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AWARENESS AND UTILIZATION OF ELECTRONIC HEALTH RECORDS (EHRS) AMONG HEALTH WORKERS IN PRIMARY HEALTH CENTRES S IN RIVERS WEST SENATORIAL DISTRICT

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Abstract

This paper examined the level of the awareness and utilization of Electronic Health Records (EHRs) among health workers in primary health centers (PHCs) in Rivers West Senatorial District. The study adopted analytical cross-sectional research design. The population of the study consists of all the health workers in the 154 PHCs in Rivers West Senatorial District from which 305 health workers were randomly sampled for the study. Data collection was done using self-structured questionnaire titled "awareness and utilization of electronic health records among Health Workers" (UEHRHWQ), designed based on 5-point Likert scale. Data was analyzed using descriptive statistics of frequencies and weighted mean score (WMS) and Spearman's Rank Correlation The results of the descriptive statistics revealed that; level of EHR awareness among health workers in PHC in Rivers West Senatorial District is adequate (WMS = 3.23 > 3.00) and the extent of utilization of EHR is inadequate among health workers in PHC in Rivers West Senatorial District. (WMS = 4.01 > 3.00). The Spearman's Rank Correlation results revealed that there is strong, positive and significant relationship between awareness and utilization of EHR among the health workers ($r = .983$, $p = 0.0001 < 0.05$). Therefore, it was concluded that health workers in primary health centers in River's state have substantial knowledge of the EHSs system but their level of utilization of the EHRs systems are low, however, further improvement in the level of awareness of EHRs could results to increase in level of utilization of the EHRs system among the health workers.

1.0 Introduction

Information and Communication Technology (ICT) was first introduced into the healthcare system in the 1960s to support financial and administrative operations. Over time, the application of computers in healthcare evolved to include patient care functionalities such as order entry, diagnostic imaging, and laboratory result documentation (Smith et al., 2005; Gholami et al., 2019). The primary aim of integrating computerized documentation into clinical care is to enhance efficiency, improve patient safety, and elevate the overall quality of healthcare services and outcomes (Savage et al., 2014; Plantier et al., 2017).

In contemporary healthcare settings, multidisciplinary teams are expected to adopt and utilize computerized systems for care documentation. This integration has increasingly become a

global standard in healthcare delivery. Healthcare professionals carry out a variety of responsibilities ranging from planning, prioritizing, and organizing care to documentation, medication management, and client education. Many of these functions can be enhanced by digital innovations, particularly Electronic Health Records (EHRs), which streamline and support clinical and administrative tasks effectively.

Hayrinen et al. (2008) define an Electronic Health Record as a digital repository of patient information that can be accessed by multiple authorized users, supporting timely and informed decision-making in integrated healthcare systems. Recognizing this potential, the World Health Organization (WHO, 2018) through the World Health Assembly, encouraged member nations to prioritize digital health as a means to achieve Universal Health Coverage (UHC) and accelerate progress towards the Sustainable Development Goals (SDGs).

Prior to the digital era, patient records were maintained manually in paper form. These were often unstructured, fragmented, and prone to duplication, which made the retrieval and comparison of information laborious and inefficient (Hebda & Czar, 2013). This traditional method hindered effective communication, data sharing, and continuity of care. Conversely, EHRs provide a more structured, secure, and accessible means of documentation that facilitates efficient healthcare delivery.

The development and implementation of EHRs have fundamentally transformed healthcare systems around the world. From ancient methods of documentation on papyrus and stone tablets in civilizations such as Egypt and Greece, to institutionalized paper record-keeping in the 18th and 19th centuries led by figures like Florence Nightingale, the need for accurate and systematic documentation has always existed. However, it was not until the mid-20th century—with advances in computing—that healthcare began transitioning to digital platforms. Early EHR systems emerged in the 1960s within academic and research institutions, marking the beginning of a gradual shift from manual to electronic documentation.

According to the WHO (2013), health workers represent a significant segment of the global workforce, and their acceptance and utilization of EHRs are essential to achieving the expected benefits of digital health innovations. However, transitioning from paper-based to electronic systems depends greatly on their level of awareness, training, and readiness to embrace technology. While efforts are ongoing in Nigeria's healthcare sector to phase out manual documentation, many health workers still view this transition as disruptive and challenging.

Given the pivotal role of health workers in Primary Health Centres (PHCs)—the first point of contact in the healthcare delivery system—it becomes essential to assess their awareness, acceptance, and utilization of EHRs. This study therefore seeks to examine the utilization of Electronic Health Records among health workers in PHCs within Rivers West Senatorial District.

Despite the global shift toward digitization in healthcare, many facilities in Rivers State, Nigeria, continue to rely predominantly on manual paper-based documentation. While some departments—such as accounts, laboratories, and internal medicine—have adopted elements of EHRs, the overall utilization remains minimal and fragmented. Observations indicate that healthcare workers in PHCs still document care manually, often making multiple trips to laboratories or other departments to collect test results, materials, and critical information. This

inefficient process contributes to delays in patient care and increased workload, thereby affecting healthcare outcomes.

Given the recognized benefits of EHRs—such as improved documentation, accessibility, accuracy, and timeliness—the minimal adoption in PHCs within Rivers West Senatorial District presents a significant gap. Understanding the extent of EHR awareness and utilization, as well as the factors that influence them, is critical to informing strategies for full implementation. This study seeks to address this gap by investigating the awareness and utilization of Electronic Health Records among health workers in PHCs in Rivers West Senatorial District. Thus the aim of this study is to examine the awareness and utilization of Electronic Health Records among health workers in Primary Health Centers in Rivers West Senatorial District and the objectives are to: determine the level of awareness of EHRs among health workers in PHCs in Rivers West Senatorial District, examine the extent of utilization of EHRs among health workers in PHCs in Rivers West Senatorial District and investigate the relationship between awareness and utilization of EHRs among health workers in PHCs in Rivers West Senatorial District

2.0 Materials and Methods

2.1 Research design

The study adopted analytical cross-sectional research design to determine the level of awareness and utilization of electronic health records among Health Workers in PHC in Rivers West Senatorial District as well s the relationship between level of awareness and utilization of electronic health records among Health Workers in PHC in Rivers West Senatorial District

2.2 Area of the Study

The study was conducted in government-owned Primary Health Centres (PHCs) in Rivers West Senatorial District. According to Agency Report (2023), Rivers West Senatorial District is one of the three senatorial districts in Rivers State, Nigeria. The district covers eight local government areas (LGAs) of the 23 LGAs in Rivers State namely: Abua–Odual, Ahoada East, Ahoada West, Akuku-Toru, Asari-Toru, Bonny, Degema and Ogba-Egbema–Ndoni with a projected population of 2,366,158 (Agency Report, 2023) Figure 3.1 shows the map of the study area. The people of Rivers West Senatorial Districts (both indigenes & non-indigenes) are mostly Christians although Muslims and traditionalist are scattered round the LGAs. Their main occupation in the LGAs are Fishing, farming, and small and medium scale enterprises. Major source of water supply is from public and private borehole facilities, some persons still get water from the streams while others use rain water **(**Omeke, 2021). The LGAs of the Rivers West Senatorial District have a total of about 154 government-owned PHCs, all of which were included in the study. In addition, the cosmopolitan nature of the LGAs necessitated use of Rivers West Senatorial District for this study. Refer to Appendix C for list of Government-owned PHC in Rivers West Senatorial District.

Figure 1 Map of River State Showing the 23 Local Government Areas

2.3 Population of Study

The total population for the study consists of 305 health workers. This represents all the health workers in the 154 PHCs in Rivers West Senatorial District that participated in the study. The Population matrix is presented in Table 1.

Table 1: Participants from PHCs in Rivers West Senatorial District State

S/No.	Name of LGA	No. of PHCs	No. of Participants
1.	Abua–Odual	28	53
2.	Ahoada East	18	36
3.	Ahoada West	34	58
4.	Akuku-Toru	7	13
5.	Asari-Toru	14	29
6.	Bonny	16	32
7.	Degema	13	28
8.	Ogba-Egbema–Ndoni	28	56
Total		**154**	**305**

Source: Field work

2.4 Sample of Size and Sampling Technique

The sample size of the study is 305 health workers in the 154 PHCs in Rivers West Senatorial District that participated in the study. The health workers were composed using purposive and convenience sampling techniques. Health workers in the 154 PHCs in Rivers West Senatorial District. Health workers who were either on annual or maternity leave during the period of study.

2.5 Instrument for Data Collection

Data collection was done using self-structured questionnaire titled "utilization of electronic health records among Health Workers" (UEHRHWQ), designed to collect relevant information from the respondents. The questionnaire was arranged in four sections: A, B, C

and D. Section A reflected respondents Demographic Data; Section B entailed Health Workers' awareness of HER; Section C was on Health Workers' utilization of EHR and Section D detailed factors influencing utilization of EHRs. The instrument was made up of closed ended question in section A and 5-point Likert scale in sections B, C and D. Rated: Strongly Agree = 5, Agree = 4, Undecided =3, Disagree = 2 and Strongly Disagree =1. In 5-point Likert scale, the analysis of the response of the respondents is based on setting a criterion (C) for rejecting or accepting the overall response and the criteria is calculated as follow

$$\mathbf{C} = \frac{1 + 2 + 3 + 4 + 5}{(5)} = \frac{15}{(5)} = 3.00$$

This means that when average or weighed average is greater than 3.00, the respondents agree or accept the construct, when average or weighed average is less than 3.00, the respondents disagree or reject the construct and when average or weighed average is 3.00 means undecided.

2.6 Validity and Reliability of the Instrument

The validity of the self-structured questionnaire was ensured by the researcher's Supervisors and two experts on the study subject to confirm the content and face validity of the instrument, thereafter corrections were affected to match the stated specific objectives of the study before administration. Reliability of the instrument was done using test-retest method through a pilot study was done by administering questionnaires to 20 randomly selected respondents at the same facilities but who were not included in the study. The questionnaires were re-administered after two weeks to the same respondents and thereafter, the two scores were correlated using Spearman's Rank Correlation Coefficient and a reliability coefficient index of .80 was obtained which was high enough to ensure use of the instrument for the study.

2.8 Method of Data Collection and Analysis

Data was collected from the participants with the use of questionnaire within six weeks. The aim of the study and inclusion criteria for participation, were explained to the respondents. Anonymity was maintained as the names of respondents were not required in filling of the questionnaire. A total of 305 copies were administered to health workers at the PHC in Rivers West Senatorial District. Completed copies were retrieved on the spot, and subsequent retrieval done by the researcher. Data was analyzed using descriptive statistics of frequencies and percentages were used to explain responses to the demographic variables, weighted mean, standard deviation were and Spearman's Rank Correlation Coefficient was used to answer research question and test for Hypotheses at .05 level of significance. Statistical Package for Social Sciences (SPSS) software version 26.0 was used to analyze data. The criterion mean score is set at 3.0, while the relationship coefficient was interpreted thus: 0 – .39 = weak relationship; .40 – .69 = moderate relationship and 70 - 1 = Strong relationship.

3.0 Results and Analysis

3.1 Socio-Demographic Data

Table 2 shows that 108(35.1%) of respondents were between the ages 31 – 40years, 97(31.5%) were between 41 – 50years, 60(19.5%) were below 30years, 40(13.0%) were between 51 – 60 years and none of the respondents fell within 61 and above. Females were 258(83.8%) who took part in the study, while males were 47(15.3%). married participants were 252(81.8%), single 39(12.7%), widowed 8(2.6%) and 6(1.9%) divorced. 183(59.4%) were B.Sc. holders, 80(26.0%) had RM/other qualification, 28(9.1%) had M.Sc. degree, 8(2.6%) had RN only and

6(1.9%) Ph.D. holders. In addition, 10 (2.8) of respondents had less than 2 years of work experience; 119(39.0%) had12 – 21years working experience, 98(32.1%) had 2 – 11years work experience, 45(14.8%) had between 22 – 31years of work experience and 43(14.1%) had 32years and above work experience in service.

Table 2: Socio-Demographic Data of Respondents (N=305)

Variables	Category	Frequency	Percent
Age	Below 30	60	19.5
	31-40	108	35.1
	41-50	97	31.5
	51 and above	40	13.0
Gender	Male	47	15.3
	Female	258	83.8
Marital status	Single	39	12.7
	Married	252	81.8
	Divorced	6	1.9
	Widowed	9	2.6
Educational qualification	Secondary	8	2.6
	Professional	80	26.0
	BSc	183	59.4
	MSc	28	9.1
	PhD	6	1.9
Years of work experience	Less than 2 years	10	2.8
	2 – 11yrs	98	32.1
	12- 21yrs	119	39.0
	22- 31yrs	45	14.8
	32 and above	43	14.1

3.2 The level of awareness of EHR among health workers in PHC in Rivers West Senatorial District

Table 3 shows mean responses on level of awareness of EHR among the participants. The table revealed that health workers strongly agreed that: Use of EHR is not for record and admin personnel only (Weighted Mean (WM) = 4.46); information documented in EHRs is reliable (WM= 4.34); EHR allow for total patient care (WM= 4.25) and use of EHR is not an additional workload to health care duty (WM= 4.13). Health workers also agreed that use of EHRs is not time consuming (WM=3.872), meanwhile, health workers were undecided on; EHR is not easy to learn and use (WM = 1.779). On the other hand, the health workers disagreed that EHR does not improves health care documentation (WM= 1.87) and that EHR does not make for quality health care (WM= 1.73). The overall weighted mean of 3.23 showed the level of awareness of EHR is adequate among health workers in PHC in Rivers West Senatorial District.

This finding is in line with the study carried out by Ahmad (2018) whose work revealed that health workers' perception towards EHR use during clinical nursing performance was positive, with majority agreeing that the system allows for data relevant in caring for clients and integrated routine clinical nursing work. This result is also in support of the study carried out by Saima et al. (2017) which showed that health workers' attitudes were found to be very positive about using EHRs to improve clinical documentation. Again, this work is in accordance to the study done by Bakheet et al. (2017) whose study identified and established

that Health Workers had a positive attitude towards perceived usefulness and ease of use concerning the acceptance of EMR. The use of EMRs within a healthcare facility helps in ensuring clinical care efficiency and safety of patients.

Table 3: The responses on Level of Awareness of EHR among Health Workers (n = 305)

	Item	Responses					WM	Remark
		SA	A	U	D	SD		
1.	Use of EHRs is not time consuming	94.00 (30.82%)	50.00 (16.39%)	13.00 (4.26%)	118.00 (38.69%)	30.00 (9.82%)	3.87	Agreed
2.	Information documented in EHRs is reliable	96.00 (31.48%)	198.00 (64.92%)	2.00 (0.65%)	5.00 (1.64%)	4.00 (1.31%)	4.34	Agreed
3.	EHR allow for total client care.	90.00 (29.51%)	171.00 (56.07%)	17.00 (5.57%)	13.00 (4.28%)	14.00 (4.59%)	4.25	Agreed
4.	EHR is not easy to learn and use	1.00 (0.32%)	9.00 (2.95%)	13.00 (4.28%)	178.00 (58.36%)	104.00 (34.10%)	2.04	Disagreed
5.	Use of EHR is not an additional workload to health workers duty	61.00 (20.00%)	198.00 (64.92%)	23.00 (7.54%)	13.00 (4.28%)	10.00 (3.28%	4.13	Agreed
6.	EHR does not improves health care documentation	5.00 (1.64%)	4.00 (1.31%)	2.00 (0.65%)	119.00 (39.02%)	176.00 (57.70%)	1.87	Disagreed
7.	EHR does not make for quality health care	1.00 (0.32%)	3.00 (0.96%)	8.00 (2.62%)	110.00 (36.07%)	183.00 (60.00%)	1.73	Disagreed
8.	Use of EHR is not for record and admin personnel only	132.00 (43.28%)	157.00 (51.48%)	2.00 (0.65%)	8.00 (2.62%)	6.00 (1.97%)	4.46	Agreed
	Overall Weighted Mean						**3.23**	**A**

3.3 The extent of utilization of EHR among health workers in PHC in Rivers West Senatorial District

Table 4 shows mean responses on extent of utilization of EHR among participants. The Table revealed that health workers strongly agreed that: EHR is not used regularly in client care (WM= 4.58); charting of prescription is not done with EHR (WM= 4.43); clients vital signs are not imputed in EHR (WM= 4.42); information in the EHR are relevant to client care (WM= 4.42); EHR is not used for viewing of Lab. results (WM= 4.32);

This result is in alignment with the study carried out by Essuman et al. (2020), their findings revealed low utilization of EMR among the health professionals. However, this finding is contrary to the study carried out by Kossman (2006) and Ahmad (2018) which showed that health workers reported using EHRs for all aspects of patient care documentation, including reviewing and charting assessments, care planning, treatments, medication administration, admissions and discharges. They accessed pertinent clinical information including transcribed reports, laboratory and diagnostic test results, interdisciplinary notes and past history. The findings, also contradicts the result of the work done by Khwima (2017) which revealed that there was higher usage of EMRs and EHRs at Queen Elizabeth Central Hospital in Malawi.

Table 4: The responses on Extent of Utilization of EHR among Health Workers

	Item	Responses					WM	Remark
		SA	A	U	D	SD		
1	EHR is used for Report writing	6.00 (1.97%)	8.00 (2.62%)	4.00 (1.31%)	143.00 (46.88%)	144.00 (47.21%)	2.04	Disagreed
2	Charting of prescription is not done with EHR	125.00 (40.98%)	162.00 (53.11%)	4.00 (1.31%)	8.00 (2.62%)	6.00 (1.97%)	4.43	Agreed
3	Client vital signs are not imputed in HER	122.00 (40.00%)	165.00 (54.10%)	5.00 (1.64%)	6.00 (1.97%)	7.00 (2.30%)	4.42	Agreed
4	EHR is not used for viewing of Lab. Results	105.00 (34.43%)	167.00 (54.75%)	8.00 (2.62%)	17.00 (5.57%)	8.00 (2.62%)	4.32	Agreed
5	Information in the EHR is relevant to client care	120.00 (39.34%)	169.00 (55.41%)	7.00 (2.30%)	4.00 (1.31%)	5.00 (1.64%)	4.42	Agreed
6	Health care activities are not captured in the EHR system	84.00 (27.54%_	182.00 (59.67%)	19.00 (6.23%)	16.00 (5.25%)	4.00 (1.31%)	4.23	Agreed
7	EHR is not used regularly in client care	171.00 (56.07%)	115.00 (37.70%)	6.00 (1.97%)	9.00 (2.95%)	4.00 (1.31%)	4.58	Agreed
8	EHR is preferred to Paper documentation	54.00 (17.70%)	192.00 (62.95%)	28.00 (9.18%)	22.00 (7.21%)	9.00 (2.95%)	4.06	Agreed
	Overall Weighted Mean						**4.01**	Agreed

The relationship between awareness and utilization of EHR among health workers in PHC in Rivers West Senatorial District.

The Table 5 shows the correlation coefficient of relationship between awareness and utilization of EHR among the participants. The table revealed ($r = .983$, $p < .05$), this implies a strong positive relationship between awareness and utilization of EHR among the health workers. The null hypothesis was rejected. Therefore, there is significant relationship between awareness and utilization of EHR among health workers in PHC in Rivers West Senatorial District.

Table 5: Correlation Coefficient of Relationship between Awareness and Utilization of EHR among Health Workers

Variable	No	R	Sig	Decision	Remark
Awareness	305	0.983	0.00	Significant	Reject
Utilization	305				

4.0 Conclusions

Based on findings of the study, it was concluded that; one, level of awareness of HER among health workers in PHC in Rivers West Senatorial District is adequate. Two, the extent of utilization of HER among health workers in PHC in Rivers West Senatorial District is inadequate and lastly there is strong, positive and significant relationship between awareness and utilization of EHR among health workers in PHC in Rivers West Senatorial District. Therefore, systematic training and retraining of health workers on the features and workability of HER is needed in the healthcare centers, Government at all levels (federal, state & local government) should provide computers to health care facilities lastly Management should put in place strong IT maintenance team to ensure the computers are working optimally and informatics team to ensure consolidation of EHR use.

References

Ahmad, H. A. R. (2018). Health workers' perceptions about and confidence in using an electronic medical record system. *Proceedings of Singapore Healthcarel. 27*(2) 110–117.

Bakheet, A., Al-Mansour, S., Aldosari, H., Alanazi, A. (2017). Assessment of factors influencing health workers acceptance of electronic medical record in a Saudi Arabia hospital, *Informatics in Medicine.10* (2018), 82-88

Essuman, L., Apaaka, D., Ansaha, E., Sambaha, F., Ansaha, J., Oparea, M., Opoku, B. (2020). Factors associated with the utilization of electronic medical records in the Eastern Region of Ghana, *Health Policy and Technology* (9) 362-367, https://www.researchgate.net/publication/343797761

Gholami, M., Damanabi, S., Hachesu, P.R., Ghyassi, F. S. (2019). Evaluation of nursing information systems using the HIS-monitor instrument: Health workers perspectives. *Iran J med inform*. 8 (1): e9 doi: 10.30699/fhi.v8i1.178

Hayrinen, K., Saranto, K., & Nykanen, P. (2008). Definition, structure, content, use and impacts of electronic health records: A Review of the Research Literature. *International Journal of Medical Informatics.*;77 (5), 291-304.

Hebda T., & Czar P. (2013) *Handbook of informatics for health workers and healthcare professionals*. Fifth Edition. New Jersey, Pearson Education Incorporated. United States of America.

Khwima, E. (2017). Factors affecting the utilization of electronic medical records system in Malawian central hospitals 247, *Malawi Medical Journal 29*(3), 23-34.

Kossman, S.P (2006). Perceptions of impact of electronic health records on health workers' work, consumer-centered computer-supported care for healthy people, p.337-341 H.-A. Park et al. (Eds.) IOS Press,

Plantier, M., Havet, N., Durand, T., Caquot, N., Amaz, C., Biron, P., & Perrier, L. (2017). Does adoption of electronic health records improve the quality-of-care management in France? Results from the French e-SI (PREPS-SIPS) study. *International Journal of*

Medical Informatics, *102*(March), 156–165. https://doi.org/10.1016/j.ijmedinf.2017.04.002

Saima, S., Muhammad, A., Muhammad, H., Syed, A. (2017). Nursing perceptions of electronic documentation. *Saudi Journal of Medical and Pharmaceutical Sciences,* Vol-3 (8:926-935, DOI: 10.21276/sjmps. http://scholarsmepub.com/sjmps/

Savage, B. A., Titus, A. E., Manns, J. G., & Lee, R. A. (2014). BCMA scanning stars. *CIN: Computers, Informatics, Nursing*, *32*(9), 413–419.

Smith, K., Smith, V., Krugman, M., & Oman, K. (2005). Evaluating the impact of computerized clinical documentation. *CIN: Computers, Informatics, Nursing*, *23*(3), 132-138.

World Health Organization. (2013). WHO nursing midwifery progress report 2008–2012. Retrieved from http://www.who.int/hrh/nursing_

World Health Organization. (2018). Retrieved from https://www.who.int/goe/en/