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Evaluation of DOPS (Direct Observation of Procedural Skills) as an Assessment Method for MBBS Students

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ABSTRACT

The effectiveness of DOPS in assessing procedural skills in various surgical specialities and anaesthesiology has been studied, showing significant improvements in skill performance post-assessment but, there are limited studies on implementation of DOPS as an assessment tool in the field of Otorhinolaryngology. In this study, we aim to evaluate DOPS as an assessment method to teach and assess the Competency of nasal packing in Skills Lab to MBBS third Prof Part 1 students. We had 160 encounters of DOPS for assessing nasal packing by MBBS students done in skills lab and evaluated its effectiveness as an assessment method. Results of our study showed that DOPS II score was significantly better than DOPS I in all these students. All the faculty and students were satisfied with DOPS as an assessment method. Hence, we can conclude that DOPS can be used as an effective Workplace based assessment method to assess nasal packing skills in MBBS students.

INTRODUCTION

Assessment in medical education plays a crucial role in evaluating the competency and readiness of students to take on professional responsibilities. With the shift towards competency-based curricula, the selection of appropriate assessment methods becomes essential to ensure that students are adequately prepared for their future roles. While assessment of knowledge is a valid measure, techniques of skill assessment is more accurate in forecasting a surgeon's future performance^[1]. An evaluation method must be valid, dependable, reproducible, practical and have a beneficial impact on students' learning in order to be universally accepted. One of the assessment technique that is designed for skill assessment is Direct Observation of Procedural Skills (DOPS). Direct Observation of Procedural Skills (DOPS) is a workplace-based assessment tool that focuses on evaluating procedural skills of medical students by the examiner in real-time scenarios on real life patients^[2]. As a student-Centre assessment approach, DOPS not only allows immediate feedback but also encourages self-directed learning by requiring the student to determine his own learning needs and choose the evaluation method, time and location^[3]. The effectiveness of DOPS in assessing procedural skills in various surgical specialities and anaesthesiology has been studied^[4,5] showing significant improvements in skill performance post-assessment. However there are limited studies on implementation of DOPS in assessing procedural skills in the field of Otorhinolaryngology^[6]. Anterior Nasal packing is a certifiable skill in Otolaryngology for MBBS 3rd Prof Part 1 students. But, this skill is not taught properly due to multiple reasons. One is that, not enough patients are available in OPD during clinical posting of MBBS students. So, students do not get many opportunities to observe or assist this procedure. Also, faculty does not get enough time to assess the skill of nasal packing in each student as it would be unethical to allow MBBS students who are not trained fully to do nasal packing, on a real patient, since it is a painful procedure if not done properly. In a skills lab, this technique can be taught by a faculty and assessment can be done through various methods of Skill assessment. However, no standard method of assessment has been developed so far for assessing this skill. Through this study, we aimed to evaluate DOPS as an assessment method to assess Nasal Packing in Skills Lab in MBBS third Prof Part 1 Students. The objectives of this study were, also, to develop and validate a checklist for scoring DOPS to assess nasal packing. In addition, the satisfaction of faculty and students was assessed using feedback questionnaires.

MATERIALS AND METHODS

This study was carried out after obtaining ethical clearance from the Institutional Ethics Committee. It was a Prospective Observational study undertaken at the Department of ENT and Central Skills Lab of a Teaching Hospital in India over a period of 3 months. Core team of two faculty and one senior resident for conducting this study was made and they were sensitized regarding the principles and methodology of the study. Students of 3rd Prof Phase 1 MBBS were approached for the study. They were informed about the study being undertaken by the departmental faculty and consent taken for participation in the study. They were also assured that this was not a part of their summative assessment and will not affect it in anyway. 80 students gave their consent for participation and were enrolled. These eighty students of 3rd Prof Phase 1 MBBS underwent training for anterior nasal packing in the Central skills lab via the Peyton's approach and were evaluated using the DOPS (Direct observation of Procedural Skills) method by either of the two faculty members involved in the study. Both the assessors as well as trainees were informed about the principles and methods of DOPS as an evaluating system. A pre validated DOPS checklist (Fig. 1) to score nasal packing was used to evaluate the encounters and then trainees and faculty were given feedback forms to fill.

Fig. 1: DOPS Checklist

The enrolled MBBS students were taken to skills lab in a batch of 20. They were briefed about the anterior nasal packing by either of the two faculty members followed by teaching them nasal packing through Peyton's approach on mannequin. Then each student was asked to perform the procedure while they were assessed by either of the two faculty members through DOPS. Scores were awarded to each student in the pre-validated DOPS checklist. Immediate feedback was given to the

student about their performance and steps suggested to correct the same. Lastly, students were given the feedback forms to fill. These feedback forms contained 10 questions each having options based on the Likert scale of 5. Faculty feedback was also recorded via a feedback form on a Likert scale 5 questionnaire. (Fig. II, III).

QUESTION	Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
DOPS improved my attitude towards resident training	○	○	○	○	○
Prior faculty training is necessary to conduct DOPS	○	○	○	○	○
DOPS requires more commitment and time	○	○	○	○	○
DOPS assesses more aspects of procedural skills	○	○	○	○	○
DOPS is an effective teaching learning tool	○	○	○	○	○
DOPS can be included in formative assessment	○	○	○	○	○
DOPS identifies needs of the student	○	○	○	○	○
DOPS creates opportunities for learning	○	○	○	○	○
DOPS improves student- teacher relationship	○	○	○	○	○

Fig. II: Student Feedback Form

QUESTION	Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
1 DOPS improved my procedural skills	○	○	○	○	○
2 Feedback was constructive	○	○	○	○	○
3 Time given for feedback was adequate	○	○	○	○	○
4 I was given opportunity to put my views	○	○	○	○	○
5 The exercise motivated me	○	○	○	○	○
6 Observation adversely affected my performance	○	○	○	○	○
7 I am satisfied with the exercise	○	○	○	○	○
8 DOPS is an effective teaching learning tool	○	○	○	○	○
9 DOPS creates opportunities for learning	○	○	○	○	○
10 DOPS improves student-teacher relationship	○	○	○	○	○

Fig. III: Faculty Feedback Form

These students were assessed again after 5 days in a similar manner. DOPS scores of day 5 were compared with the previous DOPS score of students. All the data obtained was analyzed using Microsoft excel 21 and IBM SPSS 23 software. Paired t-test was used for evaluating the DOPS Day 1 and 5 results and calculating the P-value with 95% Confidence Interval. P-value <0.05 was considered significant.

RESULTS AND DISCUSSIONS

Two assessors (1 professor and 1 assistant professor of E.N.T. Department), one ENT senior resident who helped in managing skill lab

attendance and eighty MBBS 3rd Prof Part 1 students participated in this study. One hundred and sixty (80+80) DOPS encounters on anterior nasal packing were done in these three months. Both the assessors were female and also, the female trainees (56 in number ie 70%) outnumbered the male trainees (24 ie 30%), male: female ratio being 3:7. All trainees were in the age group of 22-25 years. All the DOPS encounters were conducted in the central Skills lab of our Institute. Mean time for DOPS (observation and feedback) was 6.43 minutes (SD 5.10). (Table I) shows the baseline characteristics and significant relation between the DOPS Score on Day 1 and Day 5. Paired t-test is used for calculating the P-value with 95% Confidence Interval. A P-value of >0.05 is found, which is deemed significant.

Table 1: Showing the DOPS Score of Two Encounters

Characteristics of DOPS Score	Total Number of Participants	Mean±SD	Minimum Score	Maximum Score	95% CI	P-value
DOPS Score Day 1	80	61.60 ±3.54	51	69	[60.81, 62.39]	<0.05*
DOPS Score Day 5	80	64.24±4.06	52	72	[63.33, 65.14]	

Most of the ‘student feedback’ was positive with all the students concurring that DOPS improved their procedural skills. All the students felt that DOPS creates opportunities for learning, ample time was given to put their views and were satisfied with the procedure. Most of the students agreed that immediate feedback helped them in improving the skill. 90% said that feedback was constructive and time given for feedback was adequate. 65% students disagreed that observation adversely affected their performance and 25% strongly disagreed for the same while 10% were unsure of it. This data has been presented in detail in (Fig. IV).

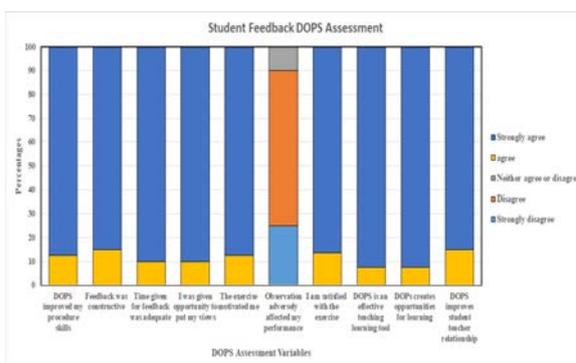


Fig. IV. Student Feedback After DOPS Assessment

All the students and assessors concurred that DOPS is an effective teaching- learning tool. The faculty members felt that DOPS requires a lot of commitment and time as well as prior training so as to conduct DOPS effectively. Nevertheless, they agreed that DOPS identifies the needs of the

student, assesses more aspects of procedural skills and can be included in Formative assessment. The faculty also felt that the immediate feedback part is time consuming but improves teacher-student relation and so, improves attitude towards student training and provides satisfaction to the teacher. This is further presented in (Fig. V).

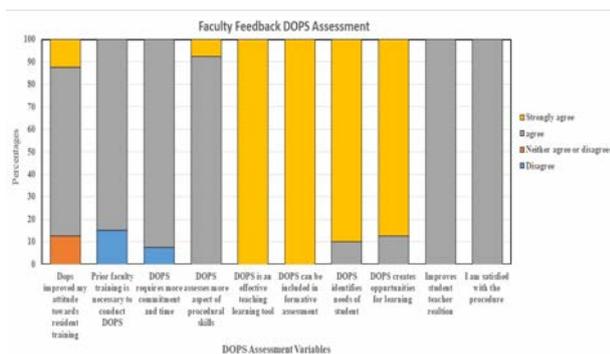


Fig. V: Faculty Feedback After DOPS Assessment

The Directly Observed Procedural/Practical Skills (DOPS) is a relatively new but reliable tool for formative assessment. The lack of desired awareness regarding DOPS among the Otorhinolaryngologist made us to conduct this study. For assessing the “competency level” of trainees for E.N.T. procedures, DOPS is a high-quality instrument as it tests the candidate at the “does” level^[2]. Mohan Bansal conducted a study in 2018 to introduce DOPS for medical education in their College^[6]. They selected some Otorhinolaryngology procedures for DOPS and prepared a structured list of items for the rating scale. After orienting the participants regarding DOPS, they conducted DOPS encounters of these procedures. They found DOPS to be very helpful in training the trainees as it provides immediate feedback though the drawback is it cannot predict future performance. DOPS-based studies have reported its feasibility in many clinical departments such as Anaesthesia, Ophthalmology, Obstetrics and Gynaecology, Surgery and Paediatrics. For example, in a study done by JY Lagoo *et al*, DOPS was assessed as a formative assessment tool during postgraduate training in anaesthesiology. They gave a pre- validated questionnaire to the participants and faculty members about perceptions using 3-point Likert scale along with open ended questions after conducting DOPS on 12 post graduates. They found that DOPS was perceived as an effective assessment and teaching-learning tool by PG students as well as faculty^[5]. In our study, DOPS II score was significantly greater than DOPS I which was done after 5 days of DOPS I. There

was significant improvement in all the parameters assessed by DOPS like informed consent. This demonstrates that the DOPS encompasses all relevant professional qualities, such as knowledge, clinical judgment, communication abilities, medical ethics, patient rights and task speed and accuracy. Similarly, in a study done by Balpande A. on 9 post graduates from the department of Oral Medicine and Radiology, the mean score achieved after DOPS II score (3.11) was statistically significant after DOPS 1 score 1.577 (Paired t-test, p value <0.00). Similar to these studies, a study was done Ananthan and Nanavati on the resident doctors (N=12) of the Department of Neonatology on four procedures-intubation, intravenous line insertion, umbilical line catheterization and surfactant administration. Resident doctors were evaluated by repeated DOPS. They also observed that there was significant improvement in the trainees’ performance in successive DOPS (80.11±1.72 vs. 82.66±2.74, p=0.03) in intravenous line and umbilical line insertion^[8]. In the study done by Rathod *et al* on 12 PG students performed the periodontal procedure and were assessed on the basis of the DOPS rating scale for the 4 encounters each. The performance of student DOPS scores from the first to the fourth encounter of clinical practice shows an improvement in all skills evaluated^[9]. In our study, both the faculty and students felt comfortable in giving feedback and it is worth mentioning that feedback was given in all cases. Feedback obtained from the all the 80 students in our study after DOPS showed students satisfaction and almost all students liked the method. According to the research conducted by Ali *et al*. in 2019, DOPS is a safe, dependable, and efficient workplace-based assessment technique that improves urology residents' surgical abilities in actual operating rooms. Additionally, this gives the residents insightful input more quickly^[10]. According to Kumar *et al*, who did a study on the role of DOPS in teaching and assessment of PG students in 2017, regardless of the teaching mode, recurrent DOPS enhanced student abilities and trust in the handling of real-life obstetric emergencies^[11]. The strength of this study is primarily in its effective use of Direct Observation of Procedural Skills (DOPS) for both assessment and teaching, as it allows for the provision of immediate feedback to students. Additionally, the study benefitted from the participation of motivated faculty who remained dedicated throughout the study period. This study had few limitations. The time constraint of the study due to which faculty was under a lot of pressure to conduct DOPS sessions in the middle of busy opd. This at times led to demotivation of the faculty. These limitations can

be mitigated through continuous training and motivation of faculty to implement DOPS, along with strategic planning and scheduling.

CONCLUSION

To the best of our knowledge, this is the first research on introducing DOPS in the field of otolaryngology on nasal packing in such a large sample size. The present study result indicates that DOPS is an appropriate and functional tool in the skill lab setup. Hence, we can conclude:

- Students show considerable improvement in their nasal packing skill with the subsequent DOPS encounter.
- The provision of immediate faculty feedback helped the students to enhance their nasal packing skill.
- It improved the communication between the teacher and the students. Our findings demonstrate that DOPS is an effective and promising technique for assessing nasal packing.

Future Implications: The successful use of the DOPS in teaching anterior nasal packing to MBBS Students suggests its potential applicability in teaching and evaluation of other procedures in ENT as well as other departments. Further, adoption of the DOPS for undergraduate students could also be considered to enhance their clinical skills assessment.

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