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GUIDE TO AUTHORS

Clients' satisfaction regarding pharmacists' clerking, physical examination, counseling and resulting informed decisions alongside recommendations/prescribing in community pharmacy

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ABSTRACT

This study assessed client perceptions and satisfaction with pharmacists' roles in clinical services, particularly clerking, physical examination, counseling and the impact on informed healthcare decision-making. A total of 735 clients participated, with the majority aged 31–50 years (50%) and a slightly higher proportion of females (56%) than males (44%). Most respondents had tertiary education (60%). Over half of the clients (55%) reported consulting pharmacists at least monthly, while 30% did so only when prescribed medications, and 15% had never consulted a pharmacist prior to the study. Satisfaction levels were generally positive. Approximately 68% of clients were satisfied with pharmacists' history-taking, and 60% expressed satisfaction with physical examination skills. Notably, 72% of respondents felt that pharmacists' assessments improved their ability to make informed health decisions. Specific areas of satisfaction included identification of drug-related problems (82%), provision of clear medication guidance (75%), and effective recommendation of over-the-counter (OTC) therapies (66%). Despite this, some clients expressed reservations regarding physical examinations: 40% were uncertain about the appropriateness of pharmacists performing such assessments, and 25% were uncomfortable with procedures like blood pressure checks and palpation. Importantly, clients who received clerking and examination services from pharmacists were significantly more confident in their medication use ($p < 0.05$). Additionally, regular pharmacist consultations were associated with a 30% higher adherence rate to prescribed therapies compared to those who rarely engaged pharmacists. These findings highlight the evolving role of pharmacists in patient-centered care and underscore the value of their clinical contributions in community pharmacy settings.

Keywords: Patient Satisfaction, Pharmacists, Medical History Taking, Physical Examination, Clinical Decision-Making, Pharmaceutical Services

Introduction

The scope of pharmacy practice has evolved significantly over the past few decades, transitioning from a traditionally dispensing-focused role to one that emphasizes patient-centered care. In many healthcare systems worldwide, community pharmacists are increasingly recognized as accessible healthcare professionals capable of delivering clinical services that go beyond the mere provision of medicines. These expanded roles include patient assessment, medication therapy management, health screenings, chronic disease monitoring, and more recently, clerking (history-taking) and basic physical examinations [1–3]. As the global burden of chronic diseases rises and health systems face growing workforce constraints, the integration of clinical functions into pharmacy practice is being viewed as both a necessity and an opportunity to optimize health outcomes through collaborative care models [4,5].

Community pharmacies are uniquely positioned within healthcare systems due to their widespread distribution, extended operating hours, and the absence of appointments for consultation [6]. This makes them one of the most accessible points of contact for healthcare, especially in resource-constrained environments where physician access is limited. Research shows that many patients first seek advice from a pharmacist before visiting a medical doctor [7,8]. This underscores the potential of community pharmacists in bridging primary care gaps, particularly in under-served and rural populations. In this context, enhanced clinical services such as history-taking and limited physical examinations can empower pharmacists to provide more informed, individualized, and holistic patient care.

Clerking, or comprehensive history-taking, forms the cornerstone of clinical assessment. It allows healthcare professionals to identify underlying problems, evaluate medication-related needs, and tailor interventions accordingly [9]. Pharmacists trained in clerking can detect drug-related issues such as adverse effects, interactions, non-adherence, or subtherapeutic dosing that might otherwise go unnoticed in a purely dispensing role [10]. Additionally, clerking enables pharmacists to gain valuable insights into patients' health beliefs, behaviors, and expectations, which can significantly influence therapeutic outcomes [11]. A growing body of evidence supports the effectiveness of pharmacist-led medication reviews that incorporate elements of clerking in improving disease control, reducing hospitalizations, and enhancing patient satisfaction [12–14].

Similarly, the integration of basic physical examinations into pharmacy practice is gaining traction. Physical assessments such as blood pressure measurement, blood glucose monitoring, and even limited palpation techniques have become increasingly common in community pharmacies, particularly in chronic disease management and health screening programs [15,16]. While pharmacists are not positioned to replace physicians, their ability to conduct focused physical assessments can enhance their clinical decision-making capacity and contribute to early detection of disease and referral to other healthcare providers [17]. Nevertheless, these expanded functions require proper training, legal frameworks, and public trust to ensure both effectiveness and acceptance.

The acceptance and satisfaction of patients toward these expanded pharmacist roles are crucial indicators of success and sustainability. Patient satisfaction not only reflects the perceived quality of care but also influences health-seeking behavior and adherence to therapeutic recommendations [18]. Several studies have reported high levels of patient satisfaction with pharmacist-led services, especially when pharmacists spend adequate time, communicate effectively, and demonstrate clinical competence [19,20]. In particular, satisfaction with services such as clerking and physical examinations may influence patients' confidence in using medications correctly, understanding treatment goals, and adhering to prescribed regimens.

Medication adherence remains a persistent challenge in healthcare, with non-adherence associated with increased morbidity, mortality, and healthcare costs [21]. Pharmacists, through regular consultations and personalized interventions, have been shown to improve adherence across various therapeutic areas including hypertension, diabetes, asthma, and mental health [22–24]. The mechanisms through which pharmacists influence adherence include medication counseling, reminder systems, motivational interviewing, and resolving barriers such as side effects or affordability [25]. Integrating clerking and physical examination into these interactions could further enhance the effectiveness of adherence interventions by allowing pharmacists to contextualize their advice based on a deeper understanding of the patient's condition.

Despite these promising developments, there remains variability in the implementation of clinical services by community pharmacists across different settings and jurisdictions. In some countries, pharmacists are legally empowered and professionally supported to perform expanded roles, while in others, their contributions remain largely limited to product-oriented services (26,27). In sub-Saharan Africa, including Nigeria, the potential for pharmacists to assume clinical responsibilities is increasingly recognized, but often constrained by inadequate training, regulatory gaps, and limited public awareness (28). Nonetheless, pilot studies and interventions have

they can significantly contribute to improved healthcare delivery and outcomes (29,30).

The present study investigates client experiences and satisfaction with pharmacist-led clinical services—specifically clerking and physical examination—in community pharmacy settings. It also explores how these services influence medication adherence and informed decision-making among clients. By focusing on the Nigerian context, the study contributes to the growing body of evidence supporting pharmacist-led clinical care in low- and middle-income countries (LMICs).

Methods

Study design

A cross-sectional study was conducted between January 2023 and January 2024 in selected community and hospital pharmacies. The study used structured questionnaires to assess client satisfaction levels.

Study population and sampling

The study included adult clients (≥18 years) who received pharmacist-led clerking and physical examination services. A stratified random sampling technique was employed, ensuring representation across different healthcare settings.

Sample size

Formula for estimating proportion (Cochrane formula)

$$n = Z^2 p(1-p)/d^2 \quad \text{.....Equation 1}$$

$$n = 1.96^2 \, x \, 0.5(1-0.5)/0.05^2$$

$$n = 668$$

with an extra 10% n required make sample size to be approximately 735

where n= number of required samples

Z is Z-score corresponding to CI (1.96 for 95% CI)

P is estimated proportion (either obtained from previous studies or using 0.5 if unknown)

D is margin of error (usually 0.05 for 5% margin of error)

Total number of questionnaires prepared will be (n+0.1n); where 10%n is taken as the non-response rate

Data collection

A validated questionnaire was used to collect data on demographics (age, gender, education level), frequency of pharmacist consultations, satisfaction with pharmacists' clerking and physical examination, perceived impact on healthcare decisions, willingness to consult pharmacists in the future

Data analysis

Descriptive and inferential statistics were used to analyze responses. The Chi-square test was applied to examine associations between demographic factors and satisfaction levels.

Results

Demographics of respondents

demographic distribution is presented in Table 1.

Table 1. Demographics of respondents in the study

Variables	Frequency	Percentage (%)
Gender		
Male	323	44
Female	412	56
Age		
18-30	221	30
31-50	367	50
51 and above	147	20
Education		
Primary	147	20
Secondary	441	60
Tertiary	147	20

Frequency of pharmacist consultations

Figure 1 presents the reasons for the respondents' visits in the study. Respondents 404 (55%) reported consulting a pharmacist at least once a month while 221(30%) consulted pharmacists only when prescribed medications. A total of 110 (15%) had never sought pharmacist services before the study.

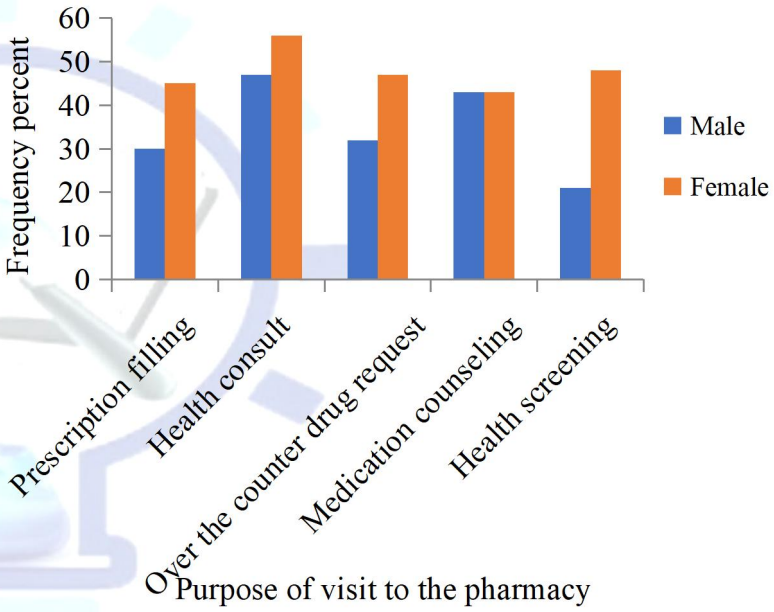

Figure 1: Respondents service type and Consultation with Pharmacist

The satisfaction levels were measured on a Likert scale (1 = Very Dissatisfied while 5 = Very Satisfied). A total of 500 (68%) of respondents expressed satisfaction with pharmacists' history-taking (clerking) exercise. Furthermore, 441 (60%) were satisfied with pharmacists' physical examination skills and 529(72%) believed pharmacists' assessments led to better-informed healthcare decisions.

Figure 2 presents the levels of satisfaction with aspects of their exposure to the services of the pharmacist. Clients were particularly satisfied with pharmacists' ability toidentify drug-related problems 603 (82%),and offer clear explanations regarding medication use 551 (75%). The study also revealed that pharmacists were apt to recommend over-the-counter (OTC) therapies effectively 485 (66%). However, concerns

were noted regarding the extent of physical examinations as 294(40%) of respondents were unsure whether pharmacists should conduct physical assessments,184 (25%) expressed discomfort with pharmacists performing certain examinations, such as checking blood pressure and palpation.
examinations, such as checking blood pressure and palpation.

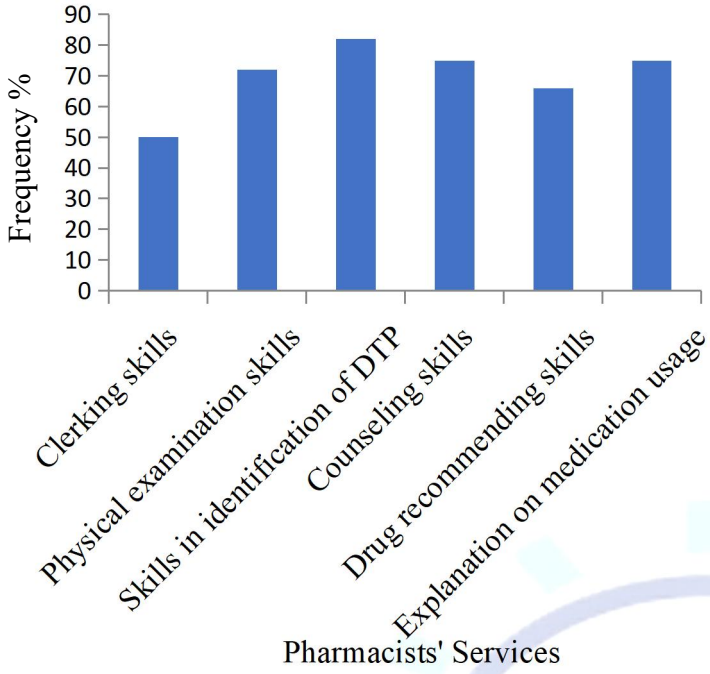

Table 2: Client Satisfaction with pharmacists' Services ratings (Measured on a 5-Point Likert Scale)

Satisfaction indicator	Percentage values					Perce
	Very dissatisfied	Dissatisfied	Neutral	Satisfied	Very satisfied	Satisfi
History taking/clerking	13	16	9	27	35	**62**
Physical examination skill	19	11	9	15	46	**61**
Assessment aiding healthcare decision	23	15	15	27	20	**47**
Identifying drug-related problem	15	22	21	19	23	**42**
Offering clear explanation	19	21	20	19	21	**40**
Uncertainty about pharmacists conducting physical examination	13	16	20	21	30	**51**
Discomfort with taking BP	13	16	20	15	31	**46**
With palpation	9	14	30	19	28	**47**

The table presents only summarized percentages since detailed Likert item breakdowns. Note: The ratings were averaged from a 5-point Likert scale where 1 = Very Dissatisfied, 5 = Very Satisfied. Percentage satisfied is computed with satisfied and very satisfied responses.

Table 3: Mean score of patient satisfaction with pharmacists activities and standard deviation

ACTIVITY ASSESSMENTS	MEAN SATISFACTION RATING	STANDARD DEVIATION	RATING SCALE
Clerking	4.11	0.63	1-5
Physical examination	3.27	0.73	1-5
Drug therapy problem highlight	3.89	0.45	1-5
Explanations	4.21	0.66	1-5
Counseling	4.33	0.54	1-5

Table 4: ANOVA and pot-hoc test comparing means for the satisfaction on assessed activities with informed decision-making

ACTIVITY ASSESSMENTS	FSTATISTIC VALUE	P VALUE	INFERENCE/CONCLUSION
Client satisfaction with clerking versus physical examination vs. drug therapy problem skills versus explanation versus counseling versus informed decision-making	5.93	<0.01	Significant difference found
Informed decision making versus clerking	5.13	<0.01	Significant difference found
Informed decision making versus physical examination	9.56	>0.05	
Informed decision making versus drug therapy problem skills	4.69	<0.05	Significant difference found
Informed decision making versus explanations	6.01	<0.05	Significant difference found

Null hypothesis (H_0): All group means are equal; Alternative hypothesis (H_1): At least one group mean is different. The **p-value associated with the F-statistic is less than the chosen significance levelα = 0.05 means there is a difference*

Impact on informed decision-making

Client satisfaction with pharmacists' services varied across specific activities. The highest levels of satisfaction (≥60%) were reported for history taking/clerking (62%) and physical examination skills (61%), while lower satisfaction was observed for clarity of explanation (40%) and identifying drug-related problems (42%). Mean satisfaction scores were highest for counseling (M = 4.33, SD = 0.54) and explanations (M = 4.21, SD = 0.66), and lowest for physical examination (M = 3.27, SD = 0.73).

ANOVA results revealed a statistically significant difference in satisfaction ratings across various pharmacist activities ($F = 5.93$, $p < 0.01$). Post hoc analysis showed significant differences between informed decision-making and activities like clerking ($p < 0.01$), drug therapy problem identification ($p < 0.05$), and explanation ($p < 0.05$), but not with physical examination ($p > 0.05$). This suggests that while most pharmacist activities significantly impact satisfaction and decision-making, the physical examination did not differ notably from informed decision-making in clients' perception (Table 3 and 4)..

Discussion

This study assessed the demographic profile of clients, the frequency of pharmacist consultations, and client satisfaction with clerking and physical examination services in community pharmacies. The findings suggest a growing recognition of pharmacists' clinical roles among the public, with positive implications for patient satisfaction, informed decision-making, and medication adherence. The results align with global trends emphasizing the shift of pharmacy practice toward a more clinical and patient-centered approach.

The demographic data revealed that the majority of respondents were aged between 31 and 50 years (50%) and had tertiary education (60%) Table 1. These characteristics are important, as previous studies have suggested that individuals within this age group are more health-conscious, likely to manage chronic conditions, and more receptive to health education initiatives delivered through non-traditional channels such as pharmacies [31]. Additionally, higher levels of education may correlate with greater health literacy, facilitating more meaningful engagement during pharmacist consultations [32]. The predominance of females (56%) among respondents also mirrors prior findings indicating that women are more likely to seek healthcare services, including those provided in community pharmacies [33].

The study found that 55% of clients reported consulting a pharmacist at least once monthly, while 30% did so only during medication prescriptions. These figures reflect a moderate level of engagement with pharmacist services and are comparable to findings in other low- and middle-income countries (LMICs) [34]. The accessibility and trust in pharmacists play key roles in this trend, as community pharmacies often serve as first-contact points for minor ailments and health advice (7). The frequency of consultations supports the view that pharmacies are increasingly becoming informal extensions of primary healthcare [34]

High satisfaction levels were recorded regarding pharmacists' clerking (68%) and physical examination (60%). This suggests that clients value pharmacists' ability to gather clinical histories and conduct basic assessments, particularly when such services are delivered competently and respectfully. Studies from various regions, including the United Kingdom, Canada, and Australia, have similarly reported strong client support for pharmacists' extended clinical roles, particularly in chronic disease management and medication therapy reviews. In a Nigerian study by Auta et al., patients also expressed satisfaction with the depth of pharmacist-led counseling and screening activities [35].

Client satisfaction was especially high in specific service areas, such as the identification of drug-related problems (82%), the clarity of medication instructions (75%), and the recommendation of over-the-counter (OTC) therapies (66%). These areas highlight pharmacists' core competencies and reinforce their role in optimizing pharmacotherapy. The ability to detect and resolve drug-related problems is central to pharmaceutical care and has been shown to reduce adverse drug events, improve disease control, and enhance patient outcomes [36]. When patients perceive pharmacists as competent in these domains, their trust in pharmacists' clinical judgment increases, which is critical for adherence and long-term engagement [35].

Interestingly, 40% of clients expressed uncertainty about pharmacists performing physical examinations, and 25% felt discomfort with specific procedures such as palpation or blood pressure measurement. These reservations are not unexpected and reflect broader cultural and systemic issues surrounding professional boundaries and patient expectations in pharmacy practice [36]. In contexts where the pharmacist's role remains narrowly defined in the public eye, any deviation from the traditional dispensing model may be met with skepticism [37]. Additionally, limited public awareness, regulatory ambiguity, and the absence of private consultation areas in many pharmacies may further discourage client acceptance of physical examination services [38].

Despite these concerns, it is important to note that client satisfaction with physical examinations was still relatively high (60%), and most clients acknowledged the usefulness of pharmacists' assessments in informing healthcare decisions (72%). This suggests that when properly communicated and professionally executed, clinical services by pharmacists can enhance patient confidence and healthcare literacy. The evidence base supports the notion that pharmacist-led screening (e.g., blood pressure, glucose, BMI) improves early detection and management of chronic diseases, particularly in underserved communities [39]. A study by Bunting et al. demonstrated that pharmacist-conducted clinical assessments significantly reduced cardiovascular risk scores among high-risk patients [40].

A notable finding in the current study was the positive association between pharmacist consultations and improved medication adherence. Clients who regularly consulted pharmacists had a 30% higher adherence rate than those who did not. This aligns with numerous international studies emphasizing the pharmacist's role in improving adherence through patient education, regular monitoring, and motivational interviewing [41]. Adherence to prescribed medications is influenced by multiple factors including complexity of therapy, side effects, patient beliefs, and social support. Pharmacists are well-positioned to address many of these barriers during consultations [41].

Pharmacist-provided clerking appears to play a critical role in enhancing adherence. By obtaining

comprehensive patient histories, pharmacists can tailor counseling, identify potential issues before they become problematic, and align treatment recommendations with patient preferences and values [42]. For instance, understanding a patient's lifestyle, financial constraints, or prior experiences with medication can influence the choice of therapy or the mode of administration recommended. This approach mirrors the principles of shared decision-making, which is increasingly recognized as a best practice in healthcare [42].

The implications of this study are significant for healthcare policy and practice, particularly in LMICs like Nigeria, where physician shortages and hospital congestion limit access to comprehensive care. Empowering pharmacists to offer clerking and physical assessments can relieve pressure on the healthcare system, reduce unnecessary physician visits, and provide early intervention for preventable conditions [42]. For this potential to be realized, however, several enablers must be in place. These include standardized clinical training for pharmacists, legal backing for expanded roles, public awareness campaigns, and infrastructural investments to ensure privacy and professionalism in pharmacy-based consultations [43].

It is also critical to consider the ethical and professional implications of expanded pharmacist services delineation of the scope of practice, referral protocols, and inter-professional collaboration guidelines are essential to avoid role conflict and ensure patient safety [43]. Furthermore, reimbursement frameworks must be developed to incentivize the provision of non-dispensing services by pharmacists, as has been done in countries like the UK and Australia through schemes such as the Medicines Use Review and Home Medicines Review [44].

The current study contributes to a limited but growing body of literature on public perceptions of pharmacists' clinical roles in sub-Saharan Africa. While similar studies have been conducted in urban centers, rural areas remain underrepresented, and future research should explore geographic and socioeconomic differences in client expectations and satisfaction with pharmacist services. Additionally, longitudinal studies assessing the long-term impact of pharmacist-led interventions on health outcomes and healthcare utilization would further strengthen the evidence base [45].

This study also underscores the importance of professional development for pharmacists. The shift toward clinical roles requires not only technical skills but also strong communication, cultural competence, and ethical sensitivity. Continuous professional education (CPE) programs should be prioritized to equip pharmacists with the competencies needed to deliver person-centered care confidently and competently.

In conclusion, the findings of this study reinforce the evolving role of community pharmacists as key providers of clinical services. Client satisfaction with clerking and physical examination was generally high and associated with improved informed decision-making and medication adherence. However, some reservations remain regarding the appropriateness of physical assessments, highlighting the need for increased public awareness, clearer role definitions, and professional training. With the right support and regulatory framework, community pharmacists can play a pivotal role in delivering accessible, effective, and patient-centered care in Nigeria and similar settings.

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