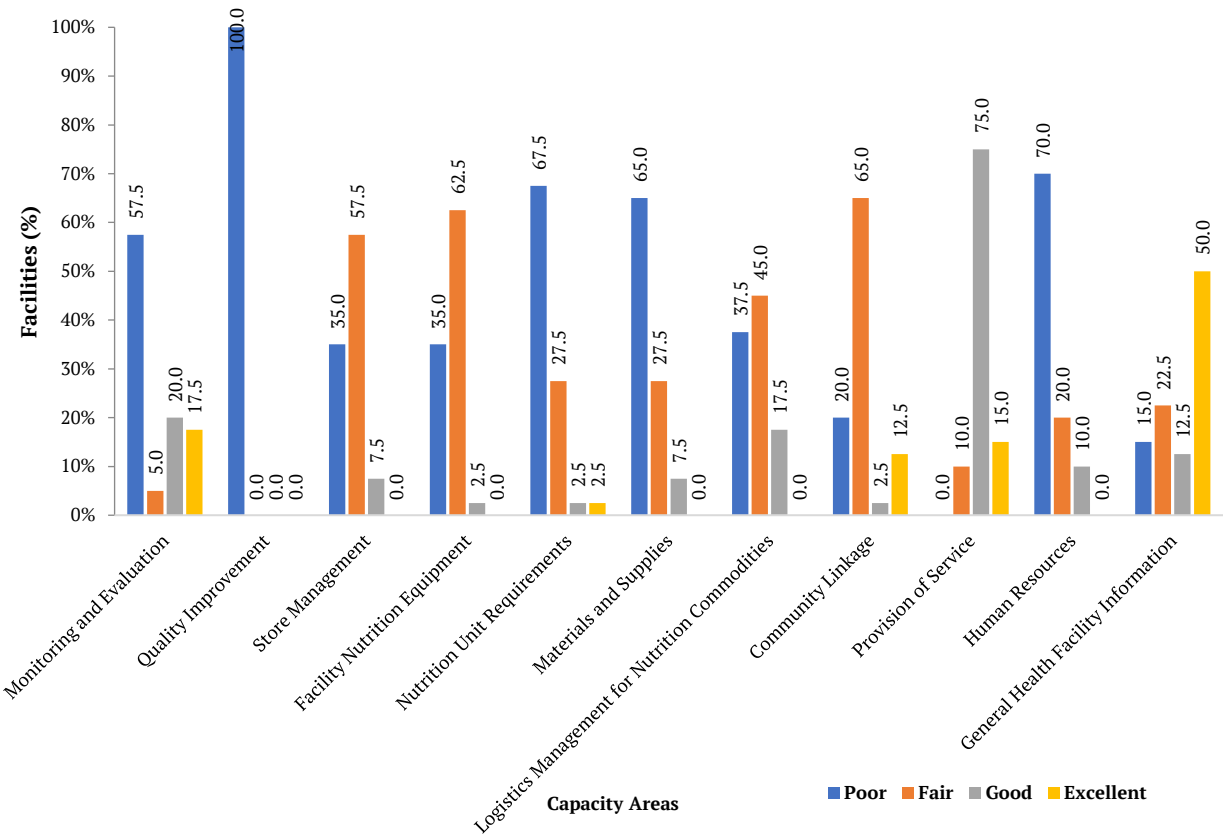

Figure 1. Summary of nutrition service capacity classification by domain (N=40)

Provision of Nutrition Services and Facility Readiness

Information on the nutrition services provided by the sampled PHCs is presented in Table 3. Facilities performed well in basic anthropometric assessments. Oedema and pallor were assessed in 80.0% and 90.0% of facilities, respectively. However, categorisation of nutritional status occurred in only 67.5%, interpretation of growth curves to caregivers in 35.0%, dietary history-taking in 50.0%, counselling for malnourished clients in 52.5%, referral in 40.0%, and follow-up in 27.5%. No facility provided therapeutic or supplementary feeding.

Preventive nutrition services were strong, including vitamin A supplementation (97.5%), iron-folic acid supplementation (97.5%), deworming (90.0%), maternal nutrition counselling (87.5%), and maternal, infant and young nutrition counselling (67.5%). Food demonstration sessions occurred in only 17.5% of facilities.

Availability of essential materials, nutrition equipment, and nutrition unit infrastructure was generally inadequate; see details presented in Appendix I-III. Overall, 75% of facilities demonstrated good nutrition service provision, but materials/supplies (65%), nutrition unit requirements (67.5%), and facility nutrition equipment were mostly rated poor, with facility nutrition equipment mostly fair (62.5%) (Figure 1).

Table 3. Provision of nutrition services (N=40)

Nutrition Service	N=40	%
Assessed mid-upper arm circumference correctly and accurately	39	97.5
Age of client recorded	37	92.5
Assessed height/length correctly and accurately	34	85.0
Assessed weight correctly and accurately	40	100.0
Plotted child health card correctly and accurately	38	95.0
Interpreted growth curves to the mother	14	35.0
Checked for oedema correctly	36	90.0
Checked for pallor (i.e., pale palms and inner eyelids)	32	80.0
Estimated Haemoglobin	12	30.0
Took dietary history	20	50.0
Categorised nutrition status (acute, moderate, severe malnutrition)	27	67.5
Provided Infant and young child feeding and support	27	67.5
Provided maternal nutrition counselling	35	87.5
Provided counselling for malnourished clients	21	52.5
Provided health/nutrition education on various topics	31	77.5
Conducted food demonstration sessions	7	17.5
Provided therapeutic foods	0	0.0
Provided supplementary foods	0	0.0
Administered Vitamin A supplementation	39	97.5
Administered Iron-folic acid supplementation	39	97.5
Administered Mebendazole/albendazole (Deworming tablet)	36	90.0
Provided referral of malnourished patients for further management	16	40.0
Provided follow-up of young children and malnourished patients, e.g., they are given follow-up appointments	11	27.5

Quality Improvement Systems, Community Linkages, Store and Logistic Management of Nutrition Commodities

Information on the quality improvement systems and community linkages of the health facilities is presented in Table 4. No facility had a dedicated functional nutrition QI team or active nutrition QI projects. Community linkages existed in 75.0% (links with community health workers/volunteers), with referrals from the community in 40.0%. Formal structures (village health teams, 15.0%, family support groups, 5.0%) and support mechanisms (15.0%) were limited. QI systems rated poor in 100.0% of facilities; community linkages mostly fair (65.0%) (Figure 1).

In addition, only 75% of the PHCs had a dedicated store, of which 83% were adequate in terms of cleanliness, ventilation, and lighting (Appendix IV), and 63% could place orders using standard forms and calculate required quantities (Appendix V). About 58% had fair store management, and 45% had fair logistics management (Figure 1).

Table 4. Quality improvement and community linkages (N=40)

Variable	N	%
Quality Improvement		
The health facility had a nutrition work improvement team	0	0.0
Health facility had a functional nutrition work improvement team (i.e., meets frequently and has a record of minutes)	0	0.0
Health facility QI team had a nutrition QI project	0	0.0
Health facility had up-to-date QI documentation for the nutrition QI projects above	0	0.0
Health facility had a QI mentorship schedule	0	0.0
Nutrition was included in the QI mentorship schedule	0	0.0
Health facility received QI mentorship/coaching in the last three months	0	0.0
Community Linkages		
Had links with community-based health workers or volunteers	30	75.0
Clients referred from the community to the health facility for nutrition services	16	40.0
Existing Community structures to support the continuum of nutrition care and support		
a. Village health teams	6	15.0
b. Vaccinators	3	7.5
c. Expert clients	1	2.5
d. Family support groups	2	5.0
Mechanism for periodical support of the groups exist in the HF	6	15.0
Type of support mechanisms exist		
Supervision	3	7.5
Training/mentorship	3	7.5

Monitoring and Evaluation Systems for Nutrition

Information on the monitoring and evaluation systems for nutrition in the sampled PHCs is presented in Table 5. A designated HMIS person existed in 80.0% of facilities. Registration/reporting of nutrition clients occurred in 67.5%, routine data collection in 52.5%, compilation in 32.5%, and analysis/display for decision-making in only 12.5%. Over half (57.5%) had poor monitoring and evaluation (M&E) systems (Figure 1).

Table 5. Monitoring and evaluation for nutrition (N=40)

Variable	N	%
Health facility had a designated person for HMIS data	32	80.0
Health facility registered and reported clients receiving nutrition services	27	67.5
Health facility collected data on nutrition	21	52.5
Health facility HMIS person compiled data on nutrition	13	32.5
Health facility analysed and displayed data on nutrition	5	12.5

HMIS = health management information system

Discussion

This study presents a mixed picture of the capacity of nutrition services in urban public PHC facilities in Ibadan, Nigeria. While basic screening and preventive interventions are relatively well integrated, critical gaps in human resources, clinical management, infrastructure, quality improvement, and data utilisation limit the delivery of comprehensive care. These findings underscore systemic challenges in translating policy commitments into effective frontline nutrition service delivery, with implications for addressing Nigeria's persistent malnutrition burden in urbanising contexts.

A key gap is limited human resource capacity for nutrition service delivery. Few facilities had qualified nutritionists, and training coverage in essential areas such as maternal, infant, and young child nutrition; nutrition assessment; counselling and support; growth monitoring and promotion; and baby-friendly hospital initiatives was low across cadres, resulting in poor ratings for most facilities. This aligns with evidence from existing studies, where specialised nutrition personnel are largely lacking in the PHC (El-Kour et al., 2021; Kris-Etherton et al., 2014; Ogah et al., 2024) and nutrition services often rely on task-shifting to nurses, midwives, and community health workers without adequate preparation or ability to take on the extra work burden (Tengepare et al., 2024; Singh et al., 2025). In Ethiopia, similar assessments identified inadequate training and supervision as major barriers to implementing nutrition interventions (Endris et al., 2022; Fenta et al., 2020). In Nigeria, systemic underinvestment in the specialised nutrition workforce at the PHC level compounds this issue. These gaps compromise the quality of nutrition counselling and case management. Continuous professional development, targeted in-service training, and supportive supervision are urgently needed to build competencies and ensure quality counselling and case management.

Facilities demonstrated strong capacity in basic anthropometric assessments, indicating successful integration of growth monitoring into maternal-child health routines. However, downstream actions were weak: dietary history, counselling, referral, and follow-up were inconsistent, and therapeutic/supplementary feeding was absent. As this is a descriptive cross-sectional study, causal inference cannot be drawn between these capacity deficits and the absence of therapeutic and supplementary feeding; however, the consistent co-occurrence of this finding with the near-total absence of therapeutic feeding job aids, RUTF dosing references, admission/discharge criteria, and trained personnel in IMAM is consistent with the hypothesis that this gap reflects underlying manpower and infrastructure constraints. Disentangling the relative contribution of workforce, commodity and infrastructure constraints to this specific gap is an important direction for future facility-level implementation research using qualitative or mixed-methods designs. This "screening-without-management" gap mirrors findings in LMIC settings, where growth monitoring often fails to translate into effective care pathways (Taylor et al., 2023). Similarly, evidence from primary care settings indicates that although nutrition screening is commonly performed, the provision of counselling and referral services remains suboptimal (Aboueid et al., 2018; Williams et al., 2022). Without clear protocols linking assessment to intervention, early detection efforts have a limited impact on the progression of malnutrition.

Preventive services (micronutrient supplementation, deworming, maternal/IYCF counselling) showed high coverage, reflecting national programme integration. This is consistent with findings from other LMICs where strong policy prioritisation has driven similar outcomes (Salam et al., 2019; UNICEF, 2021). Yet participatory elements, such as food demonstrations, were rare, likely due to infrastructure deficits and training gaps. Similar patterns appear in other PHC assessments in Nigeria and other LMICs, where shortages of equipment, guidelines, and job aids hinder comprehensive delivery (Oyekale, 2017; Ekenna et al., 2020; Eyemienbai et al., 2025). In addition, WHO Service Availability and Readiness Assessments consistently document these commodity and guideline gaps as barriers to quality care (Ramadan et al., 2023). Infrastructure and supply chain weaknesses further constrain services. While basic stores existed, documentation (stock cards, FEFO/FIFO) was poor, and nutrition-specific infrastructure (kitchens, demonstration resources) was almost non-existent. This aligns with a report on primary health centres in Sokoto, North-West Nigeria (Isah and Inoh, 2023).

Community linkages were present but informal and unsupported, limiting the continuum of care from facility to community, a core element of effective nutrition programming. Although monitoring and evaluation systems were in place and data were collected, these were rarely analysed or utilised for local decision-making. This reflects a broader global challenge in which routine health information systems tend to serve upward reporting requirements rather than driving facility-level improvement and programme adaptation. Similar challenges with the use of routine health information have been documented in many health systems, where data are collected primarily for reporting purposes but rarely used for local planning and programme improvement (Byrne and Heywood, 2023; Nutley & Reynolds, 2013).

These gaps are particularly concerning in urban Ibadan, where rapid urbanisation may mask vulnerabilities similar to rural areas. They highlight that policy integration alone is insufficient without system-level investments. Addressing these gaps will require prioritisation of essential nutrition equipment and commodities within PHC minimum service packages, alongside strengthening supply chain management systems.

Limitation

This study was conducted in selected urban LGAs of Ibadan; therefore, findings may not represent semi-urban and rural areas or other Nigerian urban areas. Self-reported data from facility officers may introduce bias, though direct observation partially mitigated it. The cross-sectional design

limits causal inference.

Conclusions

Primary health care facilities in urban Ibadan demonstrate reasonable capacity for basic nutrition screening and preventive services but lack comprehensive readiness due to workforce deficits, infrastructure gaps, weak quality systems, and poor data utilisation. Closing the gap between screening and effective management is essential to strengthening the continuum of nutrition care and reducing malnutrition. Because national policy and the NPHCDA Minimum Standards already mandate most of the nutrition services and inputs assessed in this study, the identified gaps, particularly the complete absence of therapeutic and supplementary feeding, the near-total absence of functional nutrition QI structures, and weak routine data use, are best understood primarily as a compliance gap between existing national norms and facility-level practice. Therefore, the priority recommendation is strengthened enforcement, resourcing, and supportive supervision against existing standards. Conversely, for domains where no clear facility-level norm could be identified during this study, such as defined minimum staffing ratios for nutrition personnel or thresholds for routine data review frequency, the gap is more appropriately framed as a policy and standard-setting gap requiring the formulation of explicit, monitorable facility-level benchmarks before compliance can be meaningfully assessed in future research. There is a need to scale targeted nutrition training and task-sharing with supervision; prioritise essential equipment, guidelines, and infrastructure in PHC packages; institutionalise functional QI teams with a nutrition focus; strengthen supply chains and community linkages; and build capacity for routine data analysis and use. These measures, aligned with Astana Declaration principles and national UHC goals, can enhance PHC contribution to nutrition and health outcomes in Nigeria and similar settings.

Author Contributions

OA, JM, OM and NO conceptualized and designed the methodology of the study. OM and JM drafted the original manuscript and designed the study tables and figures. OA, OM, JM, EO and KJ reviewed and edited the manuscript. Project management and data collection was done by NO under the supervision of OA. All authors have read and approved the final version of the paper and its submission and gave consent for publication.

Declaration of Generative AI and AI-Assisted Technologies in Scientific Writing

The authors used ChatGPT (OpenAI) for language editing and improving the clarity of the manuscript text, and Grammarly for grammar and spelling checks. These tools were used solely to refine the language of content already developed by the authors. No AI tool was used for data analysis, interpretation of results, or generation of original intellectual content.

All substantive aspects of the work, including study design, data analysis, interpretation of findings, discussion and conclusions, were developed independently by the authors. The authors carefully reviewed and edited all AI-assisted outputs and take full responsibility for the accuracy, integrity, and originality of the manuscript.

Acknowledgements

The authors wish to thank the Oyo State Government for recruiting one nutritionist per Local Government Area in 2025 and also the Officers-in-Charge of the primary health care facilities (matrons or senior staff) for their time and cooperation during data collection.

Data Availability Statement

The datasets generated and/or analysed during the current community-based study are not publicly available. However, datasets and adapted assessment tool may be made available from the corresponding author upon reasonable written request.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Conflict of Interest

The authors declare no conflicts of interest.

Publisher's Note: *All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers. Any product that may be evaluated in this article, or claim that may be made by its manufacturer, is not guaranteed or endorsed by the publisher. The publisher remains neutral with regard to jurisdictional claims.*

REFERENCES

Aboueid, S., Bourgeault, I., & Giroux, I. (2018). Nutrition care practices of primary care providers for weight management in multidisciplinary primary care settings in Ontario, Canada - a qualitative study. *BMC Family Practice*, 19(1). https://doi.org/10.1186/s12875-018-0760-3

Byrne E, & Heywood A. (2023). Use of routine health information systems data in developing and monitoring district and facility health plans: a scoping review. *BMC Health Services Research*, 23(1049). https://doi:10.1186/s12913-023-09914-6

Ekenna, A., Itanyi, I. U., Nwokoro, U., Hirschhorn, L. R., & Uzochukwu, B. (2020). How ready is the system to deliver primary healthcare? Results of a primary health facility assessment in Enugu State, Nigeria. *Health Policy and Planning*, 35(S1), i97–i106. https://doi.org/10.1093/heapol/czaa108

El-Kour, T. Y., Kelley, K., Bruening, M., Robson, S., Vogelzang, J., Yang, J., & Jimenez, E. Y. (2021). Dietetic workforce capacity assessment for public health nutrition and community nutrition. *Journal of the Academy of Nutrition and Dietetics*, 121(7), 1379-1391.e21. https://doi.org/10.1016/j.jand.2020.08.078

Endris, B. S., Fenta, E., Getnet, Y., Spigt, M., Dinant, G., & Gebreyesus, S. H. (2022). Barriers and facilitators to the implementation of nutrition interventions at primary health care units of Ethiopia: A consolidated framework for implementation research. *Maternal and Child Nutrition*, 19(1). https://doi.org/10.1111/mcn.13433

Eyemienbai, E. J., Logue, D., McMonagle, G., Doherty, R., Ryan, L., & Keaver, L. (2025). Enhancing nutrition care in primary healthcare: exploring practices, barriers, and multidisciplinary solutions in Ireland. *International Journal of Environmental Research And Public Health,* 22(5), 771. https://doi.org/10.3390/ijerph22050771

Federal Ministry of Health and Social Welfare of Nigeria (FMoHSW), National Population Commission (NPC) [Nigeria], ICF. Nigeria Demographic and Health Survey 2023–24: Key Indicators Report. Abuja, Nigeria, and Rockville, Maryland, USA: NPC and ICF; 2024. Full text here

Fenta, E. H., Endris, B. S., Mengistu, Y. G., Sadamo, F. E., Gelan, E. H., Beyene, T. G., & Gebreyesus, S. H. (2020). Landscape analysis of nutrition services at Primary Health Care Units (PHCUs) in four districts of Ethiopia. *PLoS One,* 15(12), e0243240. https://doi.org/10.1371/journal.pone.0243240

Isah B.A., Inoh E.E. (2023). Availability and capacity of nutrition units in primary health centres in Sokoto State, North-Western Nigeria. *Journal of Public Health and Diseases*, 6(1), 15-20. https://doi:10.31248/JPHD2023.126

Kpébo, D., Coulibaly, A., Evariste, M., Bijou, S., Ramatoulaye Hamidou Lazoumar, Halima Tougri, Ndour, M., and Séni Kouanda. (2022). Effect of integrating maternal and child health services, nutrition and family planning services on postpartum family planning uptake at 6 months post-partum in Burkina Faso, Cote d'Ivoire and Niger: a quasi-experimental study protocol. *Reproductive Health,* 19(1). https://doi.org/10.1186/s12978-022-01467-x

Kraef, C., & Kallestrup P. (2019). After the Astana Declaration: Is Comprehensive Primary Health Care Set for Success This Time? *BMJ Global Health*, 4(6), e001871. https://doi:10.1136/bmjgh-2019-001871

Kraef, C., Wood, B., von Philipsborn, P., Singh, S., Peterson, S. S., & Kallestrup, P. (2020). Primary health care and nutrition. Bulletin of the World Health Organization, 98(12), 886–893. https://doi.org/10.2471/blt.20.251413

Kris-Etherton, P. M., Akabas, S. R., Bales, C. W., Bistrian, B., Braun, L., Edwards, M. S., Laur, C., … Van Horn, L. (2014). The need to advance nutrition education in the training of healthcare professionals and recommended research to evaluate implementation and effectiveness. *The American Journal of Clinical Nutrition*, 99(5), 1153S1166S. https://doi.org/10.3945/ajcn.113.073502

Ministry of Budget and National Planning, 2016. National Policy on Food and Nutrition in Nigeria. Abuja: Federal Republic of Nigeria. Available at: https://faolex.fao.org/docs/pdf/nig184608.pdf

Ministry of Health Uganda. (2015). Nutrition Service Delivery Assessment Tool for Health Centres. Kampala: Ministry of Health Uganda. Full text here

Nutley, T., & Reynolds, H.W. (2013). Improving the use of health data for health system strengthening. Global Health Action, 6(1), 20001. https://doi.org/10.3402/gha.v6i0.20001

Ogah, P. O., Uguru, N., Okeke, C., Mohammed, N., Ogbe, O., Ashiver, W. G., & Aina, M. (2024). Primary health care in Nigeria: best practices and quality of care in Nigeria. *BMC Health Services Research*, 24(1). https://doi.org/10.1186/s12913-024-11406-0

Oyekale, A. S. (2017). Assessment of primary health care facilities' service readiness in Nigeria. *BMC Health Services Research*, 17(1). https://doi.org/10.1186/s12913-017-2112-8

Ramadan, M., Muthee, T. B., Okara, L., Feil, C., & Villar Uribe, M. (2023). Existing gaps and missed opportunities in delivering quality nutrition services in primary healthcare: a descriptive analysis of patient experience and provider competence in 11 low-income and middle-income countries. *BMJ Open*, 13(2), e064819. https://doi.org/10.1136/bmjopen-2022-064819

Salam, R. A., Das, J. K., & Bhutta, Z. A. (2019). Integrating nutrition into health systems: What the evidence advocates. *Maternal and Child Nutrition*, 15(S1), e12738. https://doi.org/10.1111/mcn.12738

Shenavar, R., Aghayan, M., Omidvar, N., & Takian, A. (2025). Nutrition services in the primary healthcare system: a scoping review of global experiences. *Journal of Public Health Policy*. https://doi.org/10.1057/s41271-025-00600-x

Singh A, Ndiath M.M, Toure D, Dissieka R, Bazira L.K, & Wanyonyi C. (2025). Assessing the gap between policy and practice: community health workers' contributions to nutrition services in Sub-Saharan Africa. *BMC Health Services Research*, 25(1), 838. https://doi.org/10.1186/s12913-025-13044-6

Taylor, M., Tapkigen, J., Ali, I., Liu, Q., Long, Q., & Nabwera, H. (2023). The impact of growth monitoring and promotion on health indicators in children under five years of age in low- and middle-income countries. *Cochrane Database of Systematic Reviews*, Issue 10, Art. No.: CD014785. https://doi.org/10.1002/14651858.CD014785

Tengepare F.X., Chirawurah D., & Apanga S. (2024). Improving maternal and child nutrition services in community-based health planning and services zones in the Jirapa municipality of northern Ghana - challenges and strategies: the perspective of community health officers. *BMC Nutrition,* 10(1), 87. https://doi.org/10.1186/s40795-024-00848-8

UNICEF (2021). The State of the World's Children. New York: UNICEF. https://www.unicef.org/reports/state-worlds-children-2021

Walraven G. (2019). The 2018 Astana Declaration on Primary Health Care, is it useful? *Journal of Global Health*, 9(1), 010313. https://doi.org/10.7189/jogh.09.010313

WHO. (2013). Essential nutrition actions: Improving maternal, newborn, infant and young child health and nutrition. Geneva, Switzerland: World Health Organisation. https://www.who.int/publications/i/item/9789241505550

WHO. (2018). Declaration of Astana. World Health Organisation. https://www.who.int/publications/i/item/WHO-HIS-SDS-2018.61

WHO. (2022). Malnutrition. World Health Organisation. https://www.who.int/health-topics/malnutrition#tab=tab_1

Williams, A. R., Hines, A. L., Dow, A. W., Sabo, R. T., and Thomson, M. D. (2022). Are primary care providers' nutrition care and food insecurity screening practices associated with their perceptions of team-based care? *Family Practice*. 39(5), 876-82 https://doi.org/10.1093/fampra/cmac017

Supplementary Materials

Appendix I

Materials and supplies (N=40)

Health facility had	N=40	%
1. Guidelines and Protocols		
Service Delivery Standards for the Health Sector	28	70
Nutrition Care and Support for People Living (PLHIV) with HIV/AIDS: Guidelines for Service Providers	5	12.5
Integrated Management of Acute Malnutrition (IMAM) Guidelines	25	62.5
Maternal Nutrition Guidelines (MIYCN)	22	55
Comprehensive Micronutrient Deficiencies Control Guidelines	14	35
Growth Monitoring and Promotion Guide	20	50
Non-Communicable Diseases Guidelines (screening, physical activity, nutrition, drug and substance abuse)	12	30
Infant and Young Child Feeding Policy Guidelines	18	45
Attaining the Baby Friendly Status: Role of Health Workers in Implementing the 16 Steps to Successful Infant Feeding, Promoting, Supporting and Protecting Breastfeeding through the Baby-Friendly Health Initiative (BFHI)	5	12.5
The Integrated National Guidelines on Antiretroviral Therapy, Prevention of Mother-to-Child Transmission of HIV and Infant & Young Child Feeding	7	17.5
Positive Deviance Hearth Guide	0	0
2. IYCF and Counselling Materials		
Infant and Young Child Feeding National Counselling Cards for Health Workers	9	22.5
Question and Answer Guide: Infant and Young Child Feeding with a Special Focus on HIV/AIDS: Reference Tools for Counsellors	15	37.5
Nutrition for PLHIV/AIDS Counselling Cards	3	7.5
Nutrition for PLHIV Booklet	1	2.5
Nutrition Care and Support for PLHIV: Health Facility Job Aids	2	5
Availability of food demonstration kits and job aids (A box with food teaching aids: food dummies, dolls, utensils, counselling cards, display table, etc.)	7	17.5
Demonstration garden	0	0
Local audio visual/media materials on nutrition	2	5
Counselling posters/charts on: Infant and young child feeding	24	60
Counselling posters/charts on: Maternal nutrition (nutrition in pregnancy and lactation)	15	37.5
Counselling posters/charts on: General nutrition (e.g., food groups, balanced/adequate diet)	13	32.5
Counselling posters/charts on: Nutrition for PLHIV/TB	10	25
Counselling posters/charts on: Water, sanitation, and hygiene	20	50
Counselling posters/charts on: Child immunization schedule	31	77.5
Counselling posters/charts on: Micronutrient deficiencies (iron, vitamin A, iodine, and zinc)	16	40
3. Anthropometric and Assessment Tools		
BMI-for-age z-score chart for children from 5–19 years (coloured)	6	15
BMI cut-offs for adults	4	10
Weight-for-height z-score tables for children less than 5 years	3	7.5
MUAC-for-age tables	4	10
Weight-for-age tables/child health growth charts	3	7.5
Height-for-age tables	3	7.5
Chart showing correct way of taking MUAC measurement	9	22.5
Mother-child passport/child health card available	37	92.5
4. IMAM/Therapeutic Feeding Job Aids		
F75 reference card	0	0
F100 reference card	0	0
Ready-to-use therapeutic food (RUTF) appetite test reference card	0	0
RUTF dosing reference card	0	0
24-hour feed intake charts	0	0
Criteria for admission of malnourished clients	0	0
Criteria for discharge of malnourished clients	0	0
Critical care pathway (clinical monitoring form)	0	0
Supplementary feeding programme job aids	0	0
Integrated nutrition register	1	2.5
Outpatient/inpatient therapeutic care quarterly report form available	3	7.5
5. Records and Logistics Forms		
Dispensing log available	1	2.5
Requisition and issue voucher available	2	5
Referral forms available	2	5

Appendix II

Requirements specific to the nutrition unit (N=40)

Health facility had	N=40	%
Kitchen	1	2.5
Utensils (feeding cups, saucers, spoons, plates, forks, bowls, sieves, sauce pans)	2	5
Dietary scale able to weigh 5 g	2	5
Manual whisks or electric blender	1	2.5
Large containers and spoons for mixing/cooking food for the ward	15	37.5
Tiffin or saucepans	0	0
Source of fuel (gas, charcoal, firewood, electricity)	6	15
Measuring cylinders (or suitable utensils for measuring ingredients and leftovers)	10	25
Jugs (1 litre and 2 litres)	14	35
Dried skimmed milk, whole dried milk, fresh whole milk, or long-life milk	3	7.5
Sugar	0	0
Cereal flour	0	0
Vegetable oil	0	0
Safe water supply/drinking water	15	37.5
Locally available foods (for teaching/use in transition to home foods)	3	7.5
Waste disposal facilities	27	67.5
Soap for handwashing (liquid or bar)	35	87.5
Running water	18	45

Appendix III

Facility nutrition equipment (N=40)

Health facility had functional	N=40	%
Adult weighing scales available	40	100
Baby weighing scales available	35	87.5
Child weighing scales available	3	7.5
Observe for calibration of weighing scales before weighing	29	72.5
A schedule for standardisation and service of equipment	10	25
Standardised weighing scales as scheduled	8	20
Infantometers (Infant Length Meter Available)	7	17.5
Height tapes/length/height boards available	22	55
MUAC tapes (colour-coded) for specific age groups		
6 to 59 months	37	92.5
5 < 10 years	2	5
10 < 15 years	1	2.5
15 < 18 years	0	0
Adults 18 years and above	0	0
Pregnant and lactating women with infants less than 6 months	0	0
Blood pressure machines	33	82.5
Glucometers with matching glucostix available	16	40
Equipment for Estimating Hb	8	20

Appendix IV

Store management (N=40)

Variable	N=40	%
Had store	30	75
The storage room/area is clean and dry	25	83.3
Ventilation is adequate	25	83.3
The lighting is adequate	25	83.3
The storage area is free from vermin	27	90
Are order forms used to request commodities and supplies?[3]	20	50
Stock cards are used to account for commodities and supplies	15	37.5
Stock cards for commodities and supplies are updated at the time of the visit	11	27.5
Nutrition commodities and supplies are managed within the general health facility store	10	33.3
Commodities and supplies are stored according to FEFO/FIFO (first expiry first out/first in first out) procedures	23	76.7
Commodities and supplies are protected from sunlight throughout the day	26	65
Commodities and supplies are stored on pallets or shelves and away from walls to protect them from dampness	22	55
Are any packets/tins/cartons of commodities and supplies expired?	6	15
Are any packets/tin/cartons of commodities and supplies damaged (e.g., leaking, dented, broken seal)?	4	40
Damaged or expired commodities and supplies are stored separately from usable stock.	15	37.5
Is the dispensing of nutrition commodities through the dispensing area that is used to dispense other medicines?	14	35

Appendix V

Logistics management of nutrition commodities (N=40)

Variable	N=40	%
Determine the quantities of supplements required in the health facility by either calculating maximum stock quantity minus stock on hand or compare number of clients with stock on hand?	23	57.5
Place orders for supplements by filling out and submitting order forms	25	62.5
Place orders for supplements every two months	2	5