Knowledge, Attitude, and Competency of Primary Eye Care (PEC) Services among Health Workers in Primary Healthcare Facilities in Rivers State

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ABSTRACT

Background: Primary Eye Care (PEC) services are an integral part of comprehensive eye care involving the provision of quality ocular healthcare services to the populace. This study aims to determine the knowledge, attitude and competency in providing primary eye care (PEC) services among primary health care workers (PHCWs) in Rivers State, Nigeria.

Materials: This study utilized a descriptive design, and was conducted among 271 PHCWs in selected Model and Comprehensive PHC facilities located in all 23 Local Government Areas (LGAs) of Rivers State. Responses were elicited from all willing respondents using a self-administered adapted questionnaire. Assessment of the respondents' attitude and knowledge of PEC services was done using a set of ten and fifteen questions respectively. Competencies in providing PEC services were also elicited. Responses were then collated and analysed on a Microsoft Excel spreadsheet.

Results: This study identified that most of the PHCWs had good knowledge 226 (83.4%) and good attitude 239 (88.2%) towards the PEC services provision. PHCWs were of the opinion that they were competent providing some and not all of these services. Services in which they were competent included doing a good eye care health talk 182 (67.2%), how to counsel a patient in need of PEC 179 (66.1%), how to refer a patient 169 (62.4%), how to apply eye ointment 168 (62.0%), how to instill eyedrops 163 (60.1%), screening procedure for near vision 131 (48.3%) as well as for distance vision 130 (48.0%) among others.

Conclusion: Most PHCWs were found to have good knowledge and good attitude towards the provision of primary eye care services, however, the workers were competent in providing some of the PEC services. It was recommended that healthcare stakeholders in Rivers State develop and implement in-service training programs targeting the development of these skills for primary healthcare workers in Rivers State.

Keywords: Primary Eye Care (PEC), PEC service provision, Knowledge, Attitude, Competency

INTRODUCTION

Primary eye care is an important factor to consider when discussing the health of a population, because it acts as the first line of defense against preventable blindness and vision impairment, which are significant global health issues.[1,2] It encompasses the prevention, diagnosis, and management of common eye conditions such as refractive errors, cataracts, glaucoma, and diabetic retinopathy, among others.[1,3,4]

It is essential to note that incorporating PEC into primary health care systems, greatly improves access of communities to essential eye care services, which is especially vital in underserved and remote areas where

specialist services are known to be scarce in certain areas.[5] Effective primary eye care can lead to early detection and prompt management of eye conditions, thereby decreasing the prevalence of visual impairment and blindness, and improving the quality of life of a populace in the process.[6–9]

Furthermore, it contributes to overall health and well-being by improving individuals' ability to engage in daily activities, enhancing educational and employment opportunities, and reducing the economic burden associated with vision loss.[10–13]

Primary eye care delivery faces numerous challenges globally, with these issues being particularly in developing countries around the world. Problems of shortage of trained eye health specialists, inadequate visual healthcare infrastructure, and inadequate incorporation of PEC into the PHC systems have been reported, and have limited the provision of these services where needed.[13,14]

In Nigeria, these problems are further compounded by a high prevalence of infectious diseases that can lead to visual impairment, such as trachoma and onchocerciasis, alongside non-communicable diseases like diabetes, which can lead to diabetic retinopathy, among other visual health-related diseases.[15]

Additionally, socio-economic barriers, including poverty and low levels of education, cultural beliefs and misconceptions have been reported to be capable of hindering individuals from seeking and accessing eye care services.[2,16–18]

These can inadvertently result in the occurrence of a high burden of preventable blindness and visual impairment, which underscores the urgent need for enhanced training, better resource allocation, and effective health education campaigns to improve PEC care delivery and utilization in these regions.[1,19,20]

Primary health care workers are pivotal in the provision of PEC, serving as the frontline in detecting, managing, and preventing common eye conditions.[21] Considering their accessibility and frequent interaction with the community, these workers are uniquely positioned to offer essential eye care services, including vision screenings, basic eye examinations, and referrals to specialized care when necessary.[2,13,14,22]

They play a vital role in educating the public about eye health, promoting preventive measures, and facilitating early intervention, which all potentially contribute in reducing the prevalence of avoidable blindness and visual impairment.[13,23] By incorporating eye care into their routine services, the services provided by these workers are especially useful in underserved and remote areas where specialist eye care is limited.

These notwithstanding, in order for these workers to effectively provide PEC services, it is essential that they possess the right knowledge, attitude towards these services, as well as the requisite skills to provide these services to the populace.[24–26] Comprehensive understanding of common eye conditions, as well as how they can be effectively prevented and managed, enables these workers to deliver accurate and timely visual healthcare interventions.

A disposition towards eye health also fosters a proactive approach in addressing eye care needs and encouraging community participation in eye health initiatives and interventions. When properly trained on the provision of basic eye health procedures such as conducting visual examinations, identifying visual morbidities in a timely manner, and the provision of appropriate treatment or referrals, it contributes in improving the visual health indices and ocular well-being of the populace.[27]

In certain climes, as a result of the inadequacies of visual healthcare professionals to provide these services in underserved and remote areas, task-shifting strategies have been adopted to help alleviate the poor access to PEC in these areas.[28]

Task-shifting is a vital strategy in addressing the healthcare manpower shortages and meeting the demand for primary eye care services in primary health care facilities, by delegating specific eye care tasks from specialized ophthalmologists and optometrists to adequately trained primary health care workers, the efficiency and reach of eye care services can be significantly enhanced.[29] This approach allows for more widespread and timely access

to essential eye care, especially in resource-limited and remote areas where specialized eye care providers can be scarce.[28]

Considering the relevance in identifying knowledge and competency gaps among healthcare workers for the provision of PEC services, the need for boosting healthcare delivery, and the need for more research in this direction, it became necessary to conduct this study. The study was thus conducted to determine the knowledge, attitude and competency in providing PEC services among PHCWs in Rivers State, Nigeria.

MATERIALS AND METHODS

This study utilized a descriptive design to determine the knowledge, attitude and competency in providing PEC services among 271 PHCWs in Rivers State, Nigeria. It was conducted at selected Model PHC facilities and Comprehensive PHC facilities located in the 23 LGAs of Rivers State, Nigeria. Responses were elicited from all willing respondents using a self-administered adapted questionnaire. The instrument for collection of data was an adapted from existing templates[30] (WHO, 2013).

The instrument was pre-tested in another PHC not included in the study but have similar qualities as those used in this study. Assessment of the respondents' knowledge of PEC was done using a set of 15 questions with responses: "Yes" (2 points), "I don't know" (1 point) and "No" (No point allotted). The attitude of the PHC workers towards PEC service provision was also assessed using a 10-item questionnaire.

Responses included: Strongly Agree (4 points), Agree (3 points), Undecided (2 points), Disagree (1 point), and Strongly disagree (0 point) for positively-directed questions. The reverse was also the case for the negatively-directed questions. The perceived competency of the PHC workers in the use of the PEC equipment to perform various procedures in the PHC facilities was also assessed.

After seeking their consent alongside other ethical considerations for the research, the instrument was administered to the workers during their free periods at work. Ethics Approval was obtained for this study from the Health Research Ethics Committee of the Rivers State Hospital Management Board (Approval number: RSHMB/RSHREC/2024/012).

Permission to carry out the evaluation was obtained from the Executive Secretary and Director Planning, Research and Statistics of the Rivers State Primary Health Care Management Board (RSPHCMB) as well as the Medical-Officers-of-Health and/or facility heads of the various PHC facilities in Rivers State.

Also, the data collection tools were anonymised to ensure protection of the privacy of respondents and confidentiality of their responses. Data was collected electronically and stored in a secure server of the Kobo toolbox Open-Source Mobile Data Collection platform.

All collected data was cleaned, collated and analysed on a Microsoft Excel spreadsheet, was expressed as frequencies/percentages and mean ± S.D., and presented on tables and charts. Assessment of knowledge of the respondents on PEC services was done by adding all scores obtained after responses were made to the 15 questions assessing knowledge.

This was done to obtain a knowledge score ranging from 0 to 30. Scores between 0 and 9 were categorized as poor knowledge, scores between 10 and 19 were categorized as moderate knowledge and scores between 20 and 30 were categorized as good knowledge.

In the assessment of the attitude of the workers towards PEC, responses were also summed to obtain an attitude score which was categorized into "good", and "poor" attitude. An attitude score ranging between 0 and 20 signified poor attitudes, while scores ranging between 21 and 40 signified good attitudes. The PHC workers also provided responses on if they were competent or incompetent in providing certain PEC services.

RESULTS

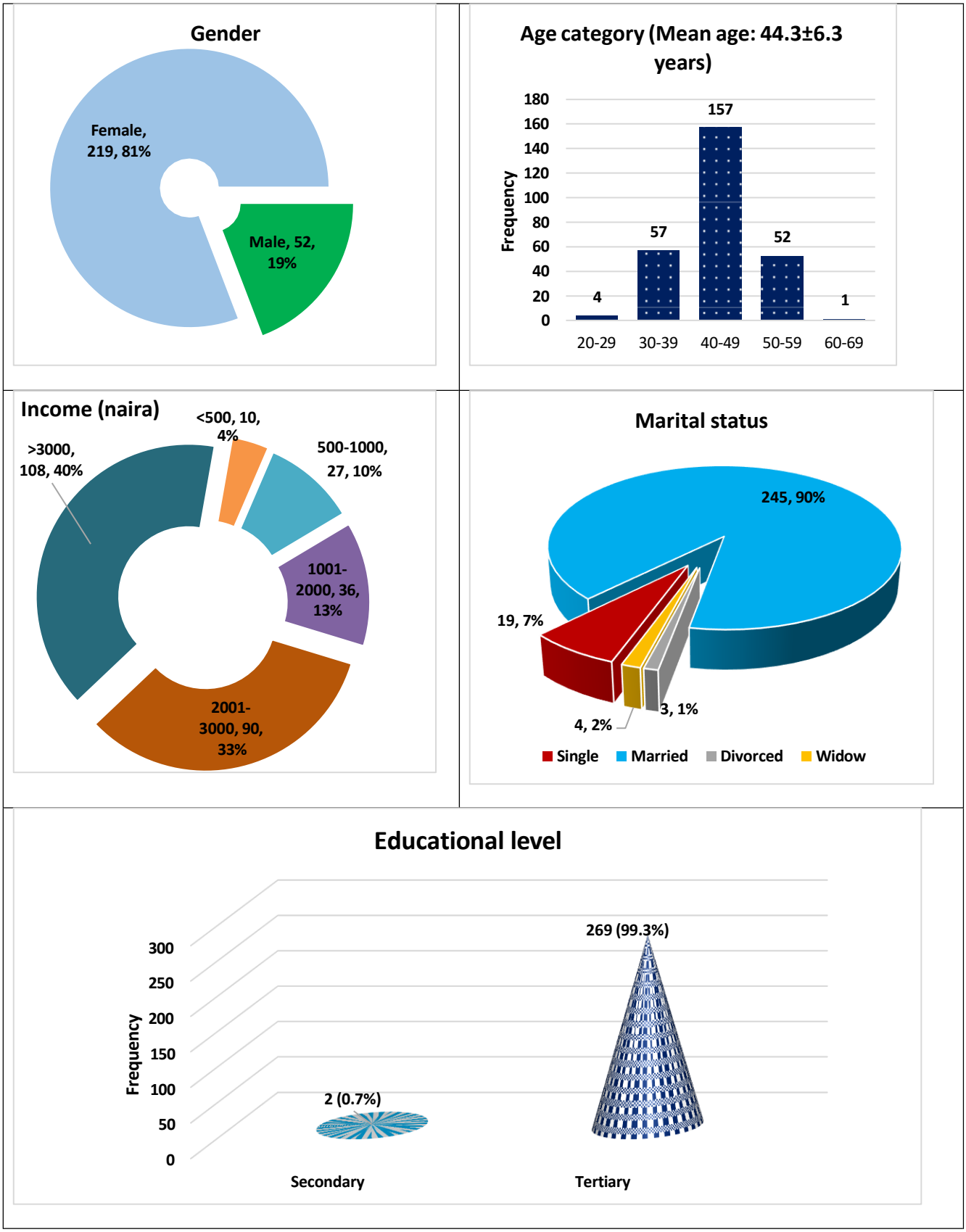

Figure 1: Sociodemographic characteristics of the PHC workers

Figure 2: Sociodemographic characteristics of PHC workers

As seen in Figure 1, among the PHC workers, most were females 219 (81.0%), aged between 40 and 49 years 157 (57.9%), earned more than 3000 naira daily 108 (40.0%), were married 245 (90.0%) and had completed tertiary education 269 (99.3%). Also, most of the health workers were Community Health Workers 137 (50.6%) as shown in Figure 2.

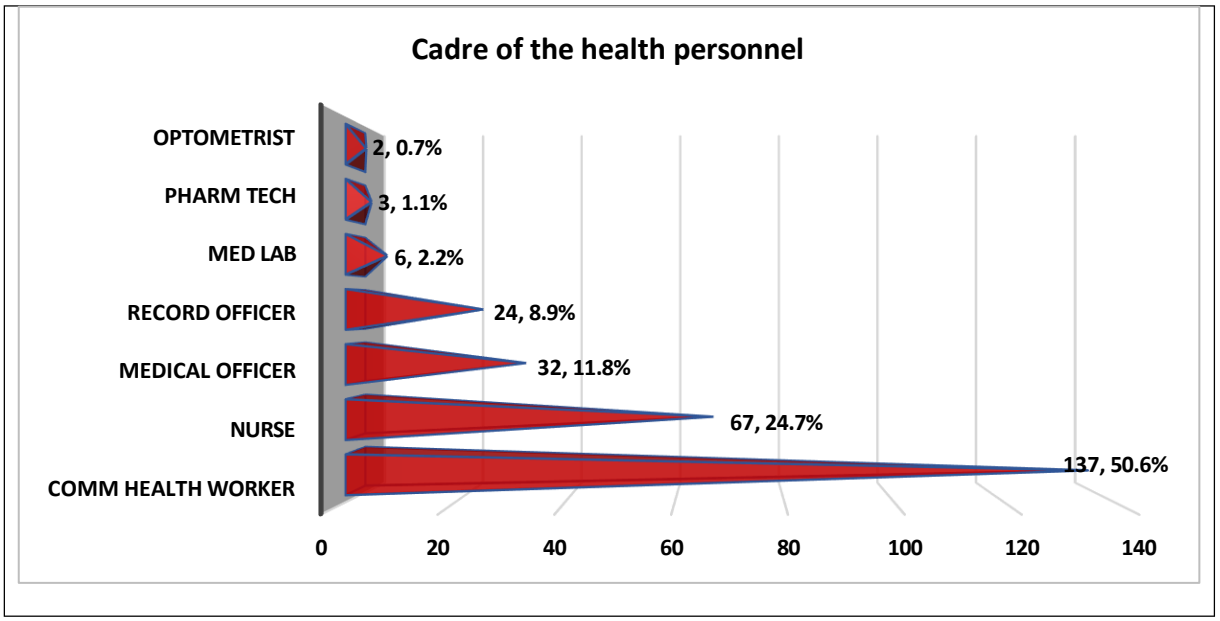

Figure 2: Cadre of PHC workers

Knowledge and attitude towards primary eye care service provision

Most of the PHC workers were found to have good knowledge 226 (83.4%) and good attitude 239 (88.2%) towards the provision of primary eye care services as seen in Figures 3 and 4 respectively.

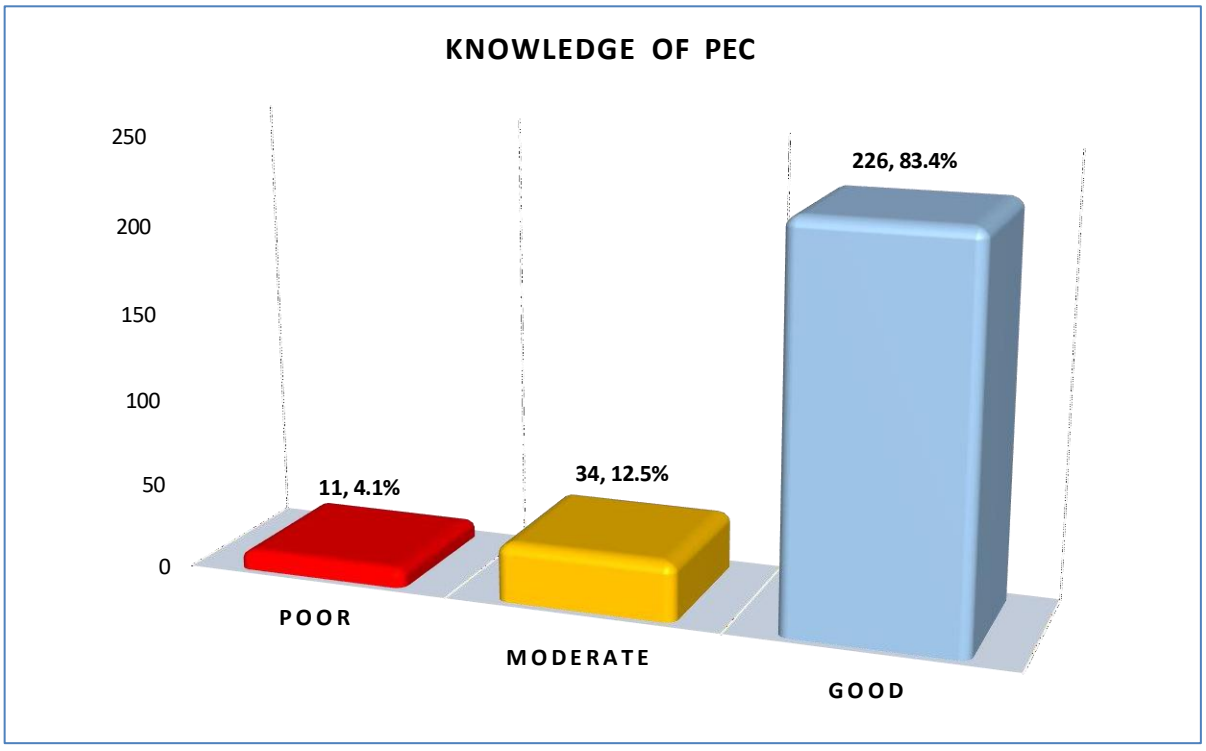

Figure 3: Levels of Knowledge of PEC services among the PHC workers

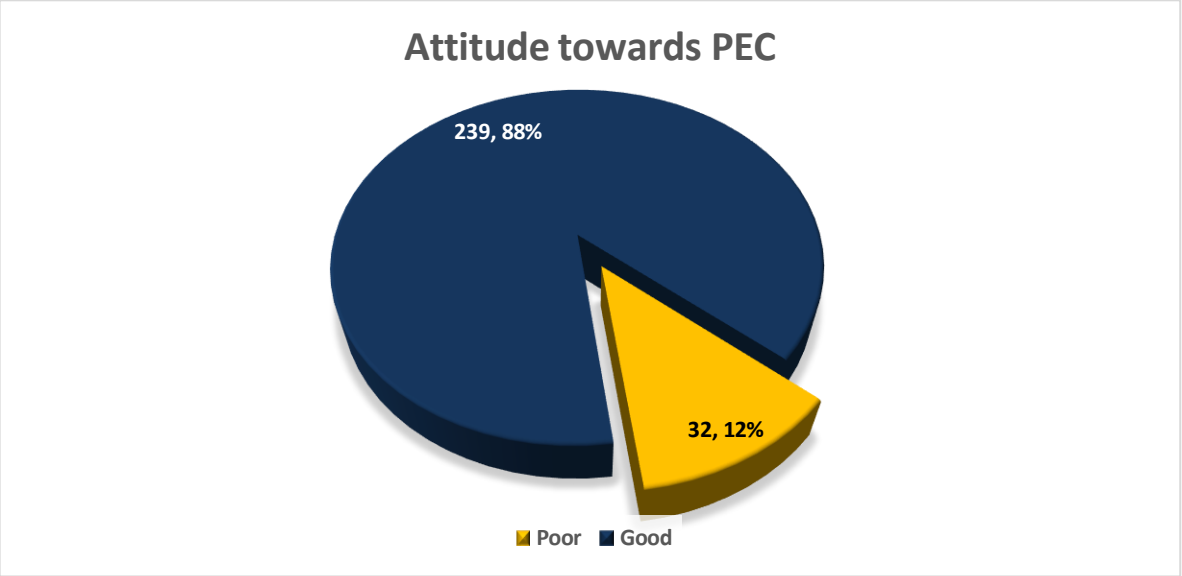

Figure 4: Attitude towards PEC services among PHC workers

PEC clinical skills competence of the PHC workers

Enquiry about the workers' PEC competencies in providing PEC services, revealed that they were competent providing some of these services but were incompetent in providing some other PEC services. PEC services in which they were competent included how to do a good eye care health talk 182 (67.2%), how to counsel a patient in need of PEC 179 (66.1%), how to refer a patient 169 (62.4%), how to apply eye ointment 168 (62.0%), how to instill eyedrops 163 (60.1%), screening procedure for near vision 131 (48.3%) as well as for distance vision 130 (48.0%) among others. This is shown in Figure 5.

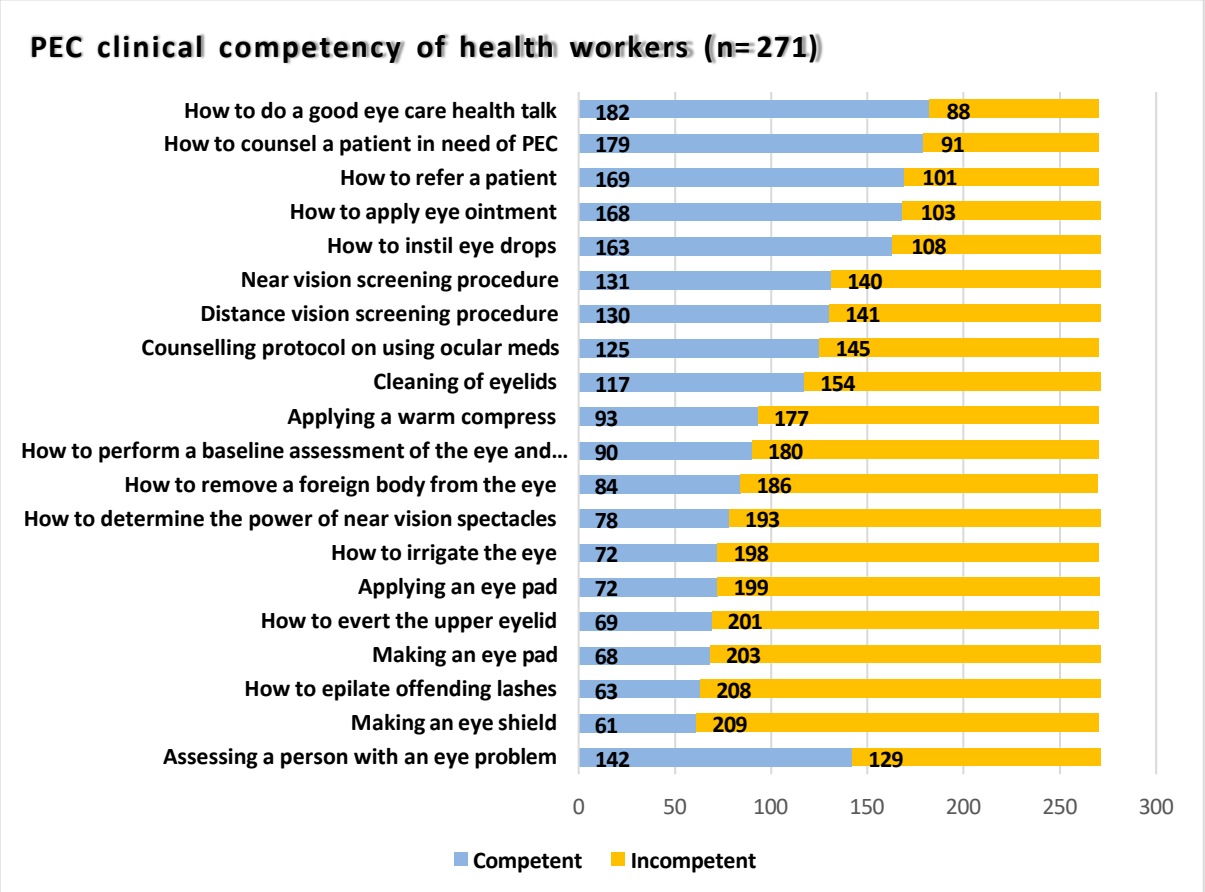

Figure 5: Possession of PEC clinical competencies among the PHC workers

DISCUSSION

In this study, it was identified that most of the PHCWs had good knowledge and good attitude towards the provision of PEC services. This finding agrees with the findings of other authors who reported majority of primary health workers having good knowledge of primary eye care.[24,29] Another study assessing the attitude of primary healthcare workers towards PEC (in terms of the desire to improve their knowledge of PEC), also reported that good attitudes were exhibited by the workers[31] This finding portrays a high level of readiness among these workers to be involved in the provision of PEC services in the PHC facilities, and this would help them make accurate and timely diagnoses of visual health morbidities.[28,32] The public health implications of these findings are multi-thronged. Firstly, when these workers are well-informed and positively inclined towards eye care, they are better equipped to educate and engage their communities, leading to increased awareness and proactive management of eye health.[27,33,34] This knowledge enables them to identify and address common eye conditions early, thereby preventing complications that can lead to blindness and visual impairment.[27,35] Positive attitudes exhibited by healthcare staff has been reported to be capable in fostering foster a supportive and empathetic environment, which encourages patients to seek eye care without stigma or fear.[27,33,34] This proactive stance contributes to higher rates of early diagnosis and timely interventions, which are critical in managing conditions such as cataracts, glaucoma, and diabetic retinopathy.[28,32] Moreover, well-informed and motivated primary health care workers can effectively implement and promote preventive measures, such as proper eye hygiene, use of protective eyewear, and regular eye examinations. Collectively, these actions lead to a reduction in the burden of eye diseases, improve the quality of life for individuals, and reduce the economic strain on healthcare systems.[27,35]

In this study however, despite a majority of the PHC workers in this present study having good knowledge and attitude towards the provision of PEC services, an unsatisfactory proportion of the workers were found to be of the view that they were competent in performing basic eye care procedures. This finding is corroborated by the findings of other authors who reported unsatisfactory levels of PEC skills among PHCWs assessed in Cross River State, Nigeria.[36] This finding implies that having primary health care workers who lack the necessary skills to diagnose and manage common eye conditions, it is possible that early signs of eye diseases may be missed, leading to delayed treatment and progression to more severe stages.[13–15] This can result in higher rates of preventable blindness and visual impairment, which not only affects individuals' quality of life but also imposes a substantial economic burden on families and healthcare systems of affected societies.[27,35] This may be as a result of systemic barriers—such as inadequate infrastructure, lack of equipment availability, inadequate pre-service training, weak in-service training opportunities, poor policy and programme prioritization. It may also be due to low confidence and self-efficacy, low patient demand or late presentation, at the PHC that will need urgent referral. Inadequate clinical competencies can undermine public trust in health services, causing communities to underutilize available eye care resources. This can perpetuate a cycle of poor eye health literacy and delayed health-seeking behaviors.[13,37] Additionally, low competency levels can hinder the effective implementation of eye health programs and policies, limiting their impact and sustainability.[28,38,39]

This study addresses a relevant topic about a critical gap in health care with regards to knowledge, attitude and competencies in PEC in primary health care facilities. It aligns well with WHO and UEHC which ensures all people have access to quality, comprehensive eye care—preventive, curative, and rehabilitative—without financial hardship. While this study has a strong public health impact as discussion links the findings to reducing visual impairment and preventable blindness among the populace, and the need for improved integrated eye care across PHC facilities, it was however, limited, because it was purely descriptive in nature, it utilized self-reported measures for competencies, which could introduce bias. Reasons being that this study was an assessment of the baseline state of the PHC facilities. We therefore recommend future studies to incorporate the inferential component in the statistical analyses, assess the practical competencies of health workers as it relates to PEC.

CONCLUSION

Most of the PHC workers were found to have good knowledge and good attitude towards PEC service provision in this study. An unsatisfactory proportion of the workers were, however, of the view that they did not have the required primary eye care competencies necessary for the provision of these basic services. Based on the findings made in this study, the following recommendations were made:

- Primary healthcare stakeholders in Rivers State need to develop and implement structured training programs targeting the development of basic eye care competencies for primary healthcare workers in Rivers State. These should be combined with extensive hands-on practice sessions. Addressing these competency gaps through targeted training and continuous professional development is crucial for improving eye health outcomes and ensuring equitable access to quality eye care services.
- In areas where feasible, the Rivers State Ministry of Health can also deploy technology through the development of telemedicine to provide real-time support and consultation from ophthalmologists or optometrists to help in performing basic eye examinations as well as making timely diagnoses of ocular morbidities.
- Implement regular mentorship/supervision and monitor performance.
- Integrate PEC into pre-service curricula and Continuing Professional Development (CPD) programs.
- Address workload and staffing to allow time for PEC activities.
- Equip facilities with basic PEC tools and job aids.

Author Contributions: S.B.D. wrote the first draft of the manuscript and contributed to data collection, study design, and interpretation of the results. J.T.W also contributed to data collection, and study design. P.I.D.A. contributed to the formal analyses and interpretation of the results. A.C.O. coordinated the study, contributing to the study design, data collection, and interpretation of the results. All authors contributed to reading and commenting on the manuscript. All authors have read and agreed to the published version of the manuscript.

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Abbreviations:

CPD	Continuing Professional Development
LGA	Local Government Area
PEC	Primary Eye Care
PHC	Primary Health Centre
PHCWs	Primary Health Care Workers
RSHMB	Rivers State Hospital Management Board
RSHREC	Rivers State Health Research Ethics Committee
SPSS	Statistical Package for Social Sciences
UEHC	Universal Eye Health Coverage

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