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Research

Introduction of one minute preceptor as teaching learning method for postgraduates in orthopaedics

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Abstract

Background: Orthopaedic teaching at Postgraduate level is more procedure oriented and due to time and workload constraints, teaching of clinical reasoning skills somehow gets neglected. One Minute Preceptor (OMP) is a learner oriented micro skill method of teaching for improving learning at Postgraduate level. So this study was proposed to introduce OMP as a teaching learning method for Postgraduate in Orthopaedics.

Methodology: This interventional educational study was conducted at the Department of Orthopaedics, PGIMS Rohtak after obtaining institutional ethical clearance. After sensitization of students and faculty members, 6 OMP sessions per student were conducted. Feedback was taken at the end by students as well as faculty members. The question format included both open-ended and close-ended questions. Rating was done on a five-point Likert scale

Results: 95.8% (n=23) Postgraduate students found OMP as an effective tool in learning clinical skills while 83% students (n=20) felt confident in clinical skills after using OMP. Similarly, all faculty members perceived that OMP improved confidence in assessing clinical knowledge of residents as well as helped them to focus on students' weak areas.

Conclusion: In busy clinical settings, OMP is feasible and effective teaching learning method and induces a significant improvement in clinical skills of postgraduate students.

Keywords: One-minute preceptor, Orthopaedics, clinical reasoning, postgraduate.

INTRODUCTION

Postgraduate teaching in clinical specialties like Orthopaedics is hampered a lot due to time constraints & work overload. Traditional methods of teaching during postgraduation like seminars, lectures, and journal clubs focus more on theoretical knowledge with minimal focus on clinical skill acquisition. Clinical skill teaching is mainly dependent on case presentations which demands lots of dedication from both ends.

One-Minute Preceptor (OMP), a five-step “microskill” model of clinical teaching, which is short yet effective teaching-learning method [1]. Five microskills are -

1. Get a commitment- ask the learner to articulate his/her diagnosis or plan
2. Probe for supporting evidence- evaluates the learner's knowledge or reasoning.
3. Teach a general rule- Teach the learner common “take home points” that can be used in future cases. Aimed preferably at an area of weakness for the learner
4. Reinforce what was done well- provide positive feedback
5. Correct mistakes-provide constructive feedback with recommendations for improvement.

Main strength of this method is teaching in a case based format in outpatient departments or wards with meaningful student-teacher interaction in an ambulatory care setting with minimal disruption to patient care. In his original description, Neher et al found that all respondents found this model as “somewhat helpful” while 58% faculty members found it as “extremely helpful” as clinical teachers [1,2]. Literature shows the use and effectiveness of this method with mixed perceptions [3-5]. Therefore the present study was designed to introduce One Minute Preceptor teaching learning method for Post graduate students in Orthopaedics and to determine the factors influencing learner satisfaction with the module.

AIMS AND OBJECTIVE

To introduce OMP as a teaching learning method among Post graduate students in Orthopaedics.

1. To implement One Minute Preceptor as a Teaching Learning Method for Postgraduates in Orthopaedics
2. To assess the feasibility and acceptability of One Minute Preceptor as a Teaching Learning Method for Postgraduates in the department of Orthopaedics.
3. To assess the perceptions of postgraduates about One Minute Preceptor as a Teaching Learning Method in the department of Orthopaedics.
4. To assess the perceptions of the Faculty about One Minute Preceptor as a Teaching Learning Method in the department of Orthopaedics.

METHODS

STUDY DESIGN

Prospective, non-randomized, intervention study: This study was conducted in Department of Orthopaedics, PGIMS Rohtak after obtaining institutional clearance [6]. Sensitization of faculty members and students was done using PPT and interactive discussions. A feedback questionnaire based on 5 point Likert scale was filled at the end as mentioned in fig. 1.

PARTICIPANTS

Orthopaedics post graduate students (n=24), Sample size: 24 Post graduate students and 14 faculty members of Department of Orthopaedics. 6 OMP sessions per students were conducted by faculty members in OPD and ward. For a particular student, each session was conducted on a different topic by a different faculty member. Some of the topics on which OMP sessions were conducted included POP cast, non-union, Swelling examination, external fixator etc. This record sheet

was countersigned by both faculty member as well as student.

After six OMP sessions, the residents were asked to fill a questionnaire consisting of questions about their perception on different aspects of OMP. The questionnaire was validated from PG students, faculty members, and members of medical education unit. The question format included both open-ended and close-ended questions. Rating was done on a five-point Likert scale of 1=“strongly disagree” to 5=“strongly agree” [7]. Faculty perception about usefulness and implementation of OMP as a regular teaching tool was also evaluated through a separate, validated structured questionnaire (Fig. 1).

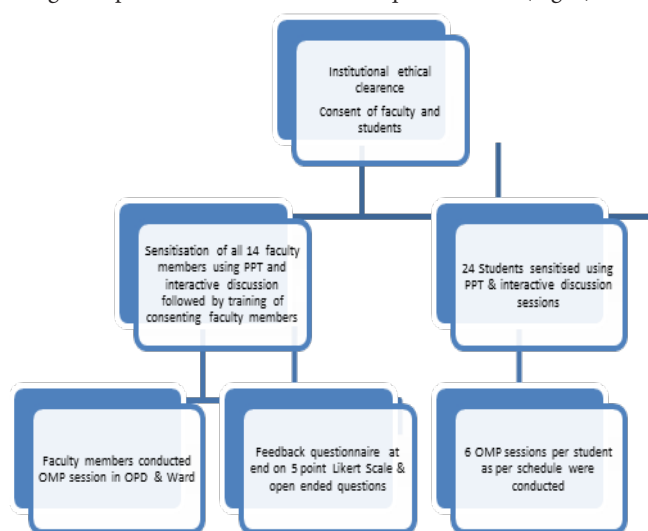


Fig. 1. Flow chart depicting the process flow of the study

The statistical analysis was done using SPSS (IBM SPSS Statistics 21.0; Armonk, NY, USA). The categorical variables were summarized using percentages and frequencies, and continuous data were analyzed using mean and standard deviation wherever applicable.

DESCRIPTION

Separate feedback form of students and faculty were used which were validated by experts. Study tools are attached as annexure II. Data collection process: A hard copy after every session (n=144) was filled and same was used for collecting the data. After completion of all OMP sessions, google forms for final feedback forms containing open ended and close ended questions were used to collect the data.

DATA ANALYSIS:

Quantitative- After completion of every session, a separate sheet was filled in by faculty member conducting the OMP session, containing details of OMP session including overall assessment of student by the faculty member in percentage (0-100).

After completion of all OMP sessions, a separately designed questionnaire for collecting student (n=24) and faculty (n=14) feedback was filled in Google forms. Feedback questionnaire contains both open ended and close ended questions.

Qualitative- Reflections and feedback with open ended responses were analyzed using thematic analysis and verbatim were also shared.

Ethics: The study was commenced after approval from ethics committee of the institution. The Institution Ethics Committee letter dated 21/6/2021 number BREC/21/47 attached as annexure. Informed Consent Form and Participant Information Sheet are attached as annexure.

RESULT

A total of 144 OMP sessions were conducted in which each resident underwent six sessions. Besides the presenter, session was observed by other residents and faculty available for better learning and acclimatization about OMP.

Feedback of postgraduate residents about one-minute preceptor

Feedback of postgraduate residents about one-minute preceptor according to Table 1.

A graphical representation of the same is depicted in fig. 2. As evident in fig. 2, 95.8% (n=23) Postgraduate students found OMP as an effective tool in learning clinical skills while 83% students (n=20) felt confident in clinical skills after using OMP. Only 50% (n=12) students felt that time devoted in OMP is inadequate while 58% (n=14) found difficult to find time for OMP in busy schedule. There was no consensus among the students regarding OMP as a satisfactory method of assessing capabilities as an Orthopaedician (Table 2 and fig. 3).

Table 1. Showing Likert Scale of OMP preceptor for student's perception

S.N.	STATEMENT	n	SD	D	N	A	SA
1	It made learning clinical skills easier	24	-	-	1	12	11
2	The time devoted in OMP teaching is inadequate	24	3	3	6	9	3
3	It made me confident in clinical skills	24	-	1	3	15	5
4	It improved my ability to assess patients.	24	-	-	3	13	8
5	It is a satisfactory method of assessing my capabilities as an Orthopaedician	24	4	5	11	4	4
6	It will help in achieving good clinical skills	24	-	-	2	14	8
7	It should be a regular method of assessment	24	-	-	3	14	7
8	OMP was a feasible exercise	24	-	2	2	13	7
9	It was difficult to find time for OMP in busy schedule	24	-	4	6	9	5

(SD- Strongly Disagree, D- Disagree, N- Neutral, A- Agree, SA- Strongly Agree)

Table 2. Showing feedback of faculty members in using OMP

S.N.	STATEMENT	n	SD	D	N	A	SA
1	OMP was a feasible exercise	14	1	-	1	7	5
2	The time devoted in OMP teaching is inadequate	14	-	2	4	6	2
3	It should be a regular Teaching Learning Method	14	-	1	1	5	7
4	It helped me identifying the difficult areas of learning of student.	14	-	1	3	7	3
5	It is a satisfactory method of assessing competency of students	14	-	2	3	5	4
6	It will help students acquiring good clinical skills	14	-	-	1	6	7
7	It covered all essential aspects of skill teaching	14	-	3	5	4	2
8	It was difficult to find time for OMP in busy clinical schedules	14	1	3	2	6	2
9	It is not beneficial for students as compared to traditional Teaching Learning Methods	14	2	6	3	2	-

(SD- Strongly Disagree, D- Disagree, N- Neutral, A- Agree, SA- Strongly Agree)

Feedback of postgraduate residents about OMP

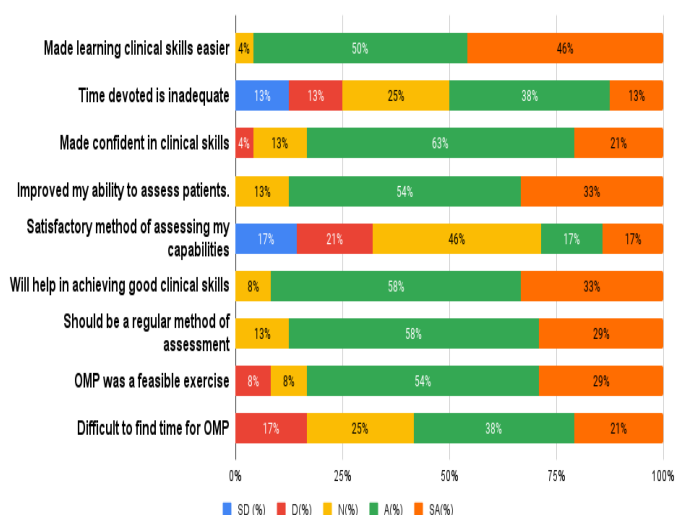


Fig. 2. Showing percentage wise distribution of faculty feedback

Feedback of faculty about OMP

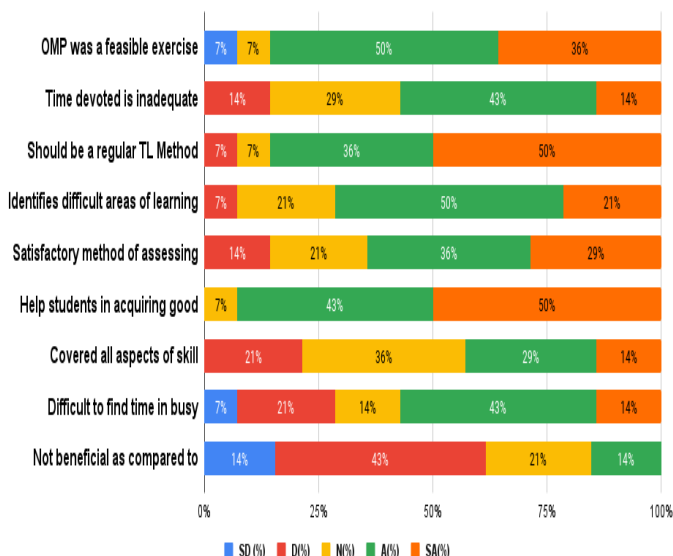


Fig. 3. Showing percentagewise distribution of faculty feedback.

Table 3: Satisfaction index of students feedback (n=24)

S.N.	Item	Satisfaction Index
1	It made learning clinical skills easier	95.8
2	The time devoted in OMP teaching is inadequate	50
3	It made me confident in clinical skills	83.3
4	It improved my ability to assess patients.	87.5
5	It is a satisfactory method of assessing my capabilities as an Orthopaedician	33.4
6	It will help in achieving good clinical skills	91.6
7	It should be a regular method of assessment	87.5
8	OMP was a feasible exercise	93.4
9	It was difficult to find time for OMP in busy schedule	58.3

Table 4. Satisfaction index of faculty members feedback (n=14)

S.N.	Item	Satisfaction Index
1	OMP was a feasible exercise	85.7
2	The time devoted in OMP teaching is inadequate	56.8
3	It should be a regular Teaching Learning Method	85.7
4	It helped me identifying the difficult areas of learning of student.	71.3
5	It is a satisfactory method of assessing competency of students	64.1
6	It will help students acquiring good clinical skills	92.6
7	It covered all essential aspects of skill teaching	42.6
8	It was difficult to find time for OMP in busy clinical schedules	56.8
9	It is not beneficial for students as compared to traditional Teaching Learning Methods	14.2

All the 14 Faculty members who conducted the OMP sessions gave a positive feedback. All of them perceived that OMP improved confidence in assessing clinical knowledge of residents. 71% (n=10) perceived that it helped them to identify and focus on students' weak areas. They advocated that OMP should be incorporated as a routing teaching method for PG students. According to Tables 3 and 4, while only 50% students find time inadequate for an OMP session, only 14% faculty members disagreed to it. Just like students, 58% faculty members also perceived that there was difficult to find time for OMP in busy clinical settings.

SATISFACTION INDEX

The satisfaction indices of students and faculty were calculated and it was found that satisfaction index ranged from 33.4% to 95.8% among students and 14.2% to 92.6% among faculty. Students' satisfaction index

regarding OMP as a satisfactory method of assessing capabilities as an Orthopaedician was lowest (33.4%) whereas satisfaction index of faculty regarding use of OMP in acquiring good clinical skills was rated highest (92.6%). Qualitative analysis as per Fig. 4 and 5.

Open ended questions were used for qualitative analysis. 14 codes were created as per transcript using both inductive and deductive approach with different color labels. 3 Categories were created after combining one/ /more codes. Results were analyzed using QDA Miner Lite Software.

Overall distribution of codes is shown in figure below.

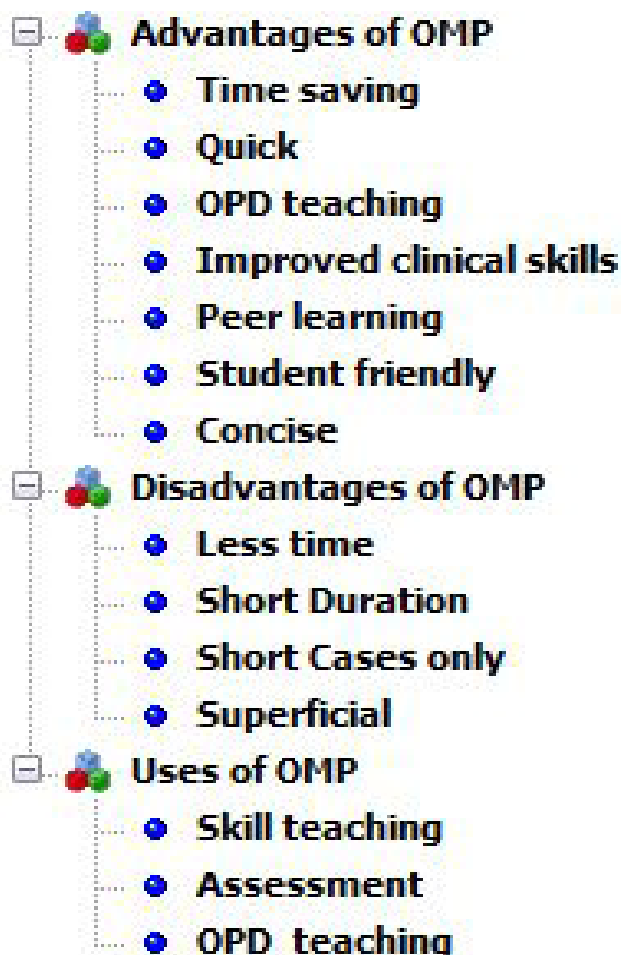


Fig. 4. Showing final list of codes and categories

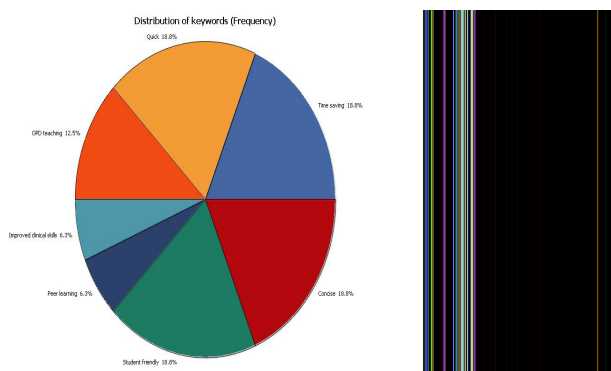


Fig. 5. Showing overall distribution of codes

ADVANTAGE OF OMP

Both the faculty members and students found OMP as an effective teaching learning method which is concise, quick and time saving especially effective in clinical skill teaching and learning in OPD settings as given in fig. 5-7. Some of the verbatim used by students were-

1. "Short and focused."
2. Quick and effective way to improve clinical skills."
3. "It mimics the final viva for exam."
4. "One on one, quick, to the point."
5. "It provides direct interaction with patient and teacher both."

Similarly some of the faculty verbatim was-

1. "Less time consuming."
2. "One to one interaction."
3. "It is not better or worse. It is another weapon in the armory."
4. "Students acquire good clinical skills"

DISADVANTAGE OF OMP

Time constraints were the most common shortcoming of OMP pointed out both by faculty as well as students. Students verbatim on shortcomings of OMP mainly included-

1. "Short duration."
2. "Short cases discussed only."
3. "Time constraint."
4. "Difficult to find time during hectic schedule."

Faculty missed the detailed teaching of a particular topic.

"Cases are not pre-decided, students are not prepared for specific cases and their own assessment." "Not much time for detailed teaching of concepts."

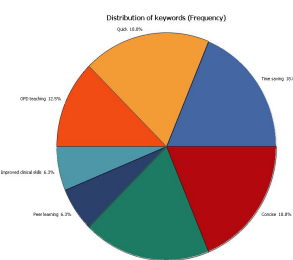


Fig. 6. Showing distribution of codes – Advantages of OMP

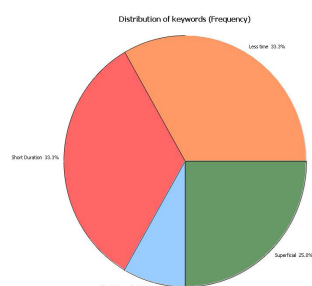


Fig. 7. Showing distribution of code- Disadvantages of OMP.

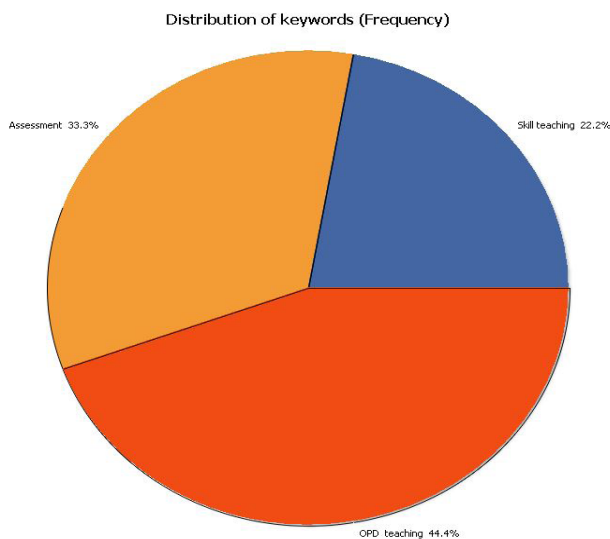


Fig. 8. Showing distribution of codes- Uses of OMP

Fig. 7 represents the percentage wise distribution of codes-

Uses of OMP

Both the faculty members and students were of opinion that main utility of OMP remains for OPD teaching in a limited time span. Besides it, assessment and clinical skill teaching and learning are other scopes of OMP as depicted in fig. 8.

DISCUSSION

The present study was conducted in Department of Orthopaedics at PGIMS Rohtak to evaluate the perception of PG residents and the faculty about OMP teaching model in an ambulatory setting. The results showed that the residents perceived OMP as an effective teaching tool in improving their clinical reasoning skills and enhancing their confidence and motivation for further study.

A median number of 21 residents agreed or strongly agreed to 6 out of 9 items in the study questionnaire. 87.5% students advocated routing use of OMP in PG teaching. Literature also shows similar results on student perception in previous studies [4-6].

In a comparative study using videotaped teaching encounters, 164 medical students preferred OMP model to the traditional teaching in the study conducted by Teherani et al [5]. A significantly high rating was given to all the items, especially students' clinical reasoning, fund of knowledge, feedback, student involvement in decision-making process, and overall effectiveness.

Similar learning experience was perceived by gynecology residents after the OMP-based teaching in a study conducted by Machado in 2020 [6]. Possible explanation of it could be due to the student's behavior that were more comfortable with didactic teaching and hence could not properly interpret learner-centered processes such as OMP.

Another advantage of OMP is learner centered approach and improved learning skills. Same results were found useful in teaching radiology

residents using OMP by Kachewar et al. [3] and nursing staff by Miura et al. [8]

Apart from learners, faculty (preceptor) acceptance of OMP was also been found to be high in the present study. 70% faculty members agreed that OMP increased their confidence in rating the students' knowledge as well as helped in assessing their learning needs. The results are in concordance with a previous multicentric study conducted by Aagaard et al. in which 116 preceptors after viewing videotaped encounters of both OMP and traditional model felt more confident in rating students, presentation skills, clinical reasoning, and knowledge [9]. In coherence with results, positive perceptions about OMP were also given by the faculty after undergoing faculty development programs in previous research [10,11].

Issues pertaining to time Management were reported in the present study, where 50% residents and 58% faculty members perceived that the time devoted to each session was inadequate which could be explained due to lack of experience and old habits of teaching everything about a case.

Aim of OMP is to provide need-based crisp clinical pearls to the learners so as to enhance their clinical reasoning skills rather than the fund of knowledge and this fact will be clearer once OMP is routinely practiced in the PG teaching.

LIMITATION

Few limitations of the study includes a small sample size of 24 residents and being a single center study on PG residents, results may not be generalisable. Increasing the number of OMP sessions on the residents before taking their perceptions might have ensured the authenticity of results. Third, the study did not measure long-term durability of the intervention's effects.

IMPLICATION OF STUDY

The study was a pilot project that was aimed to introduce OMP for PG medical teaching. Favorable results in it will pave the way for bigger studies evaluating its long-term feasibility, applicability, and educational impact.

Directions for future research / action: OMP is now a routine teaching learning method in Orthopaedics and same can be used in other clinical and para clinical specialties. OMP sessions are planned in Small group discussion for undergraduate teaching at our institute.

CONCLUSION

OMP was considered to be an effective method of learning by the postgraduates and was found to induce a significant improvement in the clinical skills of students. The study concludes that it is feasible to use OMP for teaching learning method for the postgraduates in Orthopaedics. Both residents and faculty perceived OMP as an effective and feasible teaching tool in outpatient teaching of PG residents. Along with traditional teaching, OMP can be supplemented to improve analytical skills of the postgraduate residents. Faculty members also accepted OMP as an effective method of formative assessment.

There are favorable evidences in literature regarding usage of an effective teaching learning method. With increasing workload and busy clinical settings, OMP seems to be the need of hour.

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