

## Assessment of knowledge and availability of audio visuals among nurse educators in nursing education institutions in Anambra state

Makata Ngozi Eucharua <sup>1</sup>, Anieche John Emenike <sup>1</sup>, Odikpo Linda Chihurumnanya <sup>1</sup>, Ndubuisi Sunday Felix <sup>2, \*</sup>, Musa Kizito Monday <sup>1</sup> and Braimah Sha-awanetu Desire <sup>3</sup>

<sup>1</sup> Department of Nursing Science Nnamdi Azikiwe University Awka, Anambra State, Nigeria.

<sup>2</sup> Department of Nursing Sciences, College of nursing, Irrua Specialist teaching Hospital Irrua Edo State.

<sup>3</sup> Department of Nursing Science Edo State University Iyamho, Edo State, Nigeria.

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### Abstract

The use of audiovisual is gradually becoming a global phenomenon and the developing countries like Nigeria should be abreast with the use of this innovative method in educational institutions. This study investigated the knowledge and availability of audio visuals among nurse educators in nursing education institutions in Anambra State. A descriptive cross-sectional survey design was adopted in this study, and a census method was used to arrive at a sample size of 103 nurse educators from the Nursing and Midwifery Council of Nigeria-accredited training institutions in Anambra State, Nigeria. A self-administered questionnaire was used for data collection. Collated data were analysed using SPSS version 27, with results presented in frequency, percentage, mean and standard deviation. The hypotheses were tested at a significance level of 0.05 using the Kruskal-Wallis H test. The findings of the study revealed that the majority of the nurse educators, 72 (69.9%), were knowledgeable of audio-visuals. The study also revealed that the majority of the nurse educators cited the availability of certain audio-visuals like pictures (87.4%) and posters (84.6%). The study also revealed that knowledge of nurse educators was influenced by their academic qualification ( $\chi^2 = 17.09$ ,  $p = 0.001$ ) and their years of teaching experience ( $\chi^2 = 21.66$ ,  $p < 0.001$ ).

**Conclusion:** Nurses educators are knowledgeable of audiovisuals, while some are readily available majority are not hence the researchers recommended that nurse educators should be trained on the use of varieties of audio visuals and that nursing education institutions should provide more support for the use of audio visuals in teaching.

**Keywords:** Knowledge; Perceived Availability; Utilisation; Audiovisuals; Nurse Educators

### 1 Introduction

Effective nursing education requires engaging the comprehensive teaching methods. Audiovisuals (AVs) have the potential to significantly improve student learning by stimulating various senses and enhancing an in-depth understanding of complex medical ideas. According to [1], the Nigerian educational system continuously experiences transformation given the introduction of information and communication technologies (ICTs) in the teaching and learning processes, as well as a rise in the number of students enrolled in the system. The authors further maintained that it is now difficult for effective teaching and learning to take place without appropriate tools and mechanisms.

Among these tools are audiovisuals or AV resources. According to [2], the term 'audio-visual' is commonly used to refer to those instructional materials that may be used to convey meaning without complete dependence upon verbal symbols or language. They serve as aids for training or educational materials directed at both the sense of hearing and sight, used in classroom instruction, library collections or the like. Examples may include computers (or a computer

\* Corresponding author: Ndubuisi Sunday F

lab), films, slides, transparencies, projectors, photographs, maps, posters, charts, audio/video CDs, tapes, recorders/players, videocassette recorders (VCRs), videocassette players (VCPs), and Xerox machines, among others. Some audio-visual components are like process and experience, for example, dramatising an event or making a diorama [3,4].

Audio-visual teaching aids are widely used in nursing education to magnify learning and understanding of complex concepts and skills [5]. These aids can include varieties of resources such as videos, simulations, and interactive multimedia programs. So, there is no doubt that technical devices have a greater impact and dynamic informative system [6]. [7] explained that educators have realised the value of audio-visual resources, not as a separate subject or a teaching project but as an effective, vital method of teaching, providing for the presentation of knowledge through seeing and learning experience. The gains in audiovisual resources in the teaching-learning processes must be consolidated. The advent of computer-assisted instruction (CAI) and educational games has further emphasised the primary function of audio-visual resources, which is to improve efficiency and effectiveness of the teaching, in turn improving student academic performance [8].

Nurse educators have shown positive perceptions towards the use of audiovisuals in teaching, and they believe audiovisuals can enhance students' knowledge, practical skills, and interpersonal learning competencies, as well as linking face-to-face learning with clinical practice [9]. Studies have also shown that the use of visual-based instructions can raise student performance and confidence level in carrying out nursing procedures, i.e., hand washing [10], drug administration, safe injection practices, wound dressing, and others. According to [11], the success of clinical simulation as a teaching methodology depends on well-resourced environments and the needed expertise of the clinical staff involved.

Studies have shown that factors that influence the availability and the utilisation of audiovisuals in nursing educational institutions include the need for quality clinical placements and the challenge of locating and sustaining them [12]. Other factors such as humour, vividness, linguistic fluency, teaching tools, and empathy in nurse-patient role-play videos. Therefore, the use of audiovisual narratives during simulation and prebriefing can enhance the learning experience for nursing students [13]. Pedagogical videos carry information that appeals to the sense of hearing and visually to the students simultaneously [14], which may result in a better assimilation and understanding.

Feedback on video skills is seen as a crucial dimension of teaching and learning, with the potential to positively impact mental health and provide valuable learning support [15]. The availability of audio-visual resources by nurse educators in Nigeria is a matter of serious concern to every stakeholder in the Nigerian nursing education system [16]. [17] reported that teaching and learning strategies and insufficient resources were factors that hindered the academic performance of nursing students in Bauchi State, Nigeria, which might also be the case in other nursing institutions in Nigeria. The researchers' visit to some nursing training institutions in Southeast Nigeria made them observe that most of the nurse educators teach students without audiovisuals. The problem that is usually unnoticed might be the inadequate knowledge and non-availability of these relevant educational resources. However, diminutive empirical evidence exists on the knowledge and availability of audiovisuals among nurse educators in nursing education institutions in Anambra State. This study, therefore, assesses the knowledge and availability of audio visuals among nurse educators in nursing training institutions in Anambra State. The study also tested two null hypotheses, including that the academic qualification of nurse educators would not significantly influence their knowledge about audiovisuals as teaching-learning resources and years of teaching experience of nurse educators would not significantly influence their knowledge of audiovisuals as teaching-learning resources.

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## 2 Material and Method

A cross-sectional descriptive survey design was used to elicit information on nurse educators' knowledge, availability, and utilization of audio visuals in nursing education institutions in Anambra State. A total enumeration (census method) no sampling method was used as sample size, as the entire study population was 114. The inclusion criteria include: Nurse educators teaching at least one theoretical course at the time of data collection, Nurse educators teaching at least one theoretical course at the time of data collection, Willingness of the nurse educators to participate in the study and the availability of nurse educator at the time of data collection. The study was carried out in five nursing training institutions in Anambra State in Southeast Nigeria. They include, Anambra State College of Nursing, Nkpor; College of Nursing, NAUTH Nnewi; College of Nursing, Iyi-enu Hospital Ogidi; College of Nursing, Our Lady of Lourdes Hospital Ihiala; and Department of Nursing Science, Nnamdi Azikiwe University, Nnewi Campus.

Two validated researchers developed instruments called the Audio-visual Knowledge and Availability Questionnaire (AVKAQ) and the Audio-visual Availability Observation Checklist (AAOC) with Cronbach's alpha value 0.85 and 0.89, respectively were used by the researcher for the collection of data for this study. The tools has Sixteen (16) and twenty-four (24) items independently. Ethical clearance was obtained from Human Research and Ethics Committees of the Faculty of Health Sciences, Nnamdi Azikiwe University, Nnewi Campus while participants were fully informed of the objectives and design of the study, and their written consent was secured, To ensure that nurse educators respond only once to the questionnaire, each nurse educator was administered the questionnaire in their place of primary employment. The researchers checked the audio-visual resources in the various institutions and recorded them accordingly on the checklist. and this process lasted 12 weeks

The generated data was collated, coded and analysed using the IBM/Statistical Package for Social Sciences (SPSS) for Windows version (27). Research questions were answered using percentages, means, and standard deviation. Demographic data were scored in frequencies and presented in figures and tables. The hypotheses were tested at the 0.05 level of significance using the Kruskal-Wallis H test. Knowledge questions were scored on a scale of 0-2 points. For a correct response, 2 points; do not know, 1 point; wrong response, 0 points; respectively. The resulting scores were then converted to percentages ranging from 0 to 100% and were categorised as follows: 70-100% (high), 50-69% (average), and 0-49% (poor). Availability questions were scored with percentage and means. Responses to the presence of each audio-visual were scored in percentages, while the extent of availability was scored on a four-point Likert-like scale, thus: Always available: 4 points; occasionally available: 3 points; rarely available: 2 points; Not at all: 1 point. The means were determined, and a score of 2.5 was used as decision criteria. Audiovisuals with a mean of 2.5 or above were deemed to be available. The AAOC was scored on a scale of 0-2 points. For available and functional 2 points; available but not functional 1 point; not available 0 point; The resulting scores were then converted to percentages ranging from 0-100% and were categorised as follows; 50-100% (available); 0-49% (not available).

### 3 Results

**Table 1** Demographic characteristics of Nurse Educators n=103

| CHARACTERISTICS              | FREQUENCY | PERCENTAGE |
|------------------------------|-----------|------------|
| Institutions                 |           |            |
| CON Ihiala                   | 25        | 24.3       |
| CON Iyi-enu                  | 22        | 21.4       |
| NAU Nnewi Campus             | 15        | 14.6       |
| CON Nkpor                    | 19        | 18.4       |
| CON NAUTH Nnewi              | 22        | 21.4       |
| Highest Qualification        |           |            |
| PGDN                         | 11        | 10.7       |
| BNSc/BSc                     | 50        | 48.5       |
| MNSc/MSc                     | 33        | 32.0       |
| Ph.D.                        | 9         | 8.7        |
| Areas of Specialisation      |           |            |
| Nurse Educator               | 33        | 32.0       |
| Midwife Educator             | 17        | 16.5       |
| Public Health Nurse Educator | 8         | 7.8        |
| Not registered               | 45        | 43.7       |
| Years of Teaching Experience |           |            |
| < 1 year                     | 14        | 13.6       |
| 1 - 5 years                  | 32        | 31.1       |
| 6 - 10 years                 | 25        | 24.3       |
| 11 - 15 years                | 13        | 12.6       |
| ≥16 years                    | 19        | 18.4       |

Table 1, shows the demographic characteristics of the study population. A greater percentage (24.3%) of the study population was recruited from the School of Nursing Ihiala, while the least percentage (14.6%) came from Nnamdi Azikiwe University, Nnewi Campus. Almost half (48.5%) of the nurse educators had Bachelor of Nursing Science/Bachelor of Science degree as their highest degree, while those with PhD constituted the least percentage (8.7%) of the study population. Respondents who were not registered as nurse educator or midwife educator or public health nurse educator were the majority (43.7%), followed by nurse educators (32%), midwife educators (16.5%) and public health nurse educators (7.8%). Many (31.1%) of the nurse educators were those with 1-5 years of teaching experience, while those with 11-15 years of experience constituted the least percentage (12.6%) of the respondents.

**Table 2b** Frequency distribution of nurse educators on their knowledge of the of use audio visual resources while teaching n=103

| S/N | Audio Visual Resources    | Yes<br>N (%) | No<br>N (%) |
|-----|---------------------------|--------------|-------------|
| 1   | Pictures                  | 103 (100)    | 0 (0)       |
| 2   | Projectors                | 92 (89.3)    | 11 (10.7)   |
| 3   | Slides                    | 86 (83.5)    | 17 (16.5)   |
| 4   | Film strips               | 41 (39.8)    | 62 (60.2)   |
| 5   | Microfilms                | 20 (19.4)    | 83 (80.6)   |
| 6   | Microscope                | 35 (34.0)    | 68 (66.0)   |
| 7   | Posters                   | 95 (92.2)    | 8 (7.8)     |
| 8   | Maps                      | 86 (83.5)    | 17 (16.5)   |
| 9   | Display boards            | 82 (79.6)    | 21 (20.4)   |
| 10  | Magnetic boards           | 47 (45.6)    | 56 (54.4)   |
| 11  | Real objects              | 96 (93.2)    | 7 (6.8)     |
| 12  | Models                    | 98 (95.1)    | 5 (4.9)     |
| 13  | Radio                     | 70 (68.0)    | 33 (32.0)   |
| 14  | Compact discs             | 63 (61.2)    | 40 (38.8)   |
| 15  | Television                | 82 (79.6)    | 21 (20.4)   |
| 16  | Cassette                  | 80 (77.7)    | 23 (22.3)   |
| 17  | DVD                       | 86 (83.5)    | 17 (16.5)   |
| 18  | CD Rom                    | 76 (73.8)    | 27 (26.2)   |
| 19  | Videos                    | 84 (81.6)    | 19 (18.4)   |
| 20  | Computer Programme        | 72 (69.9)    | 31 (30.1)   |
| 21  | Charts                    | 98 (95.1)    | 5 (4.9)     |
| 22  | Transparencies            | 22 (21.4)    | 81 (78.6)   |
| 23  | Power points presentation | 94 (91.3)    | 9 (8.7)     |
| 24  | Diorama/Simulation        | 32 (31.1)    | 71 (68.9)   |

Table 2. shows that majority of the nurse educators reported that they have knowledge of how to use pictures (100%), models (95.1%), charts (95.1%), real objects (93.2%), posters (92.2%), power point presentation (91.3%), projectors (89.3%), slides (83.5%), maps (83.5%), DVD (83.5%), videos (81.6%), display boards (79.6%), television (79.6%), cassettes (77.7%), CD Rom (73.8%), computer program (69.9%), radio (68%), compact discs (61.2%). Less than half of the nurse educators claimed they have knowledge of how to use the other AVRs such as magnetic board (45.6%), film strips (39.8%), diorama/simulation (31.1%), transparencies (21.4%), and microfilms (19.4%).

**Table 2b** Level of knowledge of nurse educators about audio-visuals use in their teaching-learning activities in nursing education n=103

| Rating of Knowledge | %Knowledge Score | N  | Percentage |
|---------------------|------------------|----|------------|
| Poor Knowledge      | 0 – 49           | 27 | 26.2       |
| Average Knowledge   | 50 – 69          | 4  | 3.9        |
| High Knowledge      | 70 – 100         | 72 | 69.9       |

Table 2b shows the rating of knowledge of nurse educators about audio-visuals in nursing education. More than half (69.9%) of the study population had high knowledge of audio-visuals use in teaching and learning activities. 26.2% had poor knowledge while 3.9% had average knowledge of audio-visuals use in teaching and learning activities.

**Table 3** Audio-visual resources available for use by nurse educators in the teaching of student nurses

| Audio Visual Resources    | Yes<br>N (%) | No<br>N (%) |
|---------------------------|--------------|-------------|
| Picture                   | 90 (87.4)    | 13 (12.6)   |
| Projectors                | 69 (67.0)    | 34 (33.0)   |
| Slides                    | 25 (24.3)    | 78 (75.7)   |
| Film strips               | 6 (5.8)      | 97 (94.2)   |
| Microfilms                | 7 (6.8)      | 96 (93.2)   |
| Microscope                | 24 (23.3)    | 79 (76.7)   |
| Posters                   | 84 (81.6)    | 19 (18.4)   |
| Maps                      | 59 (57.3)    | 44 (42.7)   |
| Display boards            | 57 (55.3)    | 46 (44.7)   |
| Magnetic boards           | 34 (33.0)    | 69 (67.0)   |
| Real objects              | 81 (78.6)    | 22 (21.4)   |
| Models                    | 91 (88.3)    | 12 (11.7)   |
| Radio                     | 13 (12.6)    | 90 (87.4)   |
| Compact discs             | 19 (18.4)    | 84 (81.6)   |
| Television                | 27 (26.2)    | 76 (73.8)   |
| Cassette                  | 23 (22.3)    | 80 (77.7)   |
| DVD                       | 21 (20.4)    | 82 (79.6)   |
| CD Rom                    | 22 (21.4)    | 81 (78.6)   |
| Videos                    | 27 (26.2)    | 76 (73.8)   |
| Computer Programme        | 27 (26.2)    | 76 (73.8)   |
| Charts                    | 92 (89.3)    | 11 (10.7)   |
| Transparencies            | 5 (4.9)      | 98 (95.1)   |
| Power points presentation | 60 (58.3)    | 43 (41.7)   |
| Diorama/Simulations       | 13 (12.6)    | 90 (87.4)   |

Table 3 indicates the audio-visual resources that have been used by nurse educators in teaching of student nurses and frequency distribution of participants based on their responses. Data shows that majority of the nurse educators have used charts (89.3%), models (88.3%), pictures (87.4%), posters (81.6%), real objects (78.6%), projectors (67%), power point presentation (58.3%), maps (57.3%), and display boards (55.3%) in teaching of student nurses in their institutions. The other AVRs were less frequently used.

### 3.1 Hypotheses

### 3.2 Academic qualification of nurse educators will not significantly influence their knowledge of audio visuals as teaching-learning resources

**Table 4** Influence of academic qualification of nurse educators on their knowledge of audio visuals as teaching-learning resources

|                                                  | HIGHEST QUALIFICATION | N   | MEAN RANK KNOWLEDGE SCORE |
|--------------------------------------------------|-----------------------|-----|---------------------------|
| LEVEL OF KNOWLEDGE<br>(Poor; Average; High)      | PGDN                  | 11  | 25.14                     |
|                                                  | BNSc/BSc              | 50  | 52.52                     |
|                                                  | MNSc/MSc              | 33  | 59.18                     |
|                                                  | PhD                   | 9   | 55.61                     |
|                                                  | Total                 | 103 |                           |
| Statistics: $\chi^2 = 17.09$ ; DF = 3; P = 0.001 |                       |     |                           |

Independent variable = Academic qualification; Dependent variable = Level of knowledge

Table 4 shows the influence of academic qualification of nurse educators on knowledge of audio visuals as teaching-learning resources. Kruskal-Wallis H test showed that there was a statistically significant difference in level of knowledge between the different academic qualifications,  $\chi^2 = 17.09$ ,  $p = 0.001$ , with a mean rank knowledge score of 25.14 for PGDN, 52.52 for BNSc/BSc, 59.18 for MNSc/MSc and 55.61 for PhD. This finding suggests that level of knowledge of AVR is significantly influenced by the academic qualification of the nurse educators.

### 3.3 Years of teaching experience of nurse educators will not significantly influence their knowledge of audio visuals as teaching-learning resources

**Table 5** Influence of years of teaching experience of nurse educators on their knowledge of audio visuals as teaching-learning resources

|                                                  | YEARS OF TEACHING EXPERIENCE | N   | MEAN RANK KNOWLEDGE SCORE |
|--------------------------------------------------|------------------------------|-----|---------------------------|
| LEVEL OF KNOWLEDGE<br>(Poor; Average; High)      | < 1 year                     | 14  | 25.46                     |
|                                                  | 1-5 years                    | 32  | 57.95                     |
|                                                  | 6 - 10 years                 | 25  | 58.94                     |
|                                                  | 11 - 15 years                | 13  | 49.31                     |
|                                                  | 16 years and above           | 19  | 54.24                     |
|                                                  | Total                        | 103 |                           |
| Statistics: $\chi^2 = 21.66$ ; DF = 4; P < 0.001 |                              |     |                           |

Independent variable = Years of teaching experience; Dependent variable = Level of knowledge

Table 6 shows the influence of years of teaching experience of nurse educators on their knowledge of audio visuals as teaching-learning resources. Kruskal-Wallis H test showed that there was a statistically significant difference in level of knowledge of nurse educators among the years of teaching experience,  $\chi^2 = 21.66$ ,  $p < 0.001$ , with a mean rank knowledge score of 25.46 for < 1 year, 57.95 for 1 – 5 years, 58.94 for 6-10 years, 49.31 for 11-15 years and 54.24 for 16 years and above. This finding suggests that level of knowledge of AVR is significantly influenced by the year of teaching experience of the nurse educators.

## 4 Discussion

This study revealed that the majority of the nurse educators had knowledge of how to use pictures, models, charts, real objects, posters, PowerPoint presentations, projectors, slides, maps, DVD videos, display boards, televisions, cassette CD-ROMs, computer programs, radios and compact discs; however, few of the nurse educators were knowledgeable about how to use other AVRs, such as magnetic boards (45.6%), film strips (39.8%), diorama simulations (31.1%), transparencies (21.4%), and microfilms (19.4%). This finding is in congruence with the findings of [18] and [9]. As most of these AVRs, such as pictures, models, real objects, posters, projectors, maps, DVDs, display boards, televisions, and radios, are basic for accreditation Nursing and Midwifery Council of Nigeria [NMCN] [19], the nurse educators must have been, at one point or another, informed about them. Also, they are basic teaching-learning resources that must be highlighted in workshops and seminars for the training or retraining of nurse educators. This finding demonstrated that the nurse educators have some training/knowledge on teaching learning resources. Consistent with [18], nurse educators in Imo State demonstrate awareness of current AV resources, likely due to curriculum requirements. However, a significant knowledge gap exists regarding both very old and very new technologies.

For instance, less than half are familiar with legacy tools like film strips or microfilms, which have been superseded by digital technology. At the same time, never-before-seen innovations like dioramas and simulation-based AV are still gaining traction, explaining why fewer educators are yet proficient in their use. Furthermore, the findings of the study revealed that some of the AVRs, such as pictures, projectors, posters, models, charts, real objects, PowerPoint presentations, display boards, maps, DVDs, computer programs, videos and television, were available for teaching. This result corroborates [16] whose finding confirmed the availability of audio-visuals for teaching.

The availability, perhaps, is the NMCN minimum requirement for schools of nursing accreditation; thus, institutions make concerted efforts to make these AVRs available for school accreditation and for nurse educators to use as teaching and learning resources during experience. This finding might be the reason for many provisional accreditation statuses of nursing educational institutions by the Nigerian nursing regulatory body, the Nursing and Midwifery Council of Nigeria (NM). However, some of the AVRs are not available in a few nursing education institutions in Anambra State. These findings are in line with those of [4] whose study revealed 10% non-availability of itemised AVRs in Nasarawa State.

Hypothesis 1 revealed that the level of knowledge of AVR is significantly influenced by the academic qualification of the nurse educators. Those with postgraduate certificates, except PGDE, showed a higher level of knowledge of audio-visual resources, perhaps due to their utilisation as students and in the course of training. In addition, the bachelor's degree holders among the respondents expressed average knowledge of the use of audio-visual resources. It is the responsibility of a nurse educator to make use of audio-visuals that can best convey the necessary information in the course of teaching to promote effectiveness [20], assimilation and understanding by the students.

Hypothesis 2 test showed that the level of knowledge of AVR is significantly influenced by the year of teaching experience of the nurse educators. Participants with 1 to 10 years of experience expressed a higher level of knowledge of audio-visual resources, which could be attributed to their quest to explore, giving their best, become relevant in the college and attain a higher lecturing status.

## 5 Conclusions

The findings of this study revealed that nurse educators had average knowledge about Audio visual resources use and AVR knowledge of nurse educators was influenced by their academic qualification and their years of teaching experience. It was established that some AVR were not always available in the nursing education institutions. Nursing and Midwifery Council of Nigeria and other relevant authorities should periodically organise update workshops on teaching learning resources to aid in improving the knowledge of nurse educator on relevant resources. Management should ensure adequate provision of infrastructure, including power supply, for the effective application of audio-visuals and other electronic resources for nursing education institutions. Future study should endeavour to look at the effect of update seminar on knowledge and availability of AVR among nurse educators in nursing education institutions in Anambra State.

The average knowledge about Audio visual resources use by nurse educators in this study implies that nurse educators' knowledge on AVR should be updated on use of AVRs, with evidence that some AVR are not always available for use by nurse educators', it implies that management should provide resources to ensure that all AVR required for teaching-learning experiences are provided for the nurse educators.

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## Compliance with ethical standards

### *Disclosure of conflict of interest*

There is no conflict of interest to be disclosed

### *Statement of informed consent*

Inform consent was obtained from each respondent in this study.

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