



LEARNING STYLES AMONG NURSING STUDENTS IN SELECTED COLLEGE OF NURSING, BANGALORE.

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ABSTRACT:

The term "learning styles," as used in the literature during the past 30 years or so, has labelled a very broad and relatively diffuse concept¹. Educational researchers postulate that everyone has different learning styles³. Nursing students come from varied backgrounds and are expected to fit into a common style of learning. Nursing educators encounter a wide range of difficulties while teaching the students. A study was conducted to assess the learning styles among nursing students, by using VARK questionnaire. 269 students were recruited by using stratified random sampling. Results revealed that majority of the students prefer kinesthetic style of learning, with a mean of 7.673 and S.D 2.574, followed by aural learning preferred with mean of 6.643 and S.D 2.856. Among 269 students 240 students preferred single mode of learning style, 29 students preferred more than one learning styles

Key words: Nursing students, learning styles, VARK.



Introduction

The term Learning Style describes an individual's preference for understanding his/her experiences and transforming them into knowledge¹

Global trends in demographic transition and internationalisation are increasing the diversity of nursing students and the challenges for nursing academics in many countries. According to Kocinski (1984), learning style is an individual's preferred way to learn and the way that individual learns best. Kocinski presents learning style as an important component of Jung's theory of psychological type.

Keefe (1979) suggests that “learning styles are characteristic cognitive, affective, and physiological behaviours that serve as relatively stable indicators of how learners perceive, interact with and respond to the learning environment”. Sewall (1986) defines learning style as an individual's unique way of interacting with the environment.

The Term “learning styles,” as used in the literature during the past three decades or so, refers to a very broad and relatively diffuse concept². Educational researchers postulate that everyone has different learning styles³. Many studies using the VARK questionnaire have shown that students have multimodal preferences.

A study was conducted among first year dental students who are studying physiology, in south India. The VARK (Visual, Aural, Read/Write, Kinesthetic) questionnaire was administered to 89 first year dental students in a Medical College in South India. Results revealed that the majority of first year dental students (55%) preferred to use a single sensory modality while learning i.e., they had unimodal learning preferences. Out of the students who had a unimodal preference, it was found that 47% had a preference for the aural modality and 41% had a preference for the kinesthetic modality⁵.

A cross sectional study was done in Australia by Santhamma James et al among 345 first year nursing students. The kinaesthetic score of students was the highest (7.34 ± 2.67), significantly differing from the other three modes ($p < 0.001$). Demographic factors such as gender and age group did not influence mean scores of each sensory modality. The predominant preference was quadmodal utilising all four learning styles. The distribution of students preferring to learn by unimodal, bimodal, trimodal and quadmodal styles varied



between demographic groupings. The rural students had significantly higher visual and kinaesthetic scores compared to their metropolitan counterparts. Students attending the rural campus had higher visual and read–write scores. Visual and aural scores were significantly lower for students from non-English speaking backgrounds⁸.

A study was conducted on preferred learning styles on teacher trainees in Turkey. The result indicated that Turkish students are mostly group-oriented learners and learn best through interacting with other students while learning. Gender also varies according to the three orientation areas under Investigation¹⁰

A cross sectional study was conducted in Iran, to assess the preferred learning styles of first year medical sciences students by using VARK questionnaire among 141 students. The preferred learning styles of medical students in the study were aural and reading/writing¹¹.

Carker (1999) observed that there was a significant positive relationship between academic success and auditory learning style. King (1999) reported that significant relationships existed between learning styles and academic success. There was a positive relationship between academic success and auditory language learning style⁷.

A study conducted by Esra Alkhasawneh to assess the changes in learning preferences of nursing students in Jordan by using VARK questionnaire, showed that almost 55% of students have a multimodal preference, about 60% of multimodal students have the kinesthetic learning preference (K) associated with visual or read write preference. The rest have one dominant learning preference. Of the 45% students who have one dominant preference: 60% had the kinesthetic preference as the dominant preference, and 40% had the auditory preference accompanied with another preference¹²

Knowing the learning style of students could be a valuable input which can be used in nursing education. This information may help educators plan teaching methods based on learning styles and also to identify and solve learning problems among students, thus helping them become more effective learners.



Objectives:

1. To assess the learning styles among nursing students
2. To determine the association between learning styles and selected baseline variables

Operational definitions:

Learning styles:

In this study learning styles refer to visual, auditory, reading and kinesthetic styles of learning as rated in the VARK questionnaire

Nursing students:

In this study nursing students refer to those who are studying G.N.M. and B.Sc nursing in St. John's college of nursing

Assumptions:

Nursing students may have different preference of learning styles.

Delimitations:

The study is limited to undergraduate students of St. John's college of nursing, Bangalore.

Hypothesis:

There will be a significant association between learning styles of the students and selected baseline variables.

Projected outcome:

Findings of the study will reveal the preference of the learning styles among the nursing students.

Materials and Methods:

Research approach and Design

Quantitative approach and cross sectional descriptive design

Population:

The undergraduate students who are studying in St. John's college of nursing.

Study variables :- Learning styles of nursing students.

Baseline variables :- In this study the baseline variables are age, course, medium of instruction at school, education of parents, occupation of parents, monthly income, type of family, no. of siblings and area of residence.



Settings:

The study was conducted at a private college of nursing in Bangalore , with a total undergraduate student population of 520 .

Sample:

Sample consists of undergraduate nursing students who meet the inclusion and exclusion criteria.

Sampling technique:

Proportionate Stratified random sampling technique

Sample size:

To observe a prevalence of learning styles with a 20% precision and 95% CI based on the previous study a sample size of 260 was arrived at⁸.

Inclusion criteria

1. Under graduate nursing students

Exclusion criteria

Nil

Instrument used

1. Section 1 : Baseline Performa was used to collect the baseline data.
2. Section 2 : The VARK questionnaire (version 7.8) is a standardized tool which was developed by Neil Flemming which has 16 questions . For each question, students have to choose the statement that best explains their learning style preference; they can select more than one statement.

Data collection procedure

Permission was obtained from the concerned administrative authority. Ethical clearance was obtained from Institutional Ethics Committee. Subjects were identified based on the inclusion criteria. Stratified random sampling technique was used. The purpose of study was explained to the subjects. A written consent was obtained. Baseline proforma was used to elicit the baseline information. After that VARK questionnaire was administered batchwise to assess the learning styles of the students. The approximate time taken was 15 to 20 mts for data collection for each batch.



Data analysis:

Data collected was tabulated and analyzed.

Section A: Description of baseline variables

Section B: Description of learning styles of students

Section C: Association of learning styles with selected baseline variables

RESULTS

Section A: Description of baseline variables

Table 1: Description of frequency and percentage of baseline variables
 n= 269

S.NO	BASELNE VARIABLE	FREQUENCY	PERCENTAGE
1.	Age in yrs		
	19 – 20	165	61.34
	21 – 25	96	35.69
	26 - 32	8	2.97
2.	Course		
	GNM	88	32.7
	BSc (N)	181	67.3
3.	Year		
	1 st year	94	34.9
	2 nd year	69	25.7
	3 rd year	56	20.8
	4 th year	50	18.6
4.	Education father		
	Illiterate	30	11.2
	High school	117	43.5
	High sec	50	18.6
	Grad and above	72	26.8
5.	Education mother		
	Illiterate	37	13.8
	High school	95	35.3
	High sec	64	23.8
	Grad and above	73	27.1
6.	Occupation father		
	Unemployed	38	14.1
	Unskilled	38	14.1
	Semi skilled	45	16.7
	Skilled	114	42.4



	Professional	34	12.6
7.	Occupation mother		
	Unemployed	11	4.09
	Unskilled	11	4.09
	Semi skilled	182	67.66
	Skilled	18	6.69
	Professional	47	17.47
8	Monthly income in rupees (father)		
	No income		
	<10000	44	16.36
	10000-20000	108	40.15
	20001-30000	66	25.54
	30001-40000	27	10.04
	>40000	6	2.23
		18	6.69
9	Monthly income in rupees (Mother)		
	No income		
	<10000	169	62.83
	10000-20000	37	13.75
	20001-30000	35	13.01
	30001-40000	17	6.32
	>40000	3	1.12
		8	2.97
10	Type of family		
	Nuclear		
	Joint	208	77.3
	Extended	31	11.5
		30	11.2
11	Area of residence		
	Rural	135	50.2
	Urban	134	49.8
12	No. Of siblings		
	None		
	One	10	3.72
	Two	142	52.79
		117	43.49
13	Medium of instruction		
	English		
	Others	205	76.2
		64	23.8



Table 1 shows that mean age of the students was 20.45yrs, 67.3% were B.sc nursing students, 32.7% G.N.M students. First year nursing students were 34.9%, In occupation 42.4% of fathers were skilled workers and 67.66% of mothers were semiskilled. 40.15% fathers had Monthly income < Rs 10,000 and majority of mothers ie 62,83% of mothers had no income. Majority of the students 77.3% students belong to nuclear family, 50.2% were living in rural area. Majority of the students 52.79% had one sibling, 76.2% had English as medium of instruction at school.

Section B: Description of learning styles of nursing students

Table 2a: Frequency and percentage of learning styles

Year	VISUAL		AUDITORY		READING		KINESTHETIC	
	F	%	F	%	F	%	F	%
I B.SC	9	18	19	38.8	6	12.2	22	45
II B.SC	8	15	21	40	10	19	20	38
III B.SC	0	0	13	45	2	7	19	66
IV B.SC	5	10	13	26	2	7	35	70
I GNM	9	20	13	29	6	13	19	42
II GNM	1	6	6	38	4	25	8	50
III GNM	0	0	12	44	1	4	15	56
	32	12	97	36	31	12	138	51

Table 2a shows that majority of the students prefer kinesthetic style of learning

Table 2b: Frequency and percentage of more than one learning styles preferred by nursing students n= 269

Learning styles	Frequency	Percentage
Single style	240	89.2
Visual & Auditory	4	1.5
Auditory & reading	4	1.5
Reading & Kinesthetic	3	1.1
Visual & Kinesthetic	1	0.4
Visual & Reading	0	0
Auditory & Kinesthetic	15	5.6
Reading , Auditory & kinesthetic	2	0.7
Total	269	100



Table 2b shows that majority of the students (240) possess single learning style and 15 students possess auditory and kinesthetic style of learning and only 2 students possess multimodal learning style.

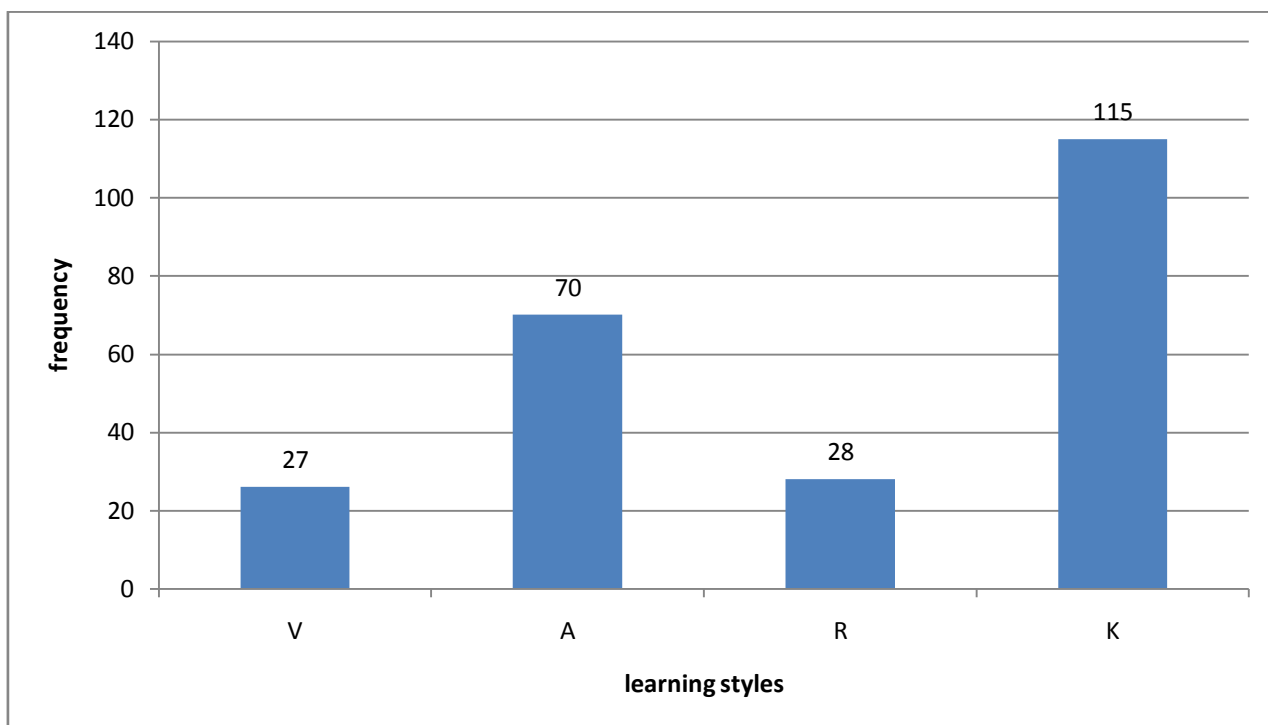


Figure 1 depicts the frequency of unimodal styles of learning among nursing students

Table 2c: Range, mean, median and standard deviation of learning styles of students

n=269

STYLE OF LEARNING	MAX	RANGE	MEAN	MEDIAN	S. D
V	16	0 - 14	4.911	5	2.787
A	16	1 - 16	6.643	6	2.856
R	16	0 - 14	4.807	4	2.552
K	16	1 - 14	7.673	8	2.754

Table 2c shows that the highest mean was 7.673 with SD 2.754 for the kinesthetic style of learning.



Table 2d: Comparison of scores across four different learning methods.

Analysis of variance (ANOVA) and Tukey HSD Anova post hoc test

n=269

Learning styles	N	Mean	SD	Test.Stat	P.value	P.value.NP
A	269	6.64	2.86	F-stat=69.91	<0.001	<0.001
K	269	7.67	2.75			
R	269	4.81	2.52			
V	269	4.91	2.79			

Table 2d shows that there is significant difference in the learning styles, with highest difference in kinesthetic style of learning.

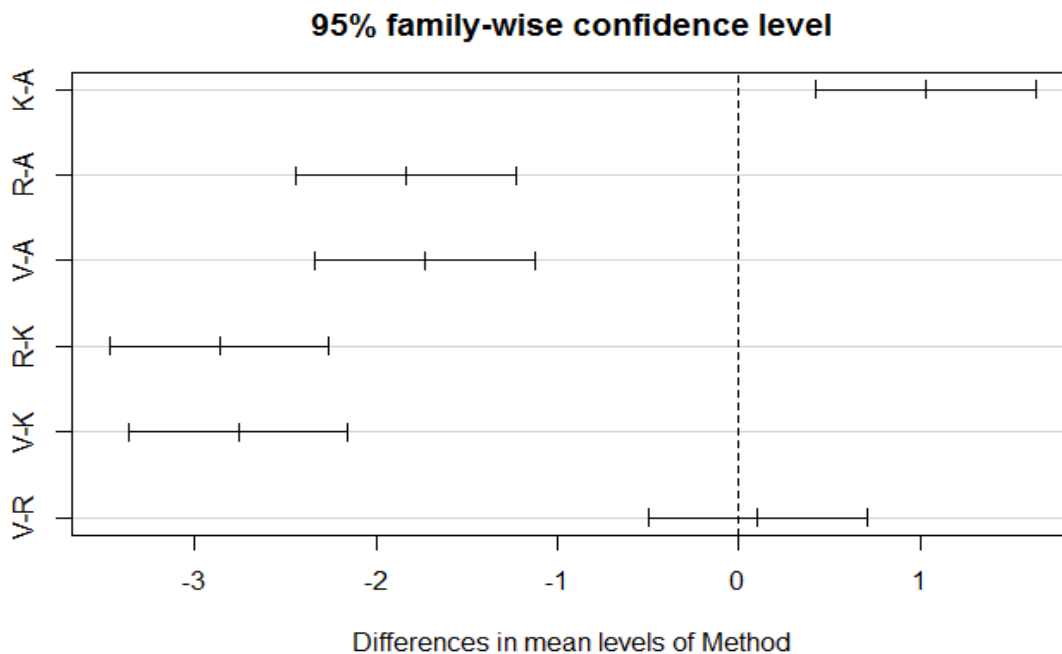


Figure 2 depicts the differences in mean levels of learning styles

Section C: Association of learning styles with selected baseline variables



Table 3a: Mean, percentage , S.D and test of significance of visual scores and selected baseline variables

n= 269

Variables	Group	N	Mean	SD	Test. Stat	P. Value
Year	1	94	5.94	3.31	F stat=7.55	<0.001
	2	69	4.58	2.36		
	3	56	3.98	2.15		
	4	50	4.48	2.31		

Table 3a shows that there is an association only between visual learning style and the year of nursing students showing that the first year students have the highest mean score of visual learning which decreases with each passing year, however the fourth year showed a slight increase in the mean visual score compare to third year.

Table 3b: Mean, percentage , S.D and test of significance of auditory scores and selected baseline variables

n=269

Variables	Group	N	Mean	SD	Test. Stat	P. Value
Year	1	94	7.43	2.97	F stat=7.29	<0.001
	2	69	7.01	2.89		
	3	56	5.95	2.62		
	4	50	5.44	2.3		

Table 3b shows that there is an association between auditory learning style and only the year of nursing students showing that the first year students have the highest mean score of auditory learning which decreases with each passing year. Final year students had the lowest mean score in auditory learning.

Table 3c: Mean, percentage, S.D and test of significance of kinesthetic scores and selected baseline variables

n=269

Variables	Group	N	Mean	SD	Test. Stat	P. Value
Father's occupation	Unemployed	38	8.03	2.35	F stat=6.79	<0.001
	Unskilled	38	5.89	2.68		
	Semi skilled	45	7.47	2.94		
	skilled	114	7.83	2.58		
	Professional	34	9	2.71		



Table 3c shows that there was a statistically significant association of kinesthetic learning mean scores with father's occupation, with children of professional fathers depicting highest mean kinesthetic scores.

There is no association of reading learning style with selected baseline variables.

Discussion:

The present study shows that mean age of the students was 20.45yrs, 67.3% were B.sc nursing students, 32.7%. First year nursing students were 34.9%, 43.5% of fathers had high school education, 35.3% of mothers had high school education. In occupation 42.4% of fathers were skilled workers and 67.66% of mothers were semiskilled. 40.15% fathers had Monthly income < Rs 10,000 and majority of mothers ie 62, 83% of mothers had no income. Majority of the students 77.3% students belong to nuclear family, 50.2% were living in rural area. Majority of the students 52.79% had one sibling, 76.2% had English as medium of instruction at school.

The present study shows that maximum students preferred kinesthetic style of learning with mean 7.673 and SD 2.574 and the next style of learning they preferred was aural learning with mean 6.643 and SD 2.856 . Among 269 students 240 students preferred unimodal style of learning, in that highest preferred style was kinesthetic by 115 students. A cross sectional study was done by Santhamma James et al among first year nursing students revealed that the kinaesthetic score of students was the highest (7.34 \pm 2.67), significantly differing from the other three modes ($p < 0.001$).

Another study which was conducted among first year dental students who are studying physiology, in south India revealed that the majority of first year dental students (55%) preferred to use a single sensory modality while learning ie., they had unimodal learning preferences. Out of the students who had a unimodal preference, it was found that 47% had a preference for the aural modality and 41% had a preference for the kinaesthetic modality⁴.

A cross sectional study was conducted in Iran, to assess the preferred learning styles of first year medical sciences students by using VARK questionnaire. study done among 141 students. The preferred learning styles of medical students in the study were aural and reading/writing which is in contrast with the findings of the current study , in which kinesthetic styles of learning are preferred by maximum students¹¹.



In the present study there is a significant association between visual learning style with year of nursing students and there is no association with other baseline variables. The auditory learning style has no association with baseline variables except year of students. Reading learning style is not having any association with baseline variables. Kinesthetic learning style is having significant association only with father's occupation

A cross sectional study was done among first year nursing students revealed that the demographic factors such as gender and age group did not influence mean scores of each learning modality, which is similar to the current study, age did not have a significant association with the preferred style of learning. However, the influence of gender could not be assessed as the current study was conducted in an all girls institution.

Summary:

The results show that majority of the students prefer kinesthetic style of learning, with a mean of 7.673, followed by aural learning with a mean of 6.643 score. The mean age of the students was 20.25 years. Most of the students hailed from rural background (50%) and 70% of them came from nuclear families. 76% of the students had English as their medium of instruction in school. Educational background of majority of the student's parents was high school education. A total of 114 (42.4%) fathers were skilled workers and 182 (67.66%) mothers were semi skilled workers. Majority (40.5%) of the father's income was below 10,000 rupees per annum. Majority of the mother's had no source of income (62.83%). A total of 43 percent had 2 siblings.

Conclusion:

Knowing the learning style of students could be a valuable input which can be used in nursing education. This information may help educators plan teaching methods based on learning styles and also to identify and solve learning problems among students, thus helping them become more effective learners. This study reveals that majority of the nursing students prefer kinesthetic learning style. This is a valuable finding which can help nurse educators provide effective learning strategies for nursing students through practical skill based training, preparing them to be skillful nurses.



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