

## **The effectiveness of conducting small group discussions post didactic lecture method for in-depth understanding of basic concepts of *ayurveda* - A Single arm interventional study**

**Aswathi V.\***

---

Received 19-07-23

Revised-15-05-24

Accepted 25-05-24

---

**ABSTRACT** :Present study was conducted among first year ayurveda students. As per a planning committee formed for conducting small group discussions, topic *prakṛti* was selected. The effectiveness of small group discussion was evaluated by using first two levels of the Kirkpatrick model of evaluation: reaction and learning. Outcome measure was designed on the basis of these two variables. Students' reaction was assessed through feedback form and learning was assessed through test with one descriptive question before and after intervention. Didactic lecture taking four hours was conducted about the topic *prakṛti* followed by small group discussion. The five known fictional personalities from a well-known film previously selected as per planning committee were used for *prakṛti* analysis. Students were instructed to give reasons in physical, psychological and physiological domains to justify their conclusions. One student from each group is requested to present their conclusions in written as well as oral manner and presentation was subjected to open discussion in class. Immediately after session, students' response on the session was collected using a 14 item closed ended questionnaire. Pre-test and post-test using 1 descriptive question were conducted and scores were compared using paired T test. Word cloud was prepared using students' responses. There occurred significant difference between scores pre and post small group discussion. Pass percentage was more. Students were really interested and participated actively. Group discussions foster accommodation and assimilation, which are the critical concepts of constructive learning theory. Even if students failed in recollecting *slokas*, they were able enough to remember characteristics. Didactic lecture method is important in conceiving the concept but a short group discussion after didactic lecture proves to be the best combination for in-depth understanding and developing application skill.

**Keywords:** pedagogy, *prakṛti*, basic concepts, group discussions

---

### **INTRODUCTION**

In the initial years of ayurvedic medical education, students are introduced to unique theoretical concepts of *ayurveda*. Due to this novelty, students often find difficulty in accommodating and assimilating new knowledge. Students have a habit of byhearting theories with little or no deep understanding to apply it in practical level. These concepts have extensive application in clinical scenario and are foundation for promising physicians. It is the responsibility of every first faculty to ensure deep learning and understanding of the concepts in order to enable the students to utilise the theoretical knowledge in clinical practices. Conventional teacher centred method has its utility and importance in conceiving the concept. It relies purely upon memory and recall. But in-depth learning and interest to

subject can be more contributed by adopting learner-friendly techniques like problem based learning. Small group discussion is an effective method to bring interest, fruit full discussion and participation among students that will lead to deep understanding of the topic. In small group discussions, students assimilate new knowledge and accommodate the new knowledge using experiences with group-based approaches. Present study uses a learner friendly short group discussion method pre structured to learn and apply *prakrti-pareeksha* for first year students of private Ayurveda Medical College, Kerala

- Type of study design: Non randomised Single arm interventional study
- Study setting: Sree Narayana Institute of Ayurvedic Studies and Research
- Sample size: 43 (Total 43 students 50 of which only 43 attended the pre-test)

Inclusion criteria: First year students batch 2022 Sree Narayana Institute of Ayurvedic Studies and Research Puthur, Kollam, Kerala

Exclusion criteria: Those who were absent for written test prior to study was excluded from statistical analysis

## **Methodology**

The study group consisted of all students enrolled in BAMS course at Sree Narayana Institute of Ayurvedic studies and Research in year 2022. Informed consent was obtained prior to participation in this non randomized study. Students who were absent in pre-test were excluded from the study. The efficacy of small group discussion was evaluated by using first two levels of the Kirkpatrick model of evaluation: reaction and learning. The effectiveness of small group discussion was evaluated by using first two levels of the Kirkpatrick model of evaluation: reaction and learning. Outcome measure was designed on the basis of these two variables. Students' reaction was assessed through feedback form and learning was assessed through test with one descriptive question before and after intervention. The first 1.5 years of BAMS curriculum covers 3 major basic subjects that include Ayurvedic and modern physiology, ayurvedic and modern anatomy and *Ayurveda* basic principles and Sanskrit.

## **FORMATION OF PLANNING COMMITTEE**

A planning committee was formulated comprising three departments of first year students, Kriyasarira, Rachanasarira and Samhita Siddhantha & Sanskrit. First objective of planning committee was to select a suitable topic for small group discussion. After discussion,

committee chose “Concept of *Prakṛti* and *Prakṛti analysis*” as topic owing to relevance in application of the concept in clinical practices. Since *prakṛti* of individual is analysed based on physical, psychological and physiological characteristics, *Prakṛti* analysis requires cooperation from the person. To disclose these private features in a public setting and to discuss it openly is very difficult especially if it is a student in the class. So committee suggested fictional characters as models to analyse *Prakṛti* in order to enable free discussion. It was made sure the subjects were familiar with fictional characters.

**Table 1**  
**Educational Strategies Selected with Duration**

Educational strategy	Time
Didactic lecture method	4 hours
Small group discussion	2 hours

#### **Didactic lecture method to introduce the theoretical concept**

Concept of *Prakṛti* was introduced through didactic lecture method and physical, psychological and physical peculiarities of each *Prakṛti* were narrated. It took 4 hours to complete theoretical concepts. In the next lecture hour, students were assessed by a test comprising one long answer type question.

#### **Small group discussion**

A week later, small group discussion was conducted on a non-lecture hour. Appropriate physical environment was set up by arranging seatings into five groups. Fifty subjects in class were grouped into five groups by lottery method. The facilitator who introduced the theoretical concept moderated the small group discussion. The role of the facilitator was to facilitate group discussions. His/her involvement was more than problem based learning sessions since facilitator was actively involved in group discussions enabling the discussions. The five known fictional personalities from well known film previously selected as per planning committee were projected on board and one leader from each group chose one character by lottery method.

Groups were given 40 minutes time for discussion. They were supposed to give reasons in physical, psychological and physiological domains to justify their conclusions. One student from each group is requested to present their conclusions in written as well as oral manner and presentation was subjected to open discussion in class.

Immediately after session, students' response on the session was collected using a 14 item closed ended questionnaire.

### **Content validity**

Students' conclusions were analysed by twelve experts of different Ayurveda colleges through Google form and results were compared.

After a week an uninformed post-test was conducted for ten minutes and responses were obtained

### **Outcome parameters**

The effectiveness of small group discussion was evaluated by using first two levels of the Kirkpatrick model of evaluation: reaction and learning. Outcome measure was designed on the basis of these two variables. Students' reaction was assessed through feedback form and learning was assessed through test with one descriptive question before and after intervention

### **Methods used for Data collection:**

1. Descriptive question of 5 marks for students assessment pre and post study
2. The student feedback questionnaire of 14 items that used a four-point *Likert* scale

### **Results**

#### **Didactic lecture method**

Introduction to concept of *prakṛti*, definition, factors affecting formation and individual characteristics of *ekadosha-prakṛti* was introduced through didactic lecture method.

**Table 2**  
**Didactic lecture hour topic and duration**

<b>Topic</b>	<b>Lecture hours</b>
Introduction to <i>prakṛti</i> , types and factors affecting <i>prakṛti</i>	1 hour
<i>Vaatapṛakṛti</i> (as per Ashtangahrdayam & Charakasamhita)	1 hour
<i>Pittapṛakṛti</i> (as per Ashtangahrdayam & Charakasamhita)	1 hour
<i>Kaphapṛakṛti</i> (as per Ashtangahrdayam & Charakasamhita)	1 hour

A pre-test with one descriptive type question was conducted in next lecture hour. The question was to explain the features of *Pitta-prakṛti*. Students whoenlisted physical, physiological and psychological aspects of *prakṛti* more than 15 points in each item, they will be given 5 marks. 10 points will be given minimum of 3 marks and less than 10 points from 0 to 3 according to number of features enlisted.

**Table 3**  
**Pre-test statistics**

Maximum	4.5
Minimum	0
Range	4.5
Mean	1.94047619
Median	2
Mode	0
Standard Deviation	s = 1.43221805
Variance	s <sup>2</sup> = 2.05124855
Mid Range	2.25

Five fictional characters from the film Bahubali, directed by S.S. Rajamauli was chosen.

Group 1:Kattappa

Group 2:AmarendraBahubali

Group 3: Bijjala Devan

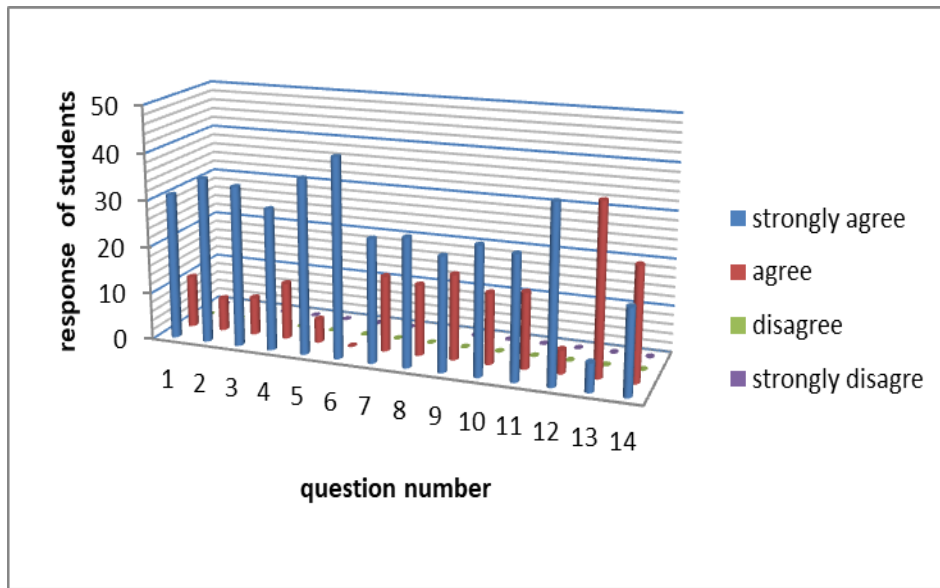
Group 4: Devasena

Group 5:Bhallala Devan

Five groups actively participated in discussion and exhibited good team work and cooperation.

Students' feedback was assessed through questionnaire having fourteen items. The responses for the questionnaire were gathered on a four point Likert scale. One - strongly disagree, Two - disagree, Three – agree and Four - strongly agree.

**Figure 1**  
**Students feedback questionnaire response**



Students strongly agree that small group discussion is effective, interesting provide deep understanding, team work and in- depth learning.

**Figure 2**  
**Word cloud of student responses**

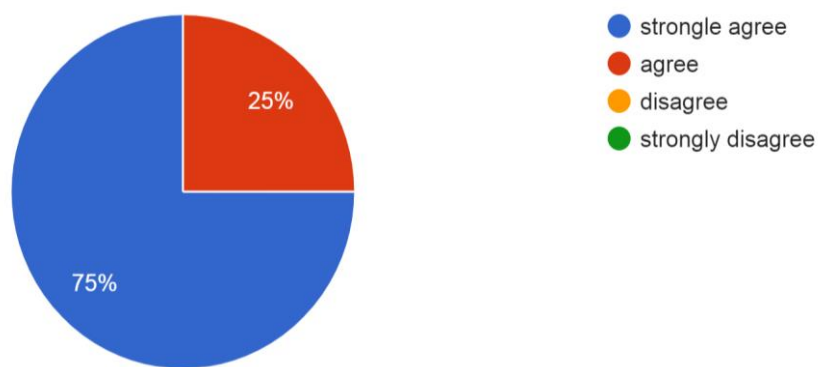


### 1. Content validation of students findings with expert opinion

A Google form was prepared using students conclusions and their reason to justify conclusions. This Google form was sent to faculties of *kriyaasareera* of different Ayurveda colleges across Kerala and their agreement with findings were noted. Students' findings were analysed by experts and their agreement with students' conclusion was collected.

**Figure 3**  
**Expert agreement to students' conclusion**

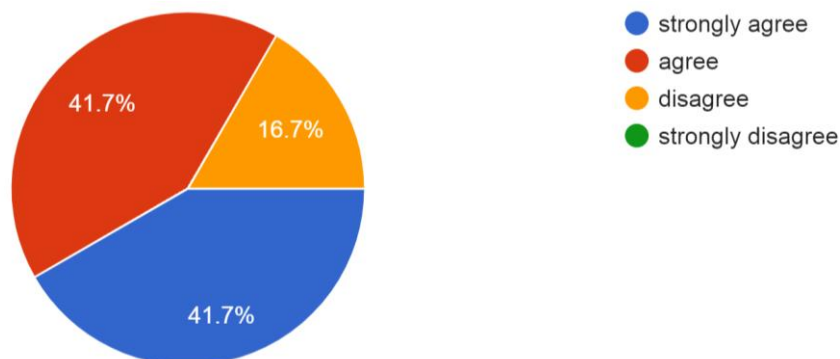
**100% Experts agree that students conclusions were right.**



A. Group 5 Analysed *prakṛti* of fictional character Bhallaladevan as *pittaadhika pitta kaphaprakṛti*

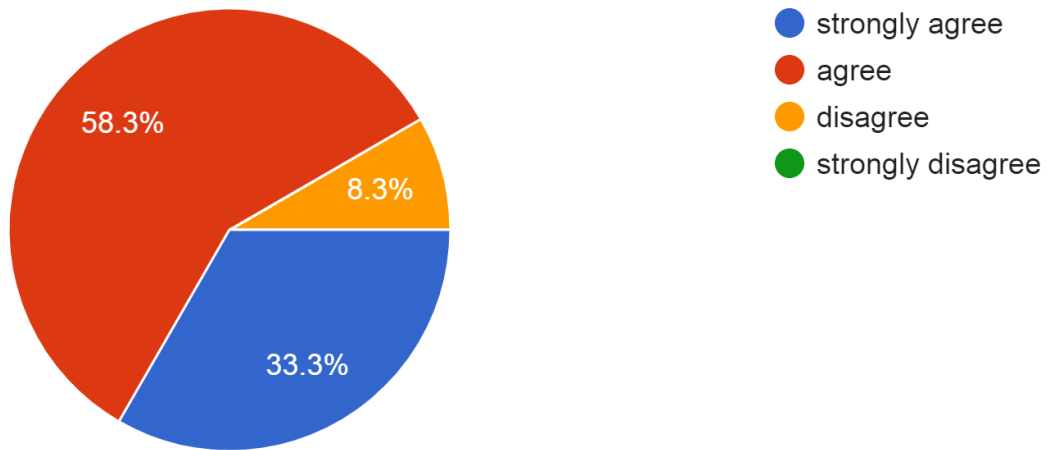
B. Group 2 Analysed *prakṛti* of fictional character *Amarendra Bahubali* as *Kaphadikakapha pitta prakṛti*

**Figure 4**  
**Expert agreement to students**  
**83.4% agreed to students conclusions**



C. Group 3 assessed *prakṛti* of *Bijjala Deva* as *vaatadhikavaata pitta prakṛti*.

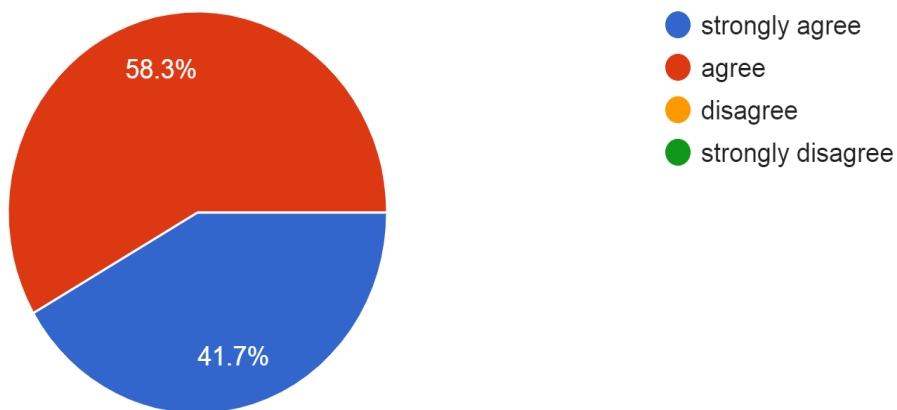
**Figure 5**  
**Expert agreement to students conclusion:**  
**91.6% of experts agreed with students conclusion .**



C. Goup 4 Students assessed *prakṛti* of Devasena as *pittaadhika-kapha pitta prakṛti*.

D.

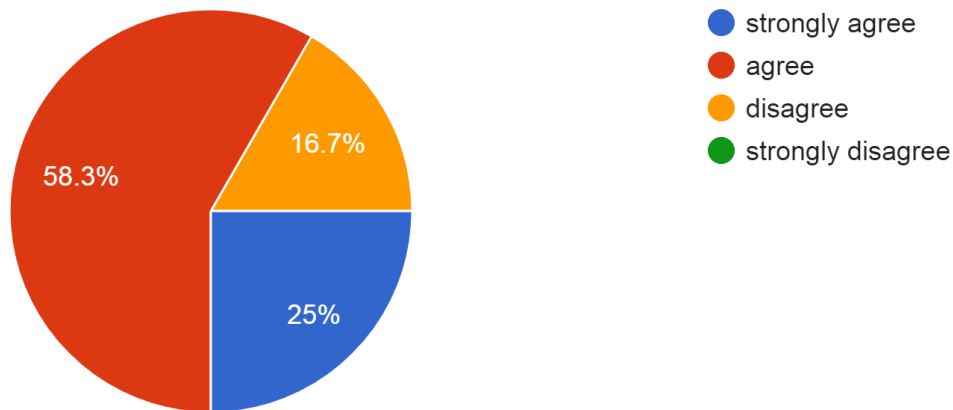
**Figure 6**  
**Expert Agreement To Students Conclusion:**  
**100% experts agreed with students conclusion**



E. Group 1 : Assessed *prakṛti* of Kattappa as *kaphaadhika-vaatakaphaprakṛti*.



**Figure 7**  
**Experts agreement to students' conclusion:**  
**83.3% experts agreed with students' conclusion**





### **Post test analysis**

The question was to explain the features of vaataprakṛti. Students who enlisted physical, physiological and psychological aspects of prakṛti more than 15 points in each item, they will be given 5 marks. Ten points will be given minimum of 3 marks and less than 10 points from 0 to 3 according to number of features enlisted.

### **Pre and post test result assessment using Paired T Test**

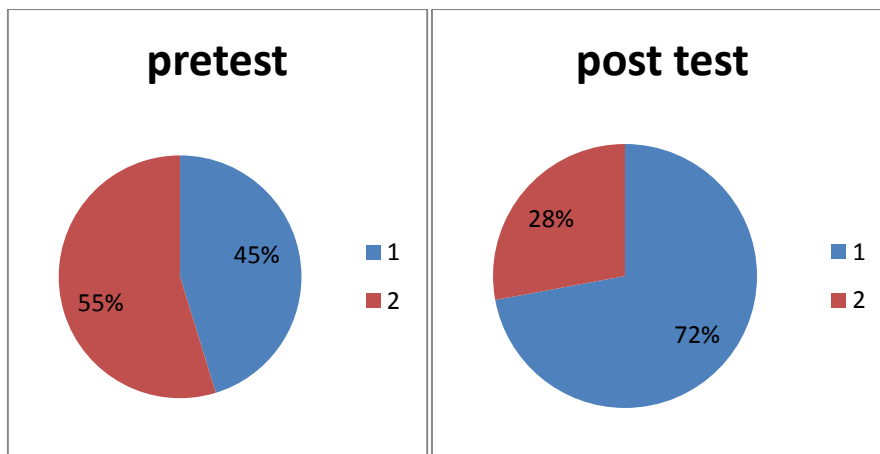
Students' performance on pre-test before the group discussions and post-test after group discussions was analysed using a two-tailed paired t test. The data are normally distributed with homogenous variance to satisfy the assumption of the t test. The students' performance was improved in post-test with a statistically significant  $p$  value ( $p < 0.05$ )

**Table 4**

Parameter	Value
<b>P-value</b>	0.00006692
t	4.438
Sample size (n)	42
Average of differences ( $\bar{x}_d$ )	0.869
SD of differences ( $S_d$ )	1.269
Normality p-value	0.1966
A priori power	0.8856
Post hoc power	0.9912
Skewness	0.497
Skewness Shape	 Potentially <b>Symmetrical</b> (pval=0.174)
Excess kurtosis	-0.1392
Kurtosis Shape	 Potentially <b>Mesokurtic</b> , normal like tails (pval=0.846)
Outliers	4

Pass percentage pre-test and post test

**Figure: 8**



1	Pass%
2	Fail%

Pass percentage increased from 45% to 72% after small group discussion.

## **DISCUSSION**

Students clearly participated in the small group discussion session. The students who were silent in the class seem to participate in active discussion. They are seen gone through classics many times to find reasons to analyse *prakṛti* or to substantiate their findings. Repeated reading, critical thinking and analysing for clear set goal i.e. determination of *prakṛti* of fictional character made students more involved in topic.

The results from the student survey data are encouraging and reveal a high level of student satisfaction with small group discussions. Students reported development of their collaborative skills as reflected by an improved desire to help their group members to understand difficult concepts. Analytical approach was evolved among students and they developed an insight on importance of accommodation and assimilation of concepts rather than by hearing it.

There occurred significant difference in scores pre and post small group discussion. Small group discussion enabled familiarity, understanding and interest to the topic. Students found concept simpler rather than usual fright seeing long *slokas*. Group discussions foster accommodation and assimilation, which are the critical concepts of constructive learning theory, and they promote remembering more easily. Even if students failed in recollecting *slokas*, they were able enough to remember characteristics and apply it confidently. *Sloka* learning became easier after small group discussion.

Small group discussion enhanced team work, healthy competition, presenting skill and rapport among students and paved ways to think analytically and observe surroundings to find practical utility of theoretical background.

## **CONCLUSION**

In present era of competency-based medical education (CBME), there should be suitable revision in *ayurveda* medical education to ensure that the graduates develop the competencies required to fulfil the patients' needs in the society. The new teaching – learning methodology should be both interesting and knowledgeable. Student should be able to develop skills in multiple areas like team work, problem solving, healthy competition, public presentation etc., Didactic lecture method is important in conceiving the concept but a short group discussion after didactic lecture proves to be the best combination for in-depth understanding and developing application skill.

## REFERENCES

1. Shah N, Desai C, Jorwekar G, Badyal D, Singh T. Competency-based medical education: An overview and application in pharmacology. *Indian J Pharmacol.* 2016 Oct;48(Suppl 1):S5-S9. doi: 10.4103/0253-7613.193312. PMID: 28031599; PMCID: PMC5178056
2. Roshni M, Rahim A. Small group discussions as an effective teaching-learning methodology for learning the principles of family medicine among 2<sup>nd</sup>-year MBBS students. *J Family Med Prim Care.* 2020 May 31;9(5):2248-2252. doi: 10.4103/jfmpc.jfmpc\_1228\_19. PMID: 32754482; PMCID: PMC7380748.
3. Arja SB, Ponnusamy K, Kottathveetil P, Ahmed TFA, Fatteh R, Arja SB. Effectiveness of Small Group Discussions for Teaching Specific Pharmacology Concepts. *Med Sci Educ.* 2020 Mar 4;30(2):713-718. doi: 10.1007/s40670-020-00938-9. PMID: 34457729; PMCID: PMC8368645.
4. Annamalai N, Manivel R, Palanisamy R. Small group discussion: Students perspectives. *Int J Appl Basic Med Res.* 2015 Aug;5(Suppl 1):S18-20. doi: 10.4103/2229-516X.162257. PMID: 26380202; PMCID: PMC4552057.
5. Roshni M, Rahim A. Small group discussions as an effective teaching-learning methodology for learning the principles of family medicine among 2<sup>nd</sup>-year MBBS students. *J Family Med Prim Care.* 2020 May 31;9(5):2248-2252. doi: 10.4103/jfmpc.jfmpc\_1228\_19. PMID: 32754482; PMCID: PMC7380748.
6. Annamalai N, Manivel R, Palanisamy R. Small group discussion: Students perspectives. *Int J Appl Basic Med Res.* 2015 Aug;5(Suppl 1):S18-20. doi: 10.4103/2229-516X.162257. PMID: 26380202; PMCID: PMC4552057.
7. Jaques D. Teaching small groups. *BMJ.* 2003 Mar 1;326(7387):492-4. doi: 10.1136/bmj.326.7387.492. PMID: 12609949; PMCID: PMC1125374.
8. Meo SA. Basic steps in establishing effective small group teaching sessions in medical schools. *Pak J Med Sci.* 2013 Jul;29(4):1071-6. doi: 10.12669/pjms.294.3609. PMID: 24353692; PMCID: PMC3817785.
9. SahuPK, Nayak S, Rodrigues V. Medical students' perceptions of small group teaching effectiveness in hybrid curriculum. *J Educ Health Promot.* 2018 Feb 9;7:30. doi: 10.4103/jehp.jehp\_71\_17. PMID: 29629391; PMCID: PMC5852982.
10. Tayem YI. The Impact of Small Group Case-based Learning on Traditional Pharmacology Teaching. *Sultan Qaboos Univ Med J.* 2013 Feb;13(1):115-20. doi: 10.12816/0003204. Epub 2013 Feb 27. PMID: 23573391; PMCID: PMC3616776.

---

\* Associate Professor, Dept. of Kriyasareeram, Sree Narayana Institute of Ayurveda Studies and Research, Puthur, Kollam, Kerala. Corresponding mail: draswathynair@gmail.com