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Association between Type of School, Level of Study and Learning Preferences of Nursing Students in Schools of Nursing in Anambra State, Nigeria

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

Learning preference in this study is the way student nurses in Anambra State Schools of Nursing prefer to learn with their sensory modalities. Visual is preference for graphic information, Aural is for information that is heard, Read/Write preference refers to information that is displayed as words while Kineasthetic preference is linked to the use of experience or practice. These preferences are important in the learning of the students. The study assessed the association between type of school, level of study and learning preferences among nursing students in Schools of Nursing in Anambra state. In this study, descriptive cross-sectional survey was used. About 342 respondents whom were selected by Random Sampling Technique. Instrument used for online data collection was Visual, Aural, Read/Write, Kineasthetic questionnaire version 8.01 and the researcher's

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demographic questionnaire. The respondents filled the questionnaire online based on their levels of study. Data were analyzed using Visual, Aural, Read/Write, Kineasthetic standard algorithm, Statistical Package for the Social Sciences version 25. Descriptive statistics was presented in frequency tables and percentages. Chi-square was used to test the hypotheses at p-value < 0.05 significance level. Findings showed that type of school had significant association $\chi 2=37.95$; $p<0.001$with learning preferences of the students while level of study had no significant association $\chi 2=7.33$; $p=0.12$ with their learning preferences. Assessing the learning preferences of the students has been able to bring about a great value in the training of nurses. The knowledge most likely will help educators to formulate a good teaching methods that will be based on learning preferences; the use of diverse teaching methods that address different learning preferences of the students would boost learning and improve their academic performance. Preparation of Nursing Curriculum that utilizes more active strategies to accommodate the diverse learning preferences of the students in their different levels of study is recommended.

Keywords: Nursing students; type of school; level of study; association and learning preferences.

1. INTRODUCTION

Meeting the ever-changing needs of the nursing profession calls for a radical step. Van Der Wege and Keil [1]; AlMezeini and Almaskari [2] noted the fact that traditional nursing education cannot accommodate the variations in the new patterns of diseases, the fast growth of the aging population and the internalization of nursing education. There is therefore, a shift from the traditional teacher-centered approach to the modern learner-centered approach. Since one of the principal key aims of nursing education according to Kaya et al. [3] and Kaddoura et al. [4] is to promote nursing students' critical thinking. It is therefore, important for nursing education to develop appropriate curriculum and adopt effective instructional strategies that are new and innovative but this will be proceeded by assessment of the learning preferences of the students.

Assessment of the learning preferences of nursing students can facilitate proper development of lesson plans based on their preferred learning methods. It can, to a large extent, increase their understanding of the subject matter as well as assist in determining appropriate faculty instructional strategies related to the learning preferences of the students. In the same way, knowing their learning preferences can assist in designing appropriate nursing curriculum that would promote lifelong learning characterized by proper understanding and internalization of learning materials, confidence and competence [2].

1.1 Aim of Study

The aim of this work was to ascertain the association between type of school (Government and Private), level of study and learning preferences among nursing students in school of nursing in Anambra State.

2. RESEARCH QUESTIONS

- What is the association between type of school (Government or Private) and learning preferences of nursing students in Schools of Nursing in Anambra State?
- What is the association between level of study and learning preferences of nursing students in Schools of Nursing in Anambra State?

2.1 Research Design

In this study, a descriptive cross-sectional research design was accepted as been suitable to assess Association between age group, gender and learning preferences among nursing students in school of nursing in Anambra State. Descriptive studies explain characteristics that exist in a group at a given point in time and make inferences about their possible relationships [5], hence the choice of the design. The choice for his method was because it provides valuable information from the population with reference to the characteristics, frequency and relationship between variables that exist in the Association between age group, gender and learning preferences among nursing students in school of nursing in Anambra State.

2.2 Area of the Study

This study was done in Anambra State, south-east geopolitical zone of Nigeria with Awka being its capital. There are seven Schools of Nursing (SON) in Anambra State of which two are

Government institutions and five are Private institutions. Nnamdi Azikiwe University Teaching Hospital, Nnewi (NAUTH) and School of Nursing, Chukwuemeka Odumegwu Ojukwu University Teaching Hospital, Nkpor (COOUTH) are Government Schools of Nursing. The Private Schools of Nursing include: College of Nursing, Our Lady of Lourdes Hospital, Ihiala; School of Nursing, Iyienu Hospital, Ogidi; School of Nursing, St. Charles Borromeo Hospital, Onitsha; College of Nursing, Amichi; and College of Nursing, St. Joseph's Hospital, Adazi. All these schools are within a distance of 30-40km from each other.

2.3 Population of the Study

Population of the study are shown in Table 1.

2.4 Sample and Sampling Technique(s)

The sample size was determined using Taro Yemane's formula

$$n = \frac{N}{1 + N\,(e)^2}$$

Where

n = Sample size
N = Total population
e = Error of sample or level of significance - 0.05
1 = Unit (A constant)
n = $1519/1+1519\ (0.05)^2$
= 1519/ 1+1519 (0.0025)
= 1519/1+ 3.7975
= 1519/ 4.7975
= 316.62
= 317

The sample size was 317 but to make up for attrition and exigencies, the researcher added 10% of 317 which is 32. Sample size was therefore 317+32=349.

2.4.1 The sampling technique

Multi Stage Sampling Technique was used to select the participants.

Stage 1: The Schools were clustered into two: Government Schools of Nursing and Private Schools of Nursing.

Stage 2: The two Government schools were selected using census method.

Stage 3: Simple Random Sampling Balloting Technique was used to select two Schools (College of Nursing, Adazi and College of Nursing, Amichi) from the sample frame of Private Schools.

Stage 4: Proportionate Sampling Technique was used to determine the number of participants to be selected from each of the four Schools as well as from the different levels of study in each School.

This was determined with the formula: P = X/N

Where

X = Number of successes
N = Size of the sample in question

Stage 5: Simple Random Sampling Balloting Technique with replacement was used to select participants from each level of study.

2.5 Inclusion Criteria

a. Availability of the students at the time of data collection.
b. Willingness of the students to participate in the study.

2.6 Instrument for Data Collection

Data from the participants were gathered using VARK standardized questionnaire, version 8.01, as well as a demographic questionnaire. The 20 items in the questionnaire provided information on the study's research questions. The objects were divided into parts A and B. The four items in Section A, which was created by the researcher, were intended to extract information about the participants' demographic features, such as their type of school and academic level. Section B, developed by Neil Fleming (author of the instrument), did consist of 16 questions aimed at assessing the learning preferences (Visual, Aural, Read/write and Kinaesthetic) of the participants.

2.7 Method of Data Collection

A questionnaire was used to gather data on demographic factors such level of education and type of school (public or private). Neil Fleming, the instrument's creator, put up a VARK subscription site for the researcher and generated a web address for participants to complete the VARK questionnaire online. He

also supplied the researcher the administration web address so they could see the participants' responses. For the participants' convenience, the researcher made a link to the questionnaire on the website. After receiving an introduction letter from the head of the nursing sciences department, the researcher visited the chosen nursing schools within a week to ask for permission to conduct the study. Different days were set aside for the researcher to return to the schools and collect data. The researcher has a qualified assistant who helped with the data collection process. On scheduled days, the students were made available in the classrooms of their respective schools, 'Yes' and 'No' were written on pieces of paper, put in a bag and shuffled thoroughly; each student was allowed to pick. Those who picked 'yes' were allowed to participate in the study while those who picked 'No' were not allowed to participate in the study. Those who picked 'Yes' but declined to participate were replaced until the needed number of participants was gotten. In their respective schools, the chosen participants received the appropriate instruction, and their informed agreement was obtained. To prevent non-participants from accessing the website, a code was provided to each participant. They were given access to the hyperlink, along with a smartphone and internet access for convenient access. Based on their academic backgrounds, participants completed the online VARK questionnaire and instantly submitted it. Data were collected for two months. The return rate for the surveys was 98.3% since a total of 342 were correctly completed and submitted.

2.8 Method of Data Analysis

Analysis of the data was done using SPSS package version 25; results in the subscription system were automatically analyzed using VARK standard algorithm. Descriptive statistics were presented in frequency tables and percentages and used to measure the objectives.

Table 1. Population of schools of nursing

S/N	Name of School and Level of study	Population
1	SON, NAUTH	
	100 Level	104
	200 Level	62
	300 Level	77
2	SON, COOUTH	
	100 Level	50
	200 Level	59
	300 Level	51
3	SON, IYI-ENU	
	100 Level	120
	200 Level	58
	300 Level	50
4	SON, IHIALA	
	100 Level	88
	200 Level	120
	300 Level	89
5	SON, ST. CHARLES BORROMEO	
	100 Level	100
	200 Level	60
	300 Level	51
6	CON, AMICHI	
	100 Level	98
	200 Level	77
	300 Level	45
7	CON, ADAZI	
	100 Level	41
	200 Level	69
	300 Level	50
	TOTAL	1519

Source: Schools' nominal roll April, 2021

Table 2. Government schools of nursing and private schools of nursing

Government Schools of Nursing	Private Schools of Nursing
SON NAUTH Nnewi	SON Ihiala
SON COOUTH Nkpor	SON Iyienu
	SON St. Charles Borromeo
	College of Nursing Amichi
	College of Nursing Adazi

Table 3. Distribution of participants in the selected schools

S/N	Name of School and Level of study	Population of Participants in the selected Schools	Sample of the Participants to be selected from the Schools
1	**SON, NAUTH**		
	100 Level	104	47
	200 Level	62	28
	300 Level	77	34
2	**SON, COOUTH**		
	100 Level	50	22
	200 Level	59	26
	300 Level	51	23
3	**CON, AMICHI**		
	100 Level	98	44
	200 Level	77	34
	300 Level	45	20
4	**CON, ADAZI**		
	100 Level	41	18
	200 Level	69	31
	300 Level	50	22
	TOTAL	**783**	**349**

3. RESULTS

3.1 Demographic Data

Table 4 showed the demographic characteristics of Nursing Students. According to the school, NAUTH had more participants followed by Amichi then Adazi and COOUTH. The table further shows that 100 Level students participated more in the study.

Table 4.A showed that Many students in both Government and Private Schools had greater preference for multi-modal learning. Many students in both Government and Private Schools had greater preference for multi-modal learning. The students in both types of school, made use of all the sensory modalities (V, A, R, K) in learning; their uni-modal preference being Aural. The least learning preference for students in Government School was Read/write and Kinaesthetic for those in Private School.

Data was analyzed using Chi-square and values were significant at $p<0.05$.

The result showed that there was no significant association ($\chi 2=7.33$; $p=0.12$) between Type of School (Government and Private) and the learning preferences of nursing students in Schools of Nursing in Anambra State.

The students in all levels employed all sensory modalities in learning. More than half of the total population of the students in 100 level had greater preference for multi-modal learning, same with those in 200 level but their uni-modal preference differed. While majority of the students in 100 level preferred Aural and only very few students preferred Visual, the reverse was the case for those in 200 level where preference for Visual learning was higher than Aural. The students in 300 level had greater uni-modal learning preference with Aural being preferred by majority, followed by multi-modal learning, the least preference was for Visual .

Data was analyzed using Chi-square and values were significant at $p<0.05$.

The result showed significant association ($\chi 2=82.91$; $p<0.001$) between level of study and

the learning preferences of nursing students in Schools of Nursing in Anambra State.

4. DISCUSSION

4.1 Type of School and Learning Preference

Finding from this study as shown in Table 4 showed that students from Government and Private Schools had an even spread of multi-modal and uni-modal learning preferences; there was no difference in their learning preferences. Chi-square test of association done revealed that there was no significant association *p>0.05* between Type of School (Government and Private) and the learning preferences of nursing students in Schools of Nursing in Anambra State. This even spread in the learning preferences of students in both Government and Private Schools was not surprising. It may be due to the fact that same courses are taught in nursing schools; courses taught are not dependent on the type of School.

This result of non-significant association between Type of School (Government and Private) and the learning preferences of nursing students is in accord with the study carried out in South Africa by Mpwanya and Dockrat [6] on 429 undergraduate logistics students where type of school (Government and Private) did not significantly relate with learning preferences of the students. The finding is consistent with that of Ortega-Torres et al. [7] on 528 Spanish students that revealed that there was no significant difference between type of School (Government and Private) and the learning preferences of the students.

4.2 Level of Study and Learning Preference

Learning preferences were analyzed between three levels (L) of study (100 L 200 L, 300 L). Result from Table 4.A showed that 100 L and 200 L students were more multi-modal in their learning preferences than 300 L. Multi-modal preference diminished with progression in the level of study.

Table 4. Demographic characteristics of nursing students

n = 342

Characteristics	Frequency	Percentages (%)
School		
NAUTH	105	50.3
COOUTH	70	35.7
Amichi	96	11.7
Adazi	71	2.3
Level of study		
100 Level	129	37.7
200 Level	116	33.9
300 Level	97	28.4

Table 4.A Chi square test of association between type of school, level of study and learning preferences of nursing students in schools of nursing in anambra state

Variables	Frequency (%)					Total (%)	χ2 (*p-value*)
	Multi- modal	Uni-modal					
		Visual	Aural	Read/ Write	Kinaes-thetic		
Type of School							
Government	61 (34.9)	26 (14.9)	36 (20.6)	22 (12.6)	30 (17.1)	175 (100)	7.33;
Private	73 (43.7)	19 (11.4)	31 (18.6)	28 (16.8)	16 (9.6)	167 (100)	*p=0.12*^{NS}
Level of Study							
100	69 (53.5)	5 (3.9)	22 (17.1)	17 (13.2)	16 (12.4)	129 (100)	82.91;
200	39 (33.6)	33 (28.4)	7 (6.0)	25 (21.6)	12 (10.3)	116 (100)	*p=0.00**
300	26 (26.8)	7 (7.2)	38 (39.2)	8 (8.2)	18 (18.6)	97 (100)	

For the uni-modal learners, Aural was the most preferred learning preference for the students in 100 L while the least preferred was Visual. The reverse was however, the situation for the students in 200 L; Visual became their most preferred learning preference while Aural became the least preferred. 300 L students were more uni-modal than multi-modal in their learning preferences; their uni-modal preference was same with those in 100 L though higher. Aural. These variations were expected and may be attributed to variation in the type of training, course content as well as teaching methods at each level of study.

Chi- square test of association done as shown in Table 4.A revealed that there was a significant association $p<0.05$ between level of study and the learning preferences of nursing students in Schools of Nursing in Anambra State. This was expected.

Finding from this study confirmed the findings of Rezigalla and Ahmed [8] that reported the presence of uni-modal preference with different percentages in all the levels of study and a shift from multi-modal to uni-modal learning preference as the students progressed in their levels of study. It is consistent with the findings of Chaudhry et al. [9] where majority of first year and fourth year dental students preferred muti-modal learning whereas majority of second- and third-year students had uni-modal preference for Visual learning but house officers had Kinaesthetic preference. The result is also in line with that of Gayathiri et al., [10] that reported a significant association between visual learning preference and level of study and strengthened the findings of Aldosari et al. (2018) where there was significant association between learning preferences and level of study. Conversely, Hornamand et al. (2021), Gabal and Hussein [11], Nja et al. [12], Akhlaghi et al. [13], Asiry [14] identified a non significant association between level of study and learning preferences. Difference in the demographic characteristics of the participants in the study may account for this variation [15,16].

5. CONCLUSION

There was no significant association between type of school (Government and Private) and the learning preferences of nursing students in Schools of nursing in Anambra State but there was a significant association between level of study and their learning preferences.

6. IMPLICATIONS OF THE FINDINGS

1. Assessment of the learning preferences of the students could be an input of great value in nursing education. The knowledge may help educators to plan teaching methods based on learning preferences as well as identify and solve learning problems among students, thus enhance effective learning in them.
2. Educators can utilize the information given in this study to improve classroom setting and provide an environment that is conducive for all types of learners with varied teaching strategies.

7. RECOMMENDATIONS

Findings from this study necessitated the following recommendations:

Preparation of Nursing Curriculum that utilizes more active strategies to accommodate the diverse learning preferences of the students in their different levels of studies.

8. SUGGESTION FOR FURTHER STUDIES

A longitudinal study into learning preferences and teaching styles in Schools of Nursing in Anambra State.

CONSENT AND ETHICAL APPROVAL

Copyright permission was obtained from the developer of the standardized instrument. Informed consent was obtained from the participants and confidentiality of information was ensured. A letter for Ethical clearance was obtained from the Human Research and Ethics Committee of Nnamdi Azikiwe University, Faculty of Health Sciences.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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