

Research Article

Does 'SNAPPS' Enhance Engagement in Ward Teaching? A Controlled Study of Perception and Satisfaction Among Medical Students

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How to cite this article:

Mukhopadhyay S, Bhatnagar R, Rani A, Rai D. Does 'Snapps' Enhance Engagement in Ward Teaching? A Controlled Study of Perception and Satisfaction Among Medical Students. IAP J. Med. Educ. Res. 2026;3(1):9-14.

Date of Submission: 2026-02-06

Date of Acceptance: 2026-05-15

A B S T R A C T

Introduction: Case presentations are a way of learning clinical reasoning, which is a core competence of medical practice. This study was undertaken to see the perception of MBBS students regarding the use of the SNAPPS format in bedside teaching in the Department of Pediatrics. We measured levels of student satisfaction via a questionnaire following each encounter.

Methods: The study was conducted in the Department of Pediatrics in a government medical college in India. MBBS phase 3 part 2 students posted in pediatrics participated in the study. They were randomly divided into two groups of 11 each. Faculty and students were introduced to the concept of SNAPPS, and then students of one group presented cases in the SNAPPS format while the other one presented traditionally. In the end, perception and feedback were taken from the students. The satisfaction index (SI) for each item was calculated. For the qualitative analysis, the responses to the open-ended questions were reviewed and thematically analyzed.

Results: A total of 22 MBBS students participated in the study. 72.7% of students felt the SNAPPS method of case presentation is better than the traditional method, and 86.3% feel that active participation of students is more. Ninety-point-nine percent (90.9%) of students liked the concept of multiple students presenting cases using the SNAPPS format in one session, and 68.2% feel that such sessions should be held once or twice during the posting. The satisfaction index was higher than 75 for all the items.

Conclusion: This study demonstrated good acceptability of using the SNAPPS tool in undergraduate teaching, active participation by students when such tools are used, and high satisfaction when multiple students presented cases using the SNAPPS format in one session. If such sessions can be conducted at the end of a system, it can improve students' understanding by covering all possible cases simultaneously.

Keywords: SNAPPS, Satisfaction Index, MBBS, Pediatrics

Introduction

Case presentations and bedside teaching are an essential component of the training of medical undergraduates and postgraduate students. These teaching methods are helpful in enhancing clinical skills like clinical history taking, clinical examination, etc. They also teach the students about professionalism, ethics, and communication while dealing with the real patients and are better than didactic teaching for the above skills.¹

Bedside clinics test prior knowledge of the student and the ability of the student to use that knowledge to reach a diagnosis and management plan accordingly. In the traditional system of bedside teaching, one or two students prepare the case, which is then discussed with the whole group. This is the most popular method of bedside teaching but has its own pitfalls. Williams et al. found that the time devoted to bedside teaching has not increased from 8 to 19% since the 1960s.²

There are a number of barriers for the same. Like the limited time of the faculty, non-availability of a competency framework,³ all the students don't participate equally; only the vocal ones keep on interacting, declining interest of students in clinical classes as they are more interested in studying for future competitive exams, etc.

Clinical reasoning is a core competence of medical practice and needs supervision to learn. In this, a physician uses his/her prior knowledge and combines it with patients' information and forms a case representation.^{3,4} The oral case presentation is the most used tool for imparting this skill.⁵

There are methods of structured case presentations like one-minute preceptor (OMP) and SNAPPS, which help in improving clinical reasoning during the case presentations. OMP provides preceptors (clinical teachers) with five steps to guide the learner's case presentation: get a commitment, probe for supporting evidence, teach general rules, reinforce what was right, and correct mistakes.⁶ The SNAPPS method is a mnemonic guiding the learner to structure the case presentation into six steps: Summarize history and findings, narrow the differential, analyze the differential, probe the preceptor about uncertainties, plan management, and select case-related issues for self-study.^{6,7}

While the OMP method gives instructions to teachers, SNAPPS provides them to learners. It is beneficial as it helps learners to comprehend what is expected of them. It fosters learner autonomy and motivation and improves learning outcomes. SNAPPS encourage students' and residents' clinical reasoning and involve them in the patient management plan, thus reducing the likelihood that they will report only factual data.⁵

This study was undertaken to see the perception of MBBS students regarding the use of SNAPPS in bedside teaching

in the Dept. of Pediatrics. We measured levels of student satisfaction via a questionnaire following each encounter.

Methodology

This study was conducted after approval from the institutional ethics committee (IEC No. IEC/HR/2024/35). The study was structured in the following manner: study design—randomized controlled; study setting—

Department of Pediatrics of a Tertiary Care Medical Institute; subjects—MBBS phase 3 part 2 medical students posted in Pediatrics (n = 22).

The feedback survey questionnaire (annexure I) was prepared with the help of members of the Medical Education Unit of our institute. It was validated using open-ended feedback and was then revised as per the suggestions. A workshop was conducted over 3 days by the medical education unit team to sensitize the students and faculty to the SNAPPS method of case presentations using videos and demonstrations.

Sampling and randomization

The subjects were medical students of MBBS phase 3, part 2, who were posted in pediatrics during the study period. The twenty-two students who consented were then randomized by a simple randomization technique using a simple random number table. After randomization, the study population was divided into 2 groups—group 1 was the SNAPPS technique group and group 2 was the traditional case presentation group. Each group had 11 students.

Conduct of sessions: The cases were decided after discussion with the faculty. They were based on common illnesses like pneumonia, fever, gastroenteritis with moderate or severe dehydration, newborns with jaundice, etc. Their theory part was already covered in the curriculum. Admitted patients were allotted to students as cases.

In Group 1, each student was given a case. Then after 1 hour, each student presented his/her case as per SNAPPS protocol over 15 min in front of the whole batch.

In group 2, one case was allotted to the whole group. They prepared for 1 hour, and then 2 students from the group presented the case. It was attended by the rest of the students of the group. Crossover was done for ethical reasons in the next session.

Feedback

After completing the sessions, the students were asked to provide feedback. A hard copy of the questionnaire was shared. The feedback questionnaire had two types of questions: (1) questions with responses on a five-point Likert scale and (2) open-ended questions.

In the questionnaire, the participants were asked to select from a five-point Likert scale rating: "strongly disagree," "disagree," "neutral," "agree," or "strongly agree."

Open-ended questions helped in gathering perceptions of students and faculty. The questions asked were: Aspects students and faculty liked about "SNAPPS," "What students/faculty did not like about "SNAPPS," and "Suggestions for improvement in teaching/learning by SNAPPS."

Data Analysis

Quantitative Analysis (Descriptive Statistics)

Feedback from students about the various aspects of the learning activity using a Likert scale is shown in Table 1.

The satisfaction index (SI) for each item was calculated using the following formula: $[(n1 \times x1) + (n2 \times x2) + (n4 \times 4) + (n5 \times 5)] \times 20 / (n1 + n2 + n4 + n5)$, where n is the total number of students gaining the score mentioned in the subscript for that particular item.^{8,9} The satisfaction index was calculated for each item to assess the level of satisfaction of the students with the activity.

Qualitative Analysis

Perceptions of the students to the concept of case presentation using SNAPPS were recorded using open-ended questions. The students were asked which method of case presentation was better, do they feel the participation of students is more in the SNAPPS method, what they liked, and ideas to improve the sessions. For the qualitative analysis, the responses to the open-ended questions were reviewed and thematically analyzed by two of the investigators (SM and AR). Final agreement was reached after discussions. The findings were clustered in groups: highlights, flaws, and ways to improve.

Results

Analysis of students' feedback about SNAPPS showed that 72.7% of students felt the SNAPPS method of case

presentation is better than the traditional method. In terms of active participation of students, 86.3% feel it is more in the SNAPPS method.

Ninety-point eight percent (90.8%) of students feel that the structured format enabled them to access more sources of information, and the structured format helps in holding the case discussion in a planned manner. With the SNAPPS format, selecting a case-related topic for reading helps them in learning, and 77.3% say that focused discussion on knowledge-deficient areas with the teacher improved knowledge. Seventy-seven-point two percent (77.2%) of students agreed that SNAPPS helped in improving skill in differentiating similar conditions with justification. Ninety-nine percent (90.9%) of students liked the concept of multiple students presenting cases using the SNAPPS format in one session, and 68.2% feel that such sessions should be held once or twice during the posting. Overall, 86.4% of students were satisfied with the use of the SNAPPS method for ward teaching (Table 1).

Values in parentheses are percentages. Scores were determined as follows: 1=Strongly disagree; 2=Disagree; 3=Neutral; 4=Agree; 5=Strongly agree; SI- Satisfaction Index

The satisfaction index was calculated as given above. Over a range of 1-100, the SI was highest for item number 5 (87), which stated that discussion with the SNAPPS format improved learning due to focused discussion on areas in which the student was deficient. It was lowest for item number 1 (77.6), which stated that the SNAPPS method was better than the traditional method of teaching. The idea of multiple students presenting cases using the SNAPPS format in one session to keep them engaged generated an SI of 86. Overall, SI was higher than 75 for all the items (Table 1).

Thematic analysis: Themes that emerged in response to the open question on the feedback questionnaire and respective comments from the students (Table 2).

Table 1. Table of feedback using Likert scale and Satisfaction Index

S.No	Questions	Score					SI
		1	2	3	4	5	
1.	I think SNAPPS method of case presentation is better than the traditional method	0 (0)	1(4.5)	5(22.7)	16(72.7)	0(0)	77.6
2.	I feel students participate more actively in SNAPPS method	1(4.5)	0(0)	2(9)	14(63.6)	5(22.7)	82
3.	I feel the structured format helps in holding the case discussion in a planned manner.	0(0)	0(0)	2(9)	19(86.3)	1(4.5)	81
4.	I think selecting a case related topic for self-study encouraged me to read about the topic in depth	0(0)	0(0)	6(27.3)	14(63.6)	2(9)	82.5
5.	I feel SNAPPS format improved knowledge by focused discussion on knowledge deficient areas with the teacher	0(0)	0(0)	5(22.7)	11(50)	6(27.3)	87

6.	I feel SNAPS format helped in articulating the presentation as a format was available	0(0)	1(4.5)	8(36.4)	9(40.9)	4(18.2)	82.8
7.	I feel SNAPPS helped me in improving skill in justifying differential diagnosis	0(0)	1(4.5)	4(18.2)	16(72.7)	1(4.5)	78.8
8.	I think the concept of multiple students presenting cases using SNAPPS format in one session was a good idea.	0(0)	0(0)	2(9)	14(63.6)	6(27.3)	86
9.	I think such sessions should be held once or twice during the posting.	0(0)	0(0)	7(31.8)	11(50)	4(18.2)	85.3
10.	Overall, I am satisfied with the use of SNAPPS method for ward teaching	0(0)	0(0)	3(13.6)	13(59.1)	6(27.3)	86.3

Table 2. Table of thematic analysis

Themes	Representative comments
Highlights	<ul style="list-style-type: none"> • A structured format like SNAPPS helps in case presentation • It was quick and concise • It was multi-dimensional • It was comprehensive, • Many different topics covered, • Increases interest in clinics • Active participation of all students is there • More cases could be discussed • Helps in identifying knowledge gaps • Probing the preceptor and clarifying doubts aids better understanding of concepts • Improves understanding
Flaws	<ul style="list-style-type: none"> • In-depth discussion on the case could not be done as is usually done in traditional method, • Time not adequate
Ideas for improvement	<ul style="list-style-type: none"> • It will be effective if all systems are covered earlier • Better to focus on single system at one time • Focus on clinical examination (hands on by each student) • Disclose the case earlier

Highlights

Concerning highlights of the activity, students wrote that a structured format like SNAPPS helps them in case presentation; it was quick and concise and comprehensive, increases interest in clinics, ensures active participation by everyone, and more cases could be discussed when all the students are presenting. The SNAPPS format helped in identifying knowledge gaps and steps like probing the preceptor and clarifying doubts; focused discussion in deficient areas aids better understanding of concepts.

Flaws

As per the students, the detailed and in-depth discussion on various aspects of case discussion, like family history, etc., could not be done; students felt more time should be given to individual cases.

Ideas for improvement

To maximize learning and completion, the student recommended dedicating each session to cases from just one anatomical or functional system. Some students felt that learning will be better if cases are disclosed beforehand.

Two faculty were involved in conducting the session. They were interviewed using standardized open-ended questions. The faculty felt that with SNAPPS more cases could be discussed, students were more engaged and active, it provided better understanding, it was interactive, and it helped in identifying knowledge gaps of individual students. Probing the preceptor and clarifying doubts is good, as it aids in better understanding of concepts, etc. But they felt that using SNAPPS is not suitable for undergraduates; the step where they have to justify their diagnosis is tough. They need to be taught about summarization and this

way of presentation from initial years, and it needs more trials. So, they suggested that this method of SNAPPS for inpatient teaching can be used once or twice after all the topics have been covered in clinics (Table 2).

Discussion

This study found that SNAPPS is a good method for teaching case presentation, driving self-study, and ensuring participation in ward teachings of MBBS students with a high satisfaction index. The concept of multiple students presenting cases using the SNAPPS format in one session was found to be an acceptable idea, and students and faculty felt such sessions should be held once or twice during the posting.

Our research objective was to see the perception of MBBS phase 3 students and faculty regarding the use of SNAPPS in bedside teaching in the Dept. of Pediatrics. Feedback showed that 72.7% of students felt SNAPPS is better than the traditional method. Seventy-seven-point two percent (77.2%) of students agreed that SNAPPS helped in improving skill in differentiating similar conditions with justification. In a study by Suwarna Dangore et al. on using SNAPPS, 80% of the students agreed that the new method helped them to increase their confidence in diagnosis as well as narrow the differential diagnosis.¹⁰ This is close to what was seen in our study. Students perceived that SNAPPS helped them to improve their skill in differentiating between similar conditions with justification as well as to improve knowledge.

Jain et al. did a study by using SNAPPS for inpatient teaching among the postgraduate students of the Department of Medicine.¹¹ They opined that it was in the SNAPPS group that students could identify case-related topics and resources for self-study. In our study, 72.6% agreed that with the SNAPPS format, selecting a case-related topic for reading helps them in learning.

Dabbas et al. used the SNAPPS method for postgraduate teaching, and in that, students felt that it helped them assimilate knowledge and generate self-directed learning (SDL) opportunities. These areas, they felt, were not so emphasized upon routinely.¹²

In different studies, the SNAPPS model has been used with positive feedback and with high satisfaction among third-year medical students and general psychiatry residents and fellows, respectively.^{13,14} The satisfaction index in our study was also high, ranging from 77.6 to 87. Ninety-point nine percent (90.9%) of students felt that the concept of multiple students presenting cases using the SNAPPS format in one session was a good idea with a satisfaction index of

86, and such sessions should be held once or twice during the posting after the completion of the syllabus. Overall SI was more than 75 for all the items asked.

Talking about their perception, the students felt that by this method more cases could be covered, active involvement of learners was there, they could identify knowledge gaps in a better way, it improved interest in clinics, gave more exposure, etc. While they felt that the inability to discuss the cases in full was a major hinderance. Also, according to them, the time for case presentation was less, and it required more effort. Similar problems were reported by postgraduate students in a study by Dabbas et al.¹² They also felt summarization and completing the analysis of the case was difficult.

In our study, the students suggested that it would be better to focus on a single system at one time, disclose the case earlier, etc. In another study, the students liked the idea of case presentation using SNAPPS, as it allowed them to take an active role.¹¹

One of the major limitations of the study was the small number of participants. The non-homogeneity of cases could be another factor that could affect satisfaction. Those getting tougher cases might be less satisfied.

The highlight of the study was the demonstration of good acceptability of using the SNAPPS tool in undergraduate teaching, active participation by students when such tools are used, and high satisfaction when multiple students presented cases using the SNAPPS format in one session. If such sessions can be conducted at the end of a system, it can improve students' understanding by covering all possible cases simultaneously.

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