Learning Style Preferences of Medical Students in a Government Medical College in Central Kerala

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ABSTRACT

Introduction: Learning style is an individual's way of perceiving, processing and retaining new information. Objectives of the study was to assess the learning style preferences of medical students of Government T.D. Medical College, Alappuzha using VARK questionnaire and to compare learning styles with academic performance of these students

Material and methods: A cross sectional study was undertaken in Government T.D. Medical College, Alappuzha among Phase 2 MBBS students using VARK (visual-aural-reading/writing-kinaesthetic) Questionnaire to assess the learning style preferences and a pretested Questionnaire for assessing socio demographic parameters. The number of students using a particular learning style were expressed in proportions. The Mean score for each VARK component was calculated and learning style was compared with university marks of first MBBS of these students.

Results: 56.1% preferred unimodal methods. Preferred sensory modality in unimodal learning was auditory. Mean score of each sensory modality was 4.1for visual, 6.5 auditory, 4.2 reading and 5.8 kinaesthetic style.

Conclusion: There was no significant association between learning style and academic performance. Results cannot be generalised. VARK style analyzes only one aspect of the learning.

Keywords: Learning Style, Medical Students, VARK

INTRODUCTION

Learning style is an individual's way of perceiving, processing and retaining new information. There are four different learning styles visual, aural (auditory), reading/ writing and kinaesthetic. Each style use different parts of the brain, namely occipital lobe for visual, temporal lobe for aural, cerebellum and motor cortex for physical movements.[1]

The VARK (visual-aural-reading/writing-kinaesthetic) questionnaire is a simple, freely available, easy to administer tool that encourages students to describe their behaviour in a manner that they can identify with and accept.[2] Although learners can use all of these modes of learning, one mode is often dominant and preferred. For example, visual learners learn through seeing drawings, pictures and other image rich teaching tools. Auditory learners learn by listening to lectures, exploring material through discussions and talking through ideas. Reading/ writing learners learn through interaction with textual materials, whereas kinaesthetic learners learn through touching and experiences that emphasize doing, physical involvement and manipulation of objects.[3]

Phase 2 students who have been introduced to their clinical studies might have developed their own learning style. It might have been influenced by gender, their medium and syllabus of schooling, education and occupation of parents etc. Student's learning styles might have affected their academic performance also. Information regarding current learning style can help teachers to plan teaching learning methods thereby facilitating effective learning. Keeping this in mind the VARK questionnaire developed by Fleming was administered to our phase 2 students.[4]

Primary study objectives was to assess the learning style preferences of medical students of Government T.D. Medical College, Alappuzha using VARK questionnaire (version 7.8) during 2016-17 and secondary objective was to compare learning styles with academic performance of these students

MATERIAL AND METHODS

A Cross sectional study was conducted in Government T.D.Medical College, Alappuzha among MBBS students. 132 students of phase2 MBBS were enrolled in study.

Study tool

VARK Questionnaire version 7.8[4] which consists of 16 items which help to identify the preferred learning style of the student. VARK questionnaire consists of 16 questions which are situations we encounter in daily life with 4 options correlating with a particular learning style. Students were asked to encircle the answer which explained their learning style. They can choose multiple options if applicable or leave blank any question if not applicable.

Data collection

After obtaining informed consent VARK questionnaire (Version 7.8) for assessing learning style and pretested Questionnaire for assessing social background of the students like education and occupation of parents, medium of schooling and marks scored in university examination of first MBBS etc were distributed to the participants. Approval from Institutional Ethics Committee was obtained before the

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start of the study. Informed consent was obtained from each student. Confidentiality of the information was maintained throughout the study.

STATISTICAL ANALYSIS

Data entry was done in Microsoft Excel and analysed using SPSS software. Learning preferences were categorised by designers of VARK questionnaire, NewZealand on the basis of a research algorithm applied to the data sent to them.[4] Percentage of students using a particular unimodal style or multimodal style were analysed and this was compared for certain parameters like gender, socio economic status, medium of schooling etc. The Mean score for each VARK component for the study subjects was also calculated. Finally the learning style was compared with university marks of first MBBS of these students. Chisquare and paired t test were used to derive statistical significance.

RESULTS

Mean age of the study population (N=132) was 20.6 years (S.D- 1.1). Of the 132 students, 50 (37.9%) were males and 80 (62.1%) were females.105 (79.5%) studied in English medium and 27 (20.5%) in Malayalam medium. Of the 132 students, 64 (48.5%) studied in state syllabus, 65 (49.2%) in CBSE and 3 (2.3%) in ICSE syllabus. Most of the parents had a pre degree to Degree qualification (52.3% of fathers and 56.8% of mothers). Majority (40.2%) of fathers were government employees and majority (51.5%) of mothers were house wives. 6.1% of fathers are doctors, where as 1.5% of mothers were doctors. 8.3% of fathers and 18.2% of mothers were teachers.

Learning style preferences

Out of the 132 students, 74 (56.1%) were unimodal learners, 54 (40.9%) were multimodal learners and 4 (3%) were bimodal learners (figure-1). There were no trimodal learners. Unimodal learners preferred any one of the sensory modality among the four – Visual, Auditory, Reading/ Writing and Kinesthetic. Bimodal and trimodal learners preferred any two or three of the modalities respectively and multimodal learners are comfortable with all the four. Among the unimodal learning style majority (44.6%) preferred auditory Style (figure-2). It is seen from the table -1 that mean VARK score of auditory style is higher when compared to other styles.

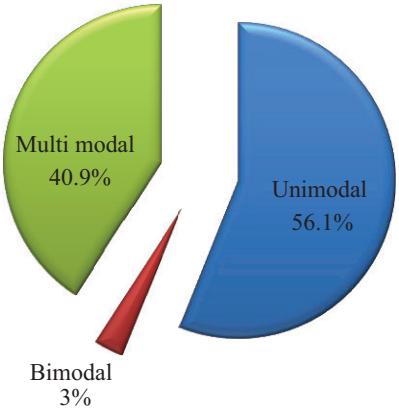

Figure-1: Learning style preferences of the sample

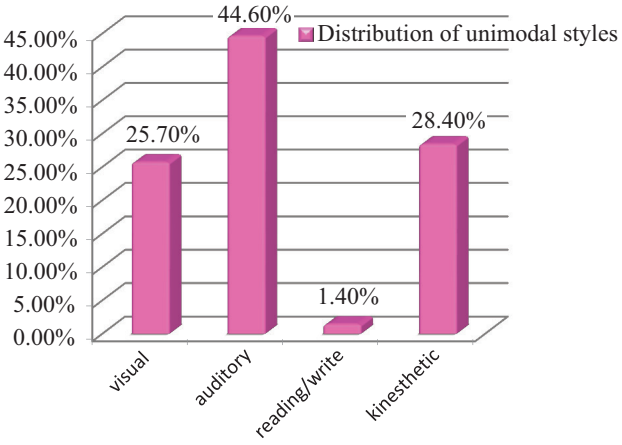

Figure-2: Distribution of unimodal styles in the sample

Mean score of each sensory modality in VARK Score

Sensory modality	Mean(SD)
Visual	4.13(2.3)
Auditory	6.5(2.4)
Reading/writing	4.25(2.0)
Kinesthetic	5.88(2.5)

Table-1: Mean score of each sensory modality

Factors associated with learning style preferences of the study participants

As there were only 4 bimodal learners, they were combined with multimodal learners.There was no statistically significant association between gender and learning style. Chisquare- 1.1 *P* value- 0.28 There was no statistically significant association between learning style and medium of learning, syllabus in XII standard, educational and occupational status of parents etc.

Performance Status of the study participants

Based on academic performance students were classified into two groups- performers and high performers. From 50% (pass percentage) to 64.9%- Performers and those got marks above 64.9% as high performers. Majority of students were high performers. There were no low performers as all of them have passed the first MBBS examination (table-2). Auditory style was the predominant style of both groups but there was no statistically significant difference. Chisquare- 4.3 *P* value- 0.22

Learning Style	Performing	High Performing
Visual	9	10
Auditory	10	23
Reading	1	0
Kinesthetic	11	10
Total	31	43

Table-2: Performance status and Individual unimodal learning styles

DISCUSSION

Teachers prefer to instruct all students in the traditional

lecture format because of the relative ease of the method, the need to cover the topic and may be due to their own preferences in learning.[5] Knowledge of learning styles can be useful to both teachers and students in that teachers can tailor pedagogy to correlate with the learning styles of students and students can use the techniques of learning best suited to them resulting in greater educational satisfaction[6]

Identification of the preferred learning style of students may help teachers solve the learning problems in students. In the present study, 56% prefer unimodal type of learning, among which 44.6% preferred auditory learning. In a lecture class, which is the most preferred method of teaching even now, we are assuming that all are auditory learners. But some students prefer other modalities also. Visual learners prefer information from demonstrations, graphs, flow charts, Models etc. Kinaesthetic learners prefer learning by doing like role play, simulations etc. In a review article by Laxman Khanal etal, it was observed that multimodal learning style was predominant over unimodal.[5] In the unimodal presentation, most preferred one is kinaesthetic type of learning. In another study by Lasitha Samarakoon etal on medical undergraduates and postgraduates found out that majority (67.5%) of undergraduates had multimodal learning styles and among postgraduates were unimodal (52.9%) learners.[6] Liew.SC et al reported unimodal (81.9%) was the preferred style and among unimodal 30% had kinaesthetic mode of learning.[7] In another study by Bhagat.A etal, it was noted that awareness of learning styles motivated students to adapt other learning styles and use mixed methods of learning.[8] A study conducted by students in our college in 2013 showed that 65% had multimodal learning style preferences and only 35% students had unimodal preferences, of which majority (20%) preferred the auditory mode.[9] A study conducted by Kharb P etal at UttarPradesh showed that 61% preferred multimodal learning.[10] The learning preferences of the medical students may vary in different regions due to the differences in the teaching methodologies which are being used.

In the present study, there was no statistically difference between gender and learning style. A study done by Jill A et al at Wayne state University School of medicine also showed no gender differences to a particular mode of learning.[11]

Absence of association between learning style and academic performance in the present study shows that no style is superior. The study conducted by Khanal L etal also shows the same result.[5] Feelay AM etal also observed no correlation between learning style and exam performance.[12]

Limitations of the study

1. Only fourth semester students were studied. Hence study results cannot be generalised.
2. Limited sample size
3. Other factors influencing academic performance are beyond the scope of present study and was not included.
4. VARK style analyzes only one aspect of the learning.

CONCLUSION

There was no statistically significant association between gender and learning style, similarly it is not associated with medium of schooling, syllabus, education and occupation of parents etc. There was no statistically significant association between learning style and academic performance in both males and females.

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