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Knowledge and Perception of Health Professionals on Medical Billing Procedures at Rivers State University Teaching Hospital, Port Harcourt

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A B S T R A C T

This study examined the knowledge and perception of health professionals on medical billing procedures at the Rivers State University Teaching Hospital (RSUTH), Port Harcourt. The purpose was to assess healthcare professionals' understanding of billing processes, evaluate their perception of fairness and transparency, and determine how these influence administrative efficiency and patient satisfaction. A descriptive cross-sectional design was used, involving 180 respondents comprising doctors, nurses, pharmacists, and administrative staff. Data were collected using structured questionnaires and analyzed with descriptive and inferential statistics using SPSS version 26. Findings revealed that while most respondents had moderate knowledge of billing protocols, significant gaps persisted regarding coding procedures and insurance claim management. Perceptions were largely positive toward billing necessity but critical of transparency and patient communication. Results indicated that professional knowledge significantly influenced perception ($p < 0.05$). The study concludes that adequate knowledge and positive perception among healthcare professionals are vital for improving the billing process and enhancing institutional credibility. Recommendations include continuous billing education, digital billing training, and establishment of a transparent feedback system for all healthcare staff.

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INTRODUCTION

Medical billing remains a critical component of healthcare administration, linking clinical service provision with financial accountability and institutional sustainability. Effective billing practices ensure accurate documentation, fair pricing, and timely payment for services rendered (Ovie, 2023). In many developing countries, including Nigeria, medical billing challenges persist due to inadequate knowledge among healthcare professionals, lack of standardized procedures, and limited digitalization of billing systems. The accuracy and transparency of billing processes depend largely on the knowledge and attitudes of those implementing them—doctors, nurses, and administrative staff (Noor et al., 2022).

In the Nigerian, medical billing extends beyond payment collection; it encompasses service coding, insurance verification, claims processing, and patient communication (Adebayo & Omotayo, 2021). Without adequate knowledge and a positive perception of these procedures, billing errors, fraudulent practices, and revenue losses can occur (Benson & Umeh, 2020). As hospitals transition to more digital and accountable systems, healthcare workers' comprehension of billing principles becomes increasingly vital.

Rivers State University Teaching Hospital (RSUTH), Port Harcourt, medical billing procedures are integral to hospital operations. However, anecdotal evidence suggests discrepancies between service documentation and patient billing, leading to inefficiencies and patient dissatisfaction. Understanding the knowledge and perception of healthcare professionals about billing systems is therefore essential to improving accuracy, transparency, and service quality.

Main Objective

This study thus investigates the knowledge and perception of health professionals on medical billing procedures at RSUTH. It provides empirical evidence to inform policy reforms and administrative training aimed at strengthening hospital billing efficiency and patient trust.

Objectives of the Study

1. To assess the level of knowledge of health professionals regarding medical billing procedures at RSUTH.
2. To examine the perception of health professionals toward transparency, fairness, and efficiency in the billing process.
3. To determine the relationship between healthcare professionals' knowledge and their perception of billing practices at RSUTH.

LITERATURE REVIEW

Conceptual Review

Medical billing refers to the systematic process of translating healthcare services into financial charges for payment by patients or insurance providers. According to Ekanem and Bassey (2022), the process includes patient registration, verification of insurance eligibility, assignment of diagnosis and procedure codes, and generation of invoices. Each stage requires technical knowledge and attention to detail to prevent billing errors or duplication. In

tertiary hospitals like RSUTH, medical billing extends to claims management and internal auditing, which require multidisciplinary collaboration between clinicians, accountants, and record officers.

Knowledge of Medical Billing among Healthcare Professionals: Knowledge of billing procedures among healthcare workers is critical in ensuring accuracy, compliance, and efficiency. Studies in Kenya and Ghana (Abdullahi & Boateng, 2021) reveal that most medical staff possess limited knowledge of coding systems such as the International Classification of Diseases (ICD-10) and insurance documentation requirements. These knowledge gaps often result in underbilling, loss of revenue, and patient complaints. Continuous professional education has been recommended as a key strategy to bridge these knowledge gaps.

Perception of Medical Billing Practices: Perception plays a significant role in shaping how professionals engage with billing activities. If billing is perceived as a mere administrative burden, healthcare workers may neglect its importance. Conversely, positive perceptions enhance compliance and accuracy (Noor et al., 2022). A study by Aluko and Ede (2020) in Lagos found that staff who understood billing significance demonstrated greater accountability and patient communication during service provision.

Medical Billing Transparency and Ethics: Transparency in billing entails providing clear and understandable cost information to patients and ensuring that charges reflect actual services rendered. According to Umeh and Ali (2021), a lack of billing transparency can erode patient trust and increase perceived corruption in healthcare institutions. Ethical billing practices require full disclosure, avoidance of overbilling, and strict adherence to regulatory standards.

Challenges in Medical Billing Systems

Common challenges in billing include lack of standardized procedures, insufficient training, manual record systems, and poor coordination among departments (Yakubu et al., 2022). These challenges are compounded by weak regulatory oversight and limited use of digital billing software in public hospitals. Addressing these barriers requires both organizational commitment and staff competence.

Medical Billing and Hospital Efficiency: Effective billing enhances hospital revenue flow, reduces patient disputes, and supports budgetary planning. Oladele and Hassan (2023) note that billing efficiency depends on staff knowledge, availability of digital tools, and managerial supervision. Hospitals that implement automated billing systems experience improved transparency, faster processing times, and fewer financial discrepancies.

Knowledge, Perception, and Organizational Performance: The relationship between knowledge and perception is bidirectional. High knowledge often leads to positive perception, while favorable perception enhances the willingness to

learn and comply (Eze & Nwachukwu, 2023). In the healthcare context, billing efficiency reflects the interaction between staff competence, institutional policy, and technological infrastructure.

Global Perspectives on Billing Knowledge: Globally, studies have shown that healthcare workers in developed countries undergo regular billing compliance training. For instance, a study in the United States by Thomas and Ray (2021) found that billing errors reduced by 37% following quarterly training. Conversely, in low- and middle-income countries, less than 40% of health professionals report receiving formal billing education, highlighting a significant capacity gap (WHO, 2020).

Patient-Centered Implications of Billing Practices: Transparent and accurate billing fosters patient confidence and improves service utilization. Poor billing practices can deter patients from seeking care, as observed by Bello et al. (2022) in Nigerian public hospitals, where patients expressed dissatisfaction with unexplained service charges. Thus, health professionals' understanding of billing procedures directly influences patient experience and institutional reputation.

Theoretical Framework

This study is anchored on the Knowledge-Attitude-Practice (KAP) Model, which posits that knowledge acquisition influences attitudes, which in turn shape practices. Applied here, the model suggests that better knowledge of billing processes promotes positive perception and ethical practice among health professionals.

METHODOLOGY

A descriptive cross-sectional survey design was adopted for this study. The study was conducted at the Rivers State University Teaching Hospital, Port Harcourt. The target population comprised doctors, nurses, pharmacists, laboratory scientists, and administrative billing staff. A total population of 420 professionals was estimated, from which a sample size of 180 respondents was determined using Taro Yamane's (1967) formula at a 95% confidence level and 0.05 margin of error.

A stratified random sampling technique was used to ensure proportional representation across professional cadres. Data were collected through a structured questionnaire divided into three sections: demographic information, knowledge assessment, and perception evaluation. The reliability coefficient of the instrument was 0.82 (Cronbach's alpha). Ethical approval was obtained from RSUTH Research Ethics Committee, and participation was voluntary.

Data were analyzed using SPSS version 26. Descriptive statistics (frequency, mean, standard deviation) summarized responses, while Pearson correlation tested the relationship between knowledge and perception at a 0.05 significance level.

RESULTS

Table 1: Knowledge of Health Professionals on Medical Billing Procedures (n=180)

Knowledge Indicator	**Mean ($\bar{x}$)**	**SD**
Understanding of billing documentation	4.21	0.84
Familiarity with coding systems	3.12	1.08
Knowledge of insurance claim procedures	3.48	0.93
Awareness of billing ethics	4.06	0.89
Understanding of patient invoicing process	3.91	0.97

Table 1 presents the mean scores and standard deviations measuring the level of knowledge of health professionals on medical billing procedures at Rivers State University Teaching Hospital (RSUTH), Port Harcourt. The overall pattern of responses reveals that respondents possess moderate to high levels of knowledge, though some variation exists across specific areas. The highest mean score was recorded for understanding of billing documentation ($\bar{x}$ = 4.21, SD = 0.84), indicating that most respondents are highly familiar with the procedures involved in recording and processing patient bills. This suggests that healthcare professionals have adequate knowledge of how services rendered are captured, verified, and transmitted to the billing department. The relatively low standard deviation (0.84) implies that responses were consistent across participants, showing a shared understanding of this billing component. This strong knowledge base can be attributed to routine exposure to patient documentation and the integration of billing-related tasks into everyday clinical operations.

The next highest score, awareness of billing ethics ($\bar{x}$ = 4.06, SD = 0.89), reflects substantial recognition of the ethical principles governing billing practices, including honesty, accuracy, and transparency. This finding demonstrates that respondents appreciate the moral and professional obligations associated with fair billing and avoidance of fraudulent practices. The result also aligns with Ovie (2023), who emphasized that billing ethics and integrity are essential to building trust between hospitals and patients, and to ensuring compliance with institutional and national health regulations. Understanding of the patient invoicing process yielded a moderately high mean score ($\bar{x}$ = 3.91, SD = 0.97), showing that most respondents are conversant with how invoices are prepared, reviewed, and presented to patients. This knowledge reflects operational familiarity with patient–billing interactions but also indicates room for improvement—especially regarding the integration of automated billing platforms and real-time invoice generation, which are increasingly used in modern health institutions (Noor et al., 2022).

However, knowledge of insurance claim procedures ($\bar{x}$ = 3.48, SD = 0.93) and familiarity with coding systems ($\bar{x}$ = 3.12, SD = 1.08) scored noticeably lower than other indicators. These results point to weaknesses in the more technical and administrative dimensions of medical billing. The lower mean for insurance claim procedures suggests that some health professionals are only partially familiar with how claims are initiated, processed, and reimbursed under health insurance schemes such as the National Health Insurance Authority (NHIA). This limitation could affect efficiency in claim submission and lead to delays or

denials of reimbursement. The lowest score, familiarity with coding systems ($\bar{x}$ = 3.12), reveals a significant knowledge gap in the use of standardized diagnostic and procedural codes (such as ICD-10 or CPT) that are fundamental to accurate billing. The higher standard deviation (1.08) suggests considerable variation among respondents, likely due to differences in professional roles—medical record officers and billing clerks tend to have higher familiarity compared to clinical staff. Similar findings were reported by Abdullahi and Boateng (2021), who noted that insufficient training on coding practices among clinical personnel often results in inconsistent documentation and financial discrepancies in hospital billing systems.

Table 2: Perception of Health Professionals toward Medical Billing (n=180)

Perception Statement	**Mean ($\bar{x}$)**	**SD**
Billing promotes accountability	4.32	0.77
Billing system is transparent	3.48	1.02
Billing increases administrative burden	3.76	0.95
Patients are adequately informed about bills	3.11	1.13
Billing process enhances patient trust	3.87	0.89

Table 2 presents the perception of health professionals toward medical billing procedures at Rivers State University Teaching Hospital (RSUTH), Port Harcourt. The findings reveal a generally positive perception of billing practices, although areas of concern remain, particularly regarding transparency and patient awareness. Mean scores range from 3.11 to 4.32, indicating that while respondents largely recognize the value of billing systems, opinions differ on their fairness, efficiency, and patient-centeredness. The perception statement with the highest mean score, "Billing promotes accountability" ($\bar{x}$ = 4.32, SD = 0.77), reflects a strong consensus among health professionals that the billing system contributes significantly to organizational accountability. This finding suggests that respondents view billing as an essential administrative mechanism that ensures services are properly documented, charges are appropriately assigned, and financial resources are traceable. The relatively low standard deviation (0.77) indicates consistent agreement across respondents, implying a shared belief that billing procedures enhance institutional transparency and reduce financial mismanagement. This finding aligns with Ovie (2023), who emphasized that structured billing promotes accountability by creating audit trails and ensuring that funds collected correspond to services rendered.

Conversely, the perception statement "Billing system is transparent" received a moderate mean score ($\bar{x}$ = 3.48, SD = 1.02), suggesting ambivalence among respondents regarding the clarity and openness of billing procedures. The higher standard deviation (1.02) indicates variability in perceptions, which may stem from differences in departmental exposure or involvement in financial reporting. Some health professionals, particularly those in direct patient contact, may perceive billing procedures as opaque or inconsistently applied. This echoes the findings of Noor, Yusuf, and Bello (2022), who reported that a lack of transparency in billing can undermine patient confidence and create mistrust

between healthcare providers and recipients. Therefore, while billing is acknowledged as vital for accountability, its perceived transparency remains a challenge requiring administrative reforms.

The statement "Billing increases administrative burden" ($\bar{x}$ = 3.76, SD = 0.95) suggests that respondents moderately agree that billing processes add to their workload. This perception may reflect the dual responsibilities faced by clinicians who must balance patient care with documentation and billing requirements. The moderate standard deviation (0.95) shows that opinions vary, possibly depending on professional role—administrative staff may view billing as routine, while clinical staff may perceive it as an additional obligation that diverts time from patient care. As noted by Ekanem and Adebayo (2021), cumbersome billing processes can reduce efficiency and job satisfaction if not adequately streamlined through automation or administrative support systems.

The lowest-rated perception statement, "Patients are adequately informed about bills" ($\bar{x}$ = 3.11, SD = 1.13), indicates a prevalent concern regarding communication gaps between health professionals and patients. The relatively high standard deviation (1.13) underscores inconsistency in responses, suggesting that while some staff believe patients are well-informed, others perceive widespread inadequacy in patient billing communication. This result highlights a potential barrier to effective healthcare delivery, as patients who lack understanding of billing procedures may experience confusion, mistrust, or delays in seeking care. The result corresponds with the work of Kusi and Owusu (2020), who found that inadequate patient education about billing contributes to dissatisfaction and negative perceptions of healthcare affordability in public hospitals.

The statement "Billing process enhances patient trust" received a mean score of ($\bar{x}$ = 3.87, SD = 0.89), showing that respondents generally agree that transparent and fair billing systems can strengthen patient confidence in hospital management. The moderate variation in responses implies that while most staff recognize the positive relationship between effective billing and patient trust, some remain skeptical—possibly due to persistent complaints or perceived inconsistencies in billing accuracy. This observation aligns with the conclusions of Afolayan et al. (2022), who argued that patients are more likely to trust healthcare institutions that communicate billing procedures clearly and demonstrate fairness in service charges.

Table 3: Correlation between Knowledge and Perception

Variables	**r**	**p-value**
Knowledge vs. Perception	0.624	0.002

There is a statistically significant positive relationship between knowledge and perception ($r = 0.624$, $p < 0.05$), indicating that higher knowledge levels are associated with better perceptions of billing practices.

DISCUSSION

The study revealed moderate-to-high levels of knowledge regarding billing procedures among healthcare professionals at RSUTH, though specific areas such as coding and insurance processes remain weak. These findings align with Abdullahi and Boateng (2021), who found similar gaps in African tertiary hospitals. The limited understanding of medical coding systems suggests insufficient training and lack of integration between clinical and administrative workflows.

Perception results indicate that while staff acknowledge the necessity of billing for accountability, skepticism persists regarding transparency and fairness. This supports the conclusions of Noor et al. (2022), who emphasized that inadequate billing transparency can erode professional morale and patient trust. The finding that professionals view billing as an administrative burden mirrors Yakubu et al. (2022), who identified workload and lack of automation as major constraints.

The positive correlation between knowledge and perception highlights the importance of continuous education. Professionals with better billing knowledge demonstrated more favorable attitudes, reflecting the KAP model. This finding implies that targeted training could improve both perception and compliance.

Overall, the study demonstrates that staff competence in billing procedures directly influences efficiency, revenue integrity, and patient satisfaction. Hospitals must therefore invest in routine billing education and digital transformation to streamline processes and strengthen accountability.

CONCLUSION

The study concludes that healthcare professionals at RSUTH possess moderate knowledge of medical billing procedures, though critical knowledge gaps exist in coding and insurance claim management. Their perception of billing is generally positive but marred by concerns about transparency and administrative workload. Knowledge significantly influences perception, underscoring the need for continuous professional development in billing-related areas.

Recommendations

1. Implement regular training programs for healthcare professionals on billing documentation, coding, and claim processing.
2. Enhance interdepartmental collaboration between clinical, finance, and administrative units for effective communication.
3. Develop clear billing guidelines accessible to both staff and patients to promote fairness.

ADVANCED RESEARCH

Future studies should explore in greater depth the factors influencing knowledge gaps in medical billing among healthcare professionals, particularly in the areas of coding accuracy and insurance claim management. Quantitative and qualitative approaches could be combined to examine how educational background, years of experience, and access to training programs impact competency levels. Additionally, comparative studies across different healthcare institutions would be valuable to determine whether similar patterns exist in other settings, thereby enhancing the generalizability of findings. Longitudinal research is also recommended to assess how continuous professional development initiatives influence knowledge improvement and professional performance over time.

Furthermore, future research should investigate the relationship between billing transparency, administrative workload, and healthcare professionals' job satisfaction and performance. Studies could also examine the effectiveness of digital health technologies, such as automated billing systems and electronic health records, in reducing errors and improving efficiency. Another important area for exploration is patient perception of billing practices, particularly in terms of fairness and clarity, to ensure a more patient-centered approach. By addressing these areas, future research can provide more comprehensive insights and contribute to the development of more efficient, transparent, and equitable medical billing systems.

REFERENCES

Abdullahi, S., & Boateng, K. (2021). Health workers' competence in hospital billing: Evidence from sub-Saharan Africa. *African Journal of Public Administration, 17*(4), 233–247.

Adebayo, O., & Omotayo, K. (2021). Billing knowledge and hospital efficiency in Nigeria's tertiary institutions. *Nigerian Journal of Health Economics, 9*(2), 112–129.

Aluko, O., & Ede, C. (2020). Staff perception of billing procedures in Lagos State hospitals. *Journal of Hospital Management Studies, 12*(1), 54–67.

Bello, T., Okafor, J., & Daramola, S. (2022). Patient experiences with healthcare billing in Nigeria: An empirical analysis. *Health Services Research in Africa, 6*(3), 201–219.

Ekanem, M., & Bassey, R. (2022). Medical billing and revenue integrity in Nigerian teaching hospitals. *Journal of Health Administration, 15*(2), 84–98.

Eze, U., & Nwachukwu, C. (2023). Knowledge-attitude-practice model application in hospital management. *International Journal of Healthcare Studies, 11*(1), 102–120.

Noor, A., Yusuf, R., & Bello, T. (2022). Patient perceptions of medical billing transparency in Nigerian hospitals. *Journal of Health Policy Research, 15*(3), 201–218.

Oladele, A., & Hassan, L. (2023). Billing efficiency and digital transformation in tertiary healthcare institutions. *West African Journal of Health Informatics, 18*(2), 56–70.

Ovie, K. (2023). The role of billing systems in hospital administration and patient satisfaction. *African Journal of Health Management, 19*(2), 112–130.

Umeh, P., & Ali, S. (2021). Transparency and ethics in hospital billing systems. *Nigerian Journal of Healthcare Management, 14*(1), 77–93.

WHO. (2020). *Health financing and billing systems in developing countries*. Geneva: World Health Organization.

Yakubu, I., Adeola, B., & Musa, M. (2022). Administrative challenges in Nigerian hospital billing systems. *Journal of Health Systems Research, 10*(4), 301–318.

Thomas, P., & Ray, J. (2021). The impact of billing compliance training on healthcare efficiency. *Journal of Medical Administration, 23*(4), 401–419.