

Awareness of Mobile Health (mHealth) Interventions Among Health Information Management Professionals in Primary Health Care Facilities in Ilorin South, Kwara State, Nigeria

Ibraheem Oluwatoyin Salihu

Department of Health Information Management, Faculty of Allied Health Sciences, Kwara State University, Malete, Kwara State, Nigeria.

Authors Email: toyeenibraheem@gmail.com; ORCID ID: <https://orcid.org/0009-0003-8991-3585>

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ABSTRACT

Mobile health (mHealth) interventions offer considerable promise for strengthening antenatal care delivery within Primary Health Care (PHC) systems, yet their successful integration depends fundamentally on the awareness of the health workforce responsible for managing health information and mediating digital system use. This study assessed the level of awareness of mHealth interventions among Health Information Management (HIM) professionals working in PHC facilities in Ilorin South Local Government Area, Kwara State, Nigeria. A descriptive cross-sectional survey design was adopted. The accessible population comprised eighteen HIM professionals across six purposively selected PHC facilities, of whom seventeen were successfully surveyed (response rate = 94.4%), using a structured, expert-validated questionnaire (Cronbach's alpha = 0.84). Data were analysed using descriptive statistics (mean and standard deviation) and a one-sample t-test against a criterion mean of 3.00, at the 0.05 level of significance. Findings revealed a high overall level of awareness of mHealth interventions among HIM professionals, with a grand mean of 4.20 (SD = 0.75). Awareness was highest for SMS reminder systems (mean = 4.41) and mobile appointment reminders (mean = 4.29), and comparatively lower, though still high, for pregnancy-related mobile applications (mean = 3.94). A one-sample t-test confirmed that this level of awareness was statistically significant, $t(16) = 6.60$, $p < .001$, leading to rejection of the null hypothesis that there is no significant level of awareness of mHealth interventions among HIM professionals in the study area. The study concludes that awareness does not constitute a major barrier to mHealth adoption among HIM professionals in Ilorin South PHC facilities, and that implementation efforts should instead prioritise the institutional, infrastructural, and training conditions required to translate this existing awareness into sustained, effective practice. Findings are limited to the six facilities studied and should be interpreted with appropriate caution given the study's small sample size and single-Local-Government-Area scope.

Keywords: mHealth, awareness, health information management, primary health care, antenatal care, Nigeria



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INTRODUCTION

The rapid diffusion of mobile technologies across low- and middle-income countries has created new possibilities for strengthening health systems that have historically been constrained by weak infrastructure, workforce shortages, and fragmented information flow. Mobile health, commonly abbreviated as mHealth, refers to the use of mobile and wireless technologies to support the achievement of health objectives, encompassing SMS reminder systems, voice messaging, mobile applications, and mobile-enabled data platforms (World Health Organization, 2016, 2018). Within maternal healthcare specifically, mHealth interventions have been associated with improved antenatal attendance, stronger adherence to clinical advice, and better continuity of care, particularly where such interventions are appropriately aligned with local health system capacity (Knop et al., 2024). Health Information Management (HIM) professionals occupy a strategically important, though frequently under-examined, position within this digital transformation. As custodians of health data and facilitators of information flow within Primary Health Care (PHC) facilities, HIM professionals are directly responsible for the data capture, system navigation, and information governance functions upon which any mHealth intervention ultimately depends (Adeloye, Adigun, Misra, & Omoyele, 2021; World Health Organization, 2020). Azam, Bin Naeem, Kamel Boulos, and Faiola (2023) argue that healthcare workers who lack sufficient awareness of available digital health tools are unlikely to perceive their utility or integrate them into routine practice, regardless of whatever technological infrastructure may already exist within their facility. Awareness, in this sense, functions as a necessary, if not sufficient, precondition for the eventual adoption of any health technology innovation.

In Nigeria, and within Ilorin South Local Government Area of Kwara State specifically, informal use of mobile phones for health-related communication between PHC providers and clients has been observed to be increasing. However, the extent to which HIM professionals working within these facilities are formally aware of the range of mHealth interventions available, as distinct from casual personal use of mobile phones, had not previously been systematically documented. This paper addresses that specific gap by reporting on the awareness dimension of a broader study examining mHealth readiness among HIM professionals in Ilorin South PHC facilities. The paper's focus on awareness specifically, rather than the broader combined "awareness and readiness" construct used in some prior studies, is intended to give facility managers more precise guidance: the interventions required to build awareness (communication, orientation, exposure) are typically simpler and less resource-intensive than those required to build readiness (structured training, infrastructure investment, workflow redesign), and

distinguishing which gap is more binding in a given setting helps target scarce implementation resources appropriately. A companion paper from this same study addresses the readiness construct separately.

Statement of the Problem

Despite the growing global evidence base supporting mHealth interventions in maternal healthcare, many implementation efforts proceed without prior, systematic assessment of the awareness levels of the health workforce expected to support them. Ameyaw, Amoah, Asiamah, and Agbadi (2025) found that variations in mHealth engagement among maternal health providers in Ghana were closely linked to differences in exposure, formal training, and institutional communication regarding available digital health tools, suggesting that awareness gaps, where they exist, can directly undermine implementation regardless of technological availability. A recent Nigeria-wide scoping review further shows that research on digital health technologies, including mHealth specifically, has expanded sharply since 2018, yet practical, facility-level application continues to lag behind this growing evidence base (Oke & Sibomana, 2025), underscoring the need for more granular, professional-group-specific assessments such as the one undertaken here. In Ilorin South PHC facilities specifically, no prior empirical assessment had established the actual level of awareness of mHealth interventions among HIM professionals, leaving planners without the evidence base needed to determine whether awareness-building activities, as distinct from infrastructural or training investment, should form part of any future mHealth implementation strategy. This paper addresses this gap directly.

Objective of the Study

The objective of this paper is to assess the level of awareness of mHealth interventions among Health Information Management professionals working in Primary Health Care facilities in Ilorin South Local Government Area, Kwara State.

Research Question

What is the level of awareness of mHealth interventions among Health Information Management professionals in Ilorin South PHC facilities?

Research Hypothesis

H₀₁: There is no significant level of awareness of mHealth

interventions among Health Information Management professionals in Primary Health Care facilities in Ilorin South Local Government Area.

Literature Review

The Concept of Awareness in Digital Health Adoption

Awareness refers to the degree to which individuals and organizations are cognizant of the existence, purpose, and potential benefits of a given health technology (Azam et al., 2023). In the context of maternal and antenatal care, awareness encompasses understanding of available mHealth interventions, their functional applications, and their relevance to routine clinical and administrative practice (Ameyaw et al., 2025). Awareness is widely regarded as a foundational precursor to readiness and eventual sustained adoption of any digital health innovation: a health worker who has never encountered, or has only vaguely heard of, a given mHealth tool cannot meaningfully be expected to integrate it into practice, however favorable the underlying infrastructure or organizational support may otherwise be. Ameyaw et al. (2025), in a qualitative exploratory study of healthcare practitioners in Ghana, found that while moderate general awareness of mHealth tools existed among participants, more specific and technical awareness of particular applications varied considerably, closely tied to whether a practitioner had received targeted institutional communication or exposure. Azam et al. (2023), applying the Unified Theory of Acceptance and Use of Technology (UTAUT) to predictors of mHealth adoption among healthcare professionals across six public and private hospitals in Punjab, Pakistan, found that awareness-adjacent constructs, particularly perceived usefulness, were strong predictors of subsequent adoption intention, reinforcing the proposition that awareness operates as a necessary early stage in the broader adoption pathway.

Health Information Management Professionals and Digital Health Awareness

HIM professionals occupy a distinctive position with respect to digital health awareness, since their professional responsibilities already require some degree of engagement with information systems, data governance, and administrative technology, even where mHealth specifically has not yet been introduced (World Health Organization, 2020). Ogundaini, de la Harpe, and McLean (2021), in a qualitative case study of mobile health information and communication technology integration across clinical settings in South Africa and Nigeria, found that awareness of mHealth initiatives was frequently higher at managerial and policy levels than among frontline staff, a pattern that, if replicated among HIM professionals specifically, would suggest that professional seniority and institutional proximity to policy discussions may shape awareness levels independent of formal

training. Adeloye et al. (2021) further note that HIM professionals in sub-Saharan Africa frequently face gaps in digital competencies and limited access to targeted training opportunities, even where their institutions have adopted electronic health record systems or other digital tools. Awareness among this professional group cannot therefore be assumed simply on the basis of their general technical role; awareness of mHealth specifically, as distinct from general digital or health information competency, requires separate empirical investigation.

Empirical Evidence on Awareness Levels Among Health Workers

Knop et al. (2024), in a systematic review of mHealth interventions across the maternal, newborn, and child health continuum in low- and middle-income countries, observed considerable variation in intervention effectiveness across implementation contexts, partly attributable to differences in health system capacity and, implicitly, differences in the awareness and engagement of the health workers supporting these interventions locally. The review categorized mHealth interventions into twelve distinct functional types and found client education and behavior-change communication to be the most frequently represented function, but did not directly measure awareness as a standalone construct, instead treating it as an unmeasured contextual factor.

Yadav, Mehl, and Labrique (2022), applying a diffusion of innovations perspective to mHealth technology adoption in low-resource settings, argue that awareness (corresponding to Rogers' knowledge stage of the innovation-decision process) is frequently assumed rather than empirically verified in mHealth implementation planning, with program designers proceeding directly to training or infrastructure investment without first establishing a baseline awareness measurement. Marcolino et al. (2018), in a systematic review of systematic reviews examining mHealth impact across multiple health domains, similarly found that reported intervention outcomes were rarely accompanied by baseline measurement of health worker awareness, complicating efforts to determine whether observed variation in effectiveness reflected the intervention itself or the underlying awareness of the health workers delivering it. This paper's direct measurement of awareness as its own research question is intended to provide the kind of baseline evidence both sets of authors identify as generally missing from the mHealth implementation literature.

Barriers to Awareness Formation Among Health Workers

Where studies have examined why awareness gaps occur among health workers, several recurring explanations emerge. Ogundaini et al. (2021) attribute uneven awareness distribution within health facilities partly to

weak internal communication channels, whereby decisions and information about new digital health initiatives circulate among facility managers and policy-level staff without being systematically communicated to frontline personnel, including those in health information management roles who may not always be included in clinical or managerial planning discussions. Steinmueller (2001), writing about the potential for information and communication technologies to allow developing countries to "leapfrog" earlier stages of technological development, cautions that such benefits are unevenly distributed even within a single country or institution, since awareness of new technological possibilities tends to concentrate initially among more urban, better-resourced, or more externally connected institutions and individuals before diffusing more broadly.

Chen, Chai, Dong, Niu, and Zhang (2018), in a systematic review of mHealth interventions for maternal and child health, note that many mHealth pilot projects in low-resource settings are implemented through externally funded, time-limited initiatives that provide intensive awareness-building to a small group of directly involved health workers, without a corresponding effort to build awareness more broadly across the wider facility workforce. Where such projects conclude without institutionalizing broader awareness-building processes, staff not originally involved in the pilot may remain comparatively unaware of the intervention even after it has, in principle, become part of routine facility practice, offering one plausible explanation for why awareness levels can vary between individual staff members within a single institution.

Comparative International Evidence on Health Worker Awareness

Sondaal, Browne, Amoakoh-Coleman, Borgstein, Miltenburg, and Verwijs (2016), in a systematic review assessing mHealth effects on maternal and neonatal care in low- and middle-income countries, found that health worker engagement with mHealth tools varied considerably across the studies reviewed, and that this variation was frequently associated with how deliberately awareness-building activities had been incorporated into each intervention's design, rather than any inherent difference in health workers' capacity or willingness to engage with new technology. Amoakoh-Coleman, Borgstein, Sondaal, Grobbee, Miltenburg, and Verwijs (2016), in a related systematic review specifically examining mHealth interventions targeting health workers to improve pregnancy outcomes in low- and middle-income countries, found that interventions incorporating structured, repeated exposure to a given mHealth tool over time, rather than a single introductory training session, were associated with more durable and comprehensive awareness among the health workers involved. This finding suggests that the high awareness levels documented among HIM professionals in the present

study, while encouraging, should not be assumed to persist indefinitely without ongoing institutional reinforcement, particularly as staff turnover introduces new personnel who have not benefited from whatever informal or formal exposure has built awareness among the currently surveyed cohort. Taken together, this comparative literature suggests that the awareness levels documented here are plausible and consistent with patterns observed elsewhere in low-resource settings, and that sustaining this awareness over time will likely require ongoing, structured reinforcement rather than a single one-off awareness-building intervention.

Theoretical Framework: Diffusion of Innovations Theory

This paper is anchored on Rogers' (2003) Diffusion of Innovations (DOI) Theory, which explains how new ideas, technologies, or practices spread within a social system over time. The theory identifies five sequential stages in the innovation-decision process: knowledge, persuasion, decision, implementation, and confirmation. The knowledge stage, corresponding directly to the awareness construct examined in this paper, occurs when an individual is first exposed to an innovation's existence and gains some initial understanding of how it functions. DOI theory specifies that certain characteristics of an innovation, its relative advantage, compatibility with existing practice, complexity, trialability, and observability, influence how readily awareness translates into further stages of adoption. Rogers (2003) argues that innovations perceived as offering clear relative advantage and low complexity typically diffuse knowledge more rapidly than those perceived as complex or incompatible with existing routines, a proposition directly relevant to interpreting this paper's finding that awareness varied somewhat across different types of mHealth intervention (Section 4). Rogers further distinguishes mass media channels, generally more effective at creating initial awareness among a wide audience, from interpersonal channels, generally more effective at persuading individuals to adopt an innovation once already aware of it; the consistently high awareness levels documented across all six items in Table 1 suggest that whatever combination of these channels has operated within Ilorin South PHC facilities has been reasonably effective at the awareness-building stage specifically, though whether the same channels will prove equally effective at the subsequent persuasion and decision stages is a separate question this paper's narrow focus on awareness alone cannot answer.

METHODOLOGY

Research Design

This paper reports on the Health Information Management professional awareness component of a broader descriptive cross-sectional survey examining mHealth

awareness and readiness in Ilorin South PHC facilities. The descriptive cross-sectional design is appropriate for this research question because it allows for the systematic measurement of existing awareness levels at a single point in time, without requiring manipulation of any variable.

Study Area and Population

The study was conducted in Ilorin South Local Government Area of Kwara State, Nigeria, across six purposively selected PHC facilities: Primary Health Care Centre, Tanke; Primary Health Care Centre, Magaji Okaka; Primary Health Care Centre, Isale-Asa; Primary Health Care Centre, Balogun Fulani; Olufadi Primary Health Care Centre, Oke-Ogun; and Basic Health Care Centre, Kulende. The accessible population relevant to this paper comprised all eighteen Health Information Management professionals working across these six facilities.

Sample Size and Sampling Technique

Given the small accessible population of HIM professionals across the six selected facilities, a total enumeration approach was adopted for this respondent group, rather than drawing a smaller probability sample. Of the eighteen HIM professionals identified across the six facilities, seventeen were successfully surveyed, representing a response rate of 94.4% (one professional was unavailable during the data collection period). This near-complete coverage is consistent with the total enumeration approach's aim of eliminating sampling error for a population of this size.

Research Instrument

Data for this paper were drawn from Section B of a structured questionnaire titled the mHealth Awareness and Readiness Questionnaire, developed by the researcher based on the study's objectives and the reviewed literature. Section B measured awareness of mHealth interventions using six items rated on a five-point Likert scale (Strongly Agree, Agree, Undecided, Disagree, Strongly Disagree), covering general awareness of the mHealth concept, knowledge of mobile-delivered health information and services, awareness of SMS reminder systems, awareness of pregnancy-related mobile applications, familiarity with digital health programs, and awareness of mobile appointment reminder systems. These six items were constructed to capture awareness across a graduated range of technical specificity, from the broad and conceptual (item one) to the highly specific (item four, pregnancy-related mobile applications), allowing the instrument to distinguish HIM professionals with only general, surface-level mHealth awareness from those with more detailed, applied awareness of tools specifically relevant to antenatal care delivery.

Validity and Reliability of the Instrument

Face and content validity of the instrument were established through expert review by specialists in public health, digital health, and health information management, whose recommendations informed revisions to improve construct coverage and eliminate item ambiguity. A pre-test was conducted in a PHC facility outside the study area. Reliability was assessed through a pilot study using Cronbach's alpha, yielding a coefficient of 0.84, exceeding the generally accepted threshold of 0.70 and indicating adequate internal consistency for the main study.

Method of Data Analysis

Data relevant to this paper's research question were analyzed using descriptive statistics, specifically item-level and grand means and standard deviations, interpreted against a criterion mean of 3.00, with mean scores at or above this threshold interpreted as indicating a high level of awareness. The corresponding null hypothesis was tested using a one-sample t-test at the 0.05 level of significance, comparing the obtained grand mean against the test value of 3.00, computed directly from the item-level response data.

Ethical Considerations

Ethical clearance for the broader study was obtained through the researcher's academic institution prior to data collection, and permission to administer the questionnaire was secured from the officer-in-charge of each of the six participating PHC facilities. Participation was voluntary and based on informed consent; respondents were briefed on the purpose of the study, the voluntary nature of participation, and their right to withdraw at any point without consequence, before completing the questionnaire. No personally identifying information was collected; responses were coded and analyzed in aggregate to preserve respondent anonymity.

Limitations of the Study

This study is subject to several limitations. First, the sample size ($n = 17$) is small in absolute terms, a direct consequence of the small accessible population of HIM professionals in the six facilities studied rather than a sampling design weakness, but this still constrains the statistical power available to detect smaller effects and warrants caution in generalizing findings beyond the specific facilities studied. Second, the study's single-Local-Government-Area scope means findings should not be assumed to represent HIM professional awareness across Kwara State or Nigeria more broadly. Third, awareness was measured through self-report, which is subject to social desirability bias; respondents may over-report awareness of concepts they recognize by name without necessarily possessing detailed functional understanding.

Table 1: Mean Rating on Awareness of mHealth Among HIM Professionals (N = 17)

Item	Mean	SD	Decision
Awareness of mHealth concept	4.24	0.81	High
Knowledge of mobile health service delivery	4.18	0.73	High
Awareness of SMS reminders	4.41	0.62	High
Awareness of pregnancy apps	3.94	0.88	High
Familiarity with digital health programs	4.12	0.77	High
Use of mobile appointment reminders	4.29	0.68	High
Grand Mean	4.20	0.75	High

Finally, the cross-sectional design captures awareness at a single point in time and cannot speak to how awareness levels may change as staff turnover or as new mHealth tools are introduced.

RESULT

Level of Awareness of mHealth Interventions Among HIM Professionals

Table 1 shows that HIM professionals recorded a high overall level of awareness of mHealth interventions, with a grand mean of 4.20 (SD = 0.75), well above the criterion mean of 3.00. Awareness was highest for SMS reminders (mean = 4.41), followed by mobile appointment reminders (mean = 4.29) and the general mHealth concept (mean = 4.24). Awareness of pregnancy-specific mobile applications recorded the comparatively lowest, though still high, mean score (3.94), suggesting that while HIM professionals are broadly familiar with mHealth as a concept and with simple messaging-based interventions, familiarity with more specialized mobile applications is somewhat less developed. This pattern of stronger awareness for simpler, communication-based mHealth functions relative to more technically involved applications closely parallels the finding of a large, very recent Nigerian cross-sectional study of healthcare professionals in rural Oyo State, in which professionals demonstrated substantially higher engagement with familiar tools such as teleconsultation and messaging platforms than with more complex electronic systems (Okeke et al., 2025). The comparatively low standard deviations recorded across all six items, ranging from 0.62 (SMS reminders) to 0.88 (pregnancy applications), indicate that awareness levels were fairly consistent across the seventeen HIM professionals surveyed, rather than reflecting a bimodal pattern in which a subset of highly aware staff coexisted with a subset of largely unaware staff. This consistency strengthens confidence that the high awareness levels reported in Table 1 characterize the HIM professional workforce in the six facilities studied as a whole, rather than being driven disproportionately by a small number of unusually well-informed individual respondents. A comparably tight, professionally concentrated pattern of digital health engagement was reported among healthcare

professionals, as distinct from a more variable pattern among lay community members, in a recent Nigerian scoping review synthesizing 31 studies on digital health technology integration (Egwudo et al., 2025), lending further plausibility to the pattern observed here.

Item-Level Analysis in Relation to the Diffusion of Innovations Framework

Reading Table 1 against the Diffusion of Innovations framework established in Section 2.6 provides a more granular interpretation of the awareness pattern than the grand mean alone conveys. SMS reminders, which recorded the highest item-level mean (4.41), score favorably on nearly all five of Rogers' innovation attributes as experienced by HIM professionals in a Nigerian PHC setting: they offer clear relative advantage over manual appointment tracking, are highly compatible with the near-universal ownership of basic mobile phones already common among Nigerian health workers, involve minimal technical complexity, can be trialled on a small scale, and produce highly observable outcomes, since a missed or kept appointment is an easily noticed, concrete result. Pregnancy-specific mobile applications, by contrast, scored lowest among the six items (3.94), and are plausibly less favorably positioned on at least three of Rogers' five attributes: they typically require a smartphone rather than a basic handset, may be perceived as more complex to learn and operate, and their specific outcomes may be less immediately observable to a HIM professional whose primary daily responsibilities center on records rather than direct patient interaction. This item-level pattern, while modest in absolute terms since even the lowest-scoring item remained well above the criterion mean, offers a theoretically coherent explanation for which mHealth interventions are likely to encounter the least friction should Ilorin South PHC facilities move toward fuller implementation, and which may benefit from additional, targeted orientation.

Test of Hypothesis

As shown in Table 2, the one-sample t-test yielded $t(16) = 6.60$, $p < .001$, computed directly from the item-level response data (mean = 4.20, SD = 0.75, $n = 17$, test value

Table 2: One-Sample t-test Analysis of Awareness of mHealth Interventions Among HIM Professionals

Variable	N	Mean	SD	Test Value	df	t-value	p-value	Decision
Awareness	17	4.20	0.75	3.00	16	6.60	<.001	H ₀₁ Rejected

= 3.00). Since $p < .05$, the null hypothesis (H_{01}), that there is no significant level of awareness of mHealth interventions among HIM professionals in Ilorin South PHC facilities, was rejected. This confirms that HIM professionals in the study area possess a statistically significant, high level of awareness of mHealth interventions (Table 2).

DISCUSSION

The present study found a high level of awareness of mHealth interventions among HIM professionals in Ilorin South PHC facilities, with an overall mean score of 4.20 (SD = 0.75), significantly above the criterion value of 3.00, $t(16) = 6.60$, $p < .001$. This finding indicates that awareness among the participating HIM professionals was not merely moderate or incidental but sufficiently high to suggest a meaningful understanding of mobile-enabled approaches to health service delivery. The finding should nonetheless be interpreted as evidence of awareness specifically, rather than evidence that these professionals possess the technical competence, institutional support, or behavioral intention required for sustained mHealth adoption. The finding is broadly consistent with Ameyaw et al.'s (2025) qualitative study among maternal healthcare practitioners in Ghana, which reported that healthcare providers were familiar with and frequently used mHealth technologies, particularly text messaging, and regarded these as useful for improving service efficiency and access to information. The convergence between the two studies is noteworthy despite differences in professional composition and design: Ameyaw et al. examined maternity healthcare practitioners using qualitative interviews, whereas the present study quantitatively assessed awareness specifically among HIM professionals. The present findings extend this evidence by demonstrating that high mHealth awareness is also present among health information personnel, a professional group whose position at the center of data capture and information governance makes their awareness particularly consequential for any facility-level mHealth rollout.

This professional-group specificity is further reinforced by comparison with a very recent, large-sample Nigerian study by Okeke et al. (2025), who surveyed 158 healthcare professionals and 235 residents across eight rural PHC facilities in Oyo State. That study found healthcare professionals reported substantially higher digital health engagement (91.8% daily tool use) than community residents, and that professional role, rather than years of experience, was the strongest predictor of digital health

knowledge among staff. Read alongside the present study, this suggests a consistent regional pattern in which HIM and other health information-adjacent professionals, by virtue of their occupational proximity to information systems, arrive at comparatively high baseline awareness even without disease- or intervention-specific training, a pattern also documented at the professional-workforce scale in Egwudo et al.'s (2025) 31-study scoping synthesis of digital health technology integration across Nigeria, which identified continuous training and prior professional exposure, more than formal digital health education, as recurring facilitators of workforce-level engagement.

The item-level results refine this overall pattern. Awareness was highest for SMS reminders and mobile appointment reminders, and lowest, though still high, for pregnancy-specific applications. This distribution is consistent with the evidence synthesized by Knop et al. (2024), whose systematic review of mHealth interventions in low- and middle-income countries identified text-message reminders and scheduling tools among the most practically established mHealth strategies, including interventions shown to improve antenatal attendance and immunization timeliness. It is also consistent with Akiogbe, Feng, Kurata, Kageyama, and Kodama's (2024) cross-sectional study of the social acceptance of mHealth technologies among young Nigerians, which found that trust and perceived effectiveness, both plausibly higher for simple, already-familiar SMS-based tools than for less familiar dedicated applications, were the strongest predictors of favorable orientation toward mHealth generally. The similarity between the present study and these two more recent Nigerian sources is not simply that all three report favorable mHealth-related attitudes in the abstract; rather, the specific functions most familiar to respondents in Ilorin South correspond to the functions that have already received the most extensive practical application and public exposure in comparable Nigerian and regional settings, suggesting that awareness formation in this setting has tracked real-world deployment and familiarity patterns rather than occurring independently of them.

The present finding also both agrees with and usefully qualifies Azam et al.'s (2023) study among healthcare professionals in low-resource Pakistani hospitals. Azam et al. found that performance expectancy and related constructs, rather than awareness alone, significantly predicted behavioral intention to adopt mHealth, indicating that knowledge of a technology's existence is not sufficient, by itself, to explain whether health workers will ultimately intend to use it. Read against this finding, and against Oke and Sibomana (2025) national-level

observation that Nigerian digital health research output has grown sharply since 2018 even as practical facility-level application "remains limited," the high awareness documented in the present study should be understood as a favorable precondition rather than as evidence of adoption already achieved: respondents may recognize mHealth concepts and applications without necessarily having access to the infrastructure, training, or organizational support required to incorporate them into routine PHC activities. This distinction matters directly for interpreting the significant t-test result reported in Table 2: the statistical evidence establishes that awareness is high relative to the criterion value, not that mHealth is already integrated into routine HIM practice.

Ogundaini et al.'s (2021) qualitative study of mHealth integration into hospital clinical settings in South Africa and Nigeria adds a further, complementary interpretation. Their finding that successful mHealth integration depends heavily on the specific nature of the work activity and surrounding contextual factors, rather than on awareness or general technological capability alone, suggests that the high awareness recorded among HIM professionals in this study represents a useful foundation rather than a guarantee of smooth implementation. Where the present study's contribution differs from Azam et al. (2023), Ogundaini et al. (2021), and the more recent Nigerian evidence reviewed above is in its exclusive focus on a single, precisely defined professional group (HIM professionals) rather than clinicians, residents, or a mixed sample, allowing the awareness finding to be attributed specifically to the professional group most directly responsible for the information-management functions that underpin mHealth systems.

Taken together, these comparisons suggest that the policy-relevant contribution of this study lies less in confirming that mHealth awareness can be high in a Nigerian PHC setting, a finding broadly consistent with the wider regional literature reviewed above, and more in demonstrating that this awareness is concentrated specifically within the HIM professional workforce whose day-to-day responsibilities would be most directly affected by any future mHealth rollout. Given the relatively small sample size ($N = 17$) and the cross-sectional, single-Local-Government-Area design, these findings should be treated as facility-specific evidence rather than as representative of HIM professional awareness across Kwara State or Nigeria more broadly. The consistent pattern across comparator studies, nonetheless, is that awareness, once established, does not on its own resolve the institutional, infrastructural, and training barriers that determine whether mHealth interventions are sustained in practice; the present study's principal practical implication is therefore that further investment in general awareness-raising for this specific workforce is likely to yield diminishing returns relative to investment in the conditions needed to convert existing awareness into routine, supported use.

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Conclusion

This paper assessed the level of awareness of mHealth interventions among Health Information Management professionals in Primary Health Care facilities in Ilorin South Local Government Area, Kwara State. Findings revealed a high, statistically significant level of awareness (grand mean = 4.20, $t(16) = 6.60$, $p < .001$), with particularly strong awareness of SMS-based reminder systems and comparatively more moderate, though still high, awareness of pregnancy-specific mobile applications. The null hypothesis that no significant level of awareness exists was rejected, confirming that awareness is a well-established characteristic of the HIM professional workforce in the six facilities studied.

The study concludes that awareness does not constitute a significant barrier to mHealth adoption among HIM professionals in the facilities studied, in contrast to the infrastructural and institutional barriers more commonly emphasized in the broader mHealth implementation literature, including the most recent Nigerian evidence (Egwudo et al., 2025; Oke & Sibomana, 2025; Okeke et al., 2025). This conclusion should inform a shift in local implementation planning priorities, away from further general awareness campaigns and toward the readiness-building, infrastructural, and training interventions more likely to translate existing awareness into sustained mHealth practice. As a study of seventeen HIM professionals across six facilities within a single Local Government Area, these conclusions are offered as facility-specific evidence rather than as a claim generalizable to Kwara State or Nigeria as a whole.

Recommendations

1. PHC facility management in Ilorin South should prioritize moving beyond general mHealth awareness-raising, given the already high awareness levels documented in this study, toward targeted, applied training on specific mobile applications, since awareness of these more specialized tools was comparatively less developed than awareness of simpler SMS-based interventions.
2. Future mHealth implementation planning in Ilorin South, and comparable Nigerian PHC contexts, should include a baseline awareness assessment, following the approach demonstrated in this paper, before proceeding directly to infrastructure or training investment, consistent with Yadav et al.'s (2022) observation that awareness is frequently assumed rather than empirically verified in mHealth program design.

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