Attitudes of undergraduate nursing students toward Objective Structure Practical Examination: An Exploratory study

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A B S T R A C T

Background: Objective Structured Practical Examination (OSPE) is a method of assessment of clinical competence. The examination is conducted at multiple stations. Besides practical and problem-solving skills, theoretical knowledge is also tested. OSPE can be traced back more than 40 years. OSPE has been included more than two decades, as a part of assessment in the College of Nursing, All India Institute of Medical Sciences (AIIMS), New Delhi.

Objectives: This study was carried out to determine nursing students' attitudes towards OSPE as an assessment tool.

Participants: The responses of all the 252 Undergraduate nursing students studying at the College of Nursing, AIIMS were obtained for this study (77 from B.Sc.(H) Nursing first year, 61 from the second year, 69 from the third year and 45 from the fourth year).

Methods: The students attitudes towards OSPE were assessed by using a validated questionnaire containing 28 item statements on Likert’s 5-point scale (LS) and 11 bipolar adjectives on Osgood’s 7-point Semantic Differential Scale (OSDS).

Result: Most of the students approved of OSPE and felt that it was fair, useful, good, effective, exciting, interesting, practical, skill oriented but also taxing. The study also revealed that amongst the second years’ students there was a strong correlation between Overall Rank in the Class and Assessment of OSPE.

Conclusion: The study supports the introduction of OSPE as one of the methods of assessment of B.Sc.(Hons.) Nursing students.

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1. Introduction

Clinical nursing is considered as the heart of a nurse’s professional practice and therefore the evaluation of nursing students’ clinical competence is critical to their education [6].

What should be the method of evaluation of clinical competence? A correct choice in this matter is of critical importance [16]. It has many implications for nursing students and their teachers as well as for the recipients of nursing care [1].

The examination of practical skills in post graduate nursing education poses several problems. Nisha Naik in her study on “Attitude towards nursing education practical exam among M.Sc. Nursing students” shows that 58% of the students had a negative attitude towards nursing practical examinations and 57% suggested some changes in the examination [11].

Specifically, the traditional methods used by educators to assess the clinical competence levels of their students have been criticized on the grounds that these methods lack objectivity [4].

The Objective Structured Practical/Clinical Examination (OSPE/OSCE) has gained acceptance as a method for clinical skills assessment since its development in the 1970s [1,3].

It is widely recognized that:

- OSPE is a reliable assessment tool which promotes students learning [7].
- It provides a more objective method of assessment [4].
- It can cover a broader range of practical skills than a ‘traditional’ examination.
It allows the students to display the full range of their knowledge, skills and abilities. (Scott D, Jenkinson A).

It has scope for being structured in such a way that large number the objectives of laboratory teaching can be tested and each aspect can be assigned the desired weightage [12].

It can be used as a summative assessment to evaluate individuals’ performance in the practical skills, as well as for formative evaluation where the student gets feedback as part of the learning process [4].

In all these respects it is better the conventional practical examination.

Shadia et al. [16] recommended that OSCE must be used as an integral part of the clinical evaluation and also as a method of evaluating clinical practice in a combination with traditional method.

Mitchell et al. [10] have emphasized the need to integrate OSCE within a curriculum in conjunction with other evaluation methods. Their study also concluded that OSCEs can be used most effectively in undergraduate nursing curricula to assess safe practice in terms of performance of psychomotor skills, as well as the declarative and schematic knowledge associated with their application.

OSCE/OSPE should be adopted as a tool for assessing students’ clinical skills considering the advantages of OSCE/OSPE as against few limitations [13].

The OSPE when used correctly can be highly successful as an instrument to assess clinical competence of the students [17].

2. Material and methods

Setting: The study was conducted among the undergraduate nursing students, College of Nursing, All India Institute of Medical Sciences, New Delhi.

Sampling: The questionnaire was administered to all 252 of the undergraduate nursing students studying at the College of Nursing, AIIMS (77 from B.Sc.(H) Nursing 1st year, 61 from the 2nd year, 69 from the 3rd Year and 45 from the 4th year) after their practice practical examination, but 4 weeks before the final practical examination. It was ensured that all students had appeared in OSPE. At the time of submission, the students were asked to write their roll number on the response sheet.

Measurement tool and data collection: Malik et al. [8], have conducted a similar study for medical students in the same institute. They constructed and validated a detailed questionnaire incorporating a 5-point Likert-type rating scale and Osgood’s Semantic Differential Scale. However, item numbers 4, 7, 12 and 14 of the Malik et al. Likert scale were not included in this study as they were not applicable to the nursing course.

Thus the Likert Scale (LS) questionnaire used for this study consisted of 28 item statements (Appendix). Strong agreement with “Positive” item statements was given a score of 5 and strong disagreement a score of 1. Scoring was reversed for negative item statements and summing across all the item scores gave the overall attitude score.

Osgood’s Semantic Differential Scale (OSDS) contained 11 bipolar adjectives of opposite nature, on a 7-point differential rating scale. On each scale a score of 7 represented the positive and 1 the negative pole. An attitude score was obtained by summing across the questionnaire [15].

Ethical clearance was obtained from ethical committee at AIIMS.

This tool was administered along with an extra blank sheet for the participant’s comments and suggestions regarding any other aspect of OSPE.

3. Results

3.1. Mean and Standard Deviation of five “Positive” items in the Likert 5-point scale

The five “Positive” items were identified as:

1. “OSPE encourages the students to pay more attention to practical skills and practice them thoroughly”.
2. “Learning is greater from OSPE than from any other type of practical examination”.
3. “OSPE decreases the element of luck or chance in practical examinations”.
4. “OSPE enables the examiners to assess many practical skills”.
5. “OSPE is a good form of examination as well as learning experience”

Mean and Standard Deviation of these Five “Positive” Items are shown in Table 1.

3.2. Rank of the student in the class and the total of “Positive” scoring items

Table 2 shows the relation between (a) Rank of the student in the class and the (b) total of positive scoring items.

There was strong correlation between (a) and (b) amongst the second year students. (t = 0.194, p < 0.017). However, no strong correlation was observed among the first, third and fourth year students.

3.3. Significance of the total score for the five selected “Positive” items i.e. t-test for the difference between total score and zero

Table 3 presents the t-test for the difference between the total score for the five selected positive items and zero.

Table 3 shows that three groups of students (1st, 3rd and 4th year) have a significantly positive (at 5% level) overall assessment of OSPE.

3.4. Significance of the mean scores for individual “Positive” items i.e. t-test for the difference between mean scores and zero

Table 4 shows that all four groups had significant positive
response to the statement that “OSPE is a more challenging form of examination”.

As regards the statement that “OSPE is more stressful than a full practical examination”, three of the groups (2nd, 3rd and 4th year) showed agreement with the statement of which only 3rd and 4th year students responses were significant.

Three of the groups (2nd, 3rd and 4th year) showed disagreement with the statement, “OSPE is quite an easy type of examination”.

All four groups showed significant disagreement with the statement, “there is not much difference between OSPE and other practical examinations”.

All four groups also disagreed with the statement, “OSPE should be the only mode of practical examination” though the extent of disagreement was significant only for the 2nd, 3rd and 4th year students.

As regards the details of the OSPE, a number of statements were put forward for the students to respond to. All four groups showed significant agreement with the statement “OSPE tests recall of knowledge”.

Three of the groups (1st, 3rd and 4th year) showed disagreement with the statement, “OSPE tests details of the steps of a procedure” of which only 3rd and 4th year students showed significant positive agreement.

Three of the groups (2nd, 3rd and 4th year) showed disagreement with the statement, “Time is sufficient at procedural stations”.

As regards the time available at Multiple Choice Question stations, and whether it was easier to pass OSPE or full practical examinations Table 4 shows that the responses were mixed.

### 3.5. Osgood’s Semantic Differential Scale responses

Tables 5–8 summarize the analysis of the Osgood Semantic Differential scale responses.

The aspects taken up in Table 5 pertain to the “overall assessment” of OSPE by the students, namely:

- "Fair: Unfair",
- "Useful: Useless",
- "Good: Bad",
- "Effective: Ineffective”.

### Table 3
Tests for significance of the total of “Positive” items (n = 252).

|                      | First Year | Second Year | Third Year | Fourth Year |
|----------------------|------------|-------------|------------|-------------|
| t                    | 23.285     | 1.093       | 11.058     | 4.542       |
| Sig. (2-tailed)      | 0.001      | 0.279       | 0.001      | 0.001       |

### Table 4
Tests for significance of the means (n = 252).

| Item no. | First Year | Second Year | Third Year | Fourth Year |
|----------|------------|-------------|------------|-------------|
|          | t          | Sig. (2-tailed) | t          | Sig. (2-tailed) | t          | Sig. (2-tailed) | t          | Sig. (2-tailed) |
| 1        | 14.907     | 0.001       | 0.736      | 0.465       | 5.784      | 0.001       | 5.74       | 0.001       |
| 2        | 5.31       | 0.001       | -0.829     | 0.411       | 1.18       | 0.242       | -0.628     | 0.533       |
| 10       | 10.41      | 0.001       | -1.051     | 0.297       | 3.703      | 0.001       | 3.751      | 0.001       |
| 11       | 7.912      | 0.001       | 2.071      | 0.043       | 6.231      | 0.001       | 7.631      | 0.001       |
| 13       | 23.317     | 0.001       | 3.738      | 0.001       | 5.996      | 0.001       | 5.134      | 0.001       |
| 15       | 2.272      | 0.026       | -2.726     | 0.008       | -1.711     | 0.092       | -2.659     | 0.011       |
| 18       | 3.303      | 0.001       | -2.903     | 0.005       | -2.883     | 0.005       | -3.138     | 0.003       |
| 24       | 3.383      | 0.001       | -2.575     | 0.001       | -5.605     | 0.001       | -4.185     | 0.001       |
| 25       | 5.188      | 0.001       | -5.188     | 0.001       | -4.06      | 0.001       | -3.213     | 0.025       |
| 26       | -1.897     | 0.062       | 0.66       | 0.512       | 2.215      | 0.030       | 2.909      | 0.006       |
| 27       | 9.837      | 0.001       | 0.637      | 0.527       | -1.373     | 0.174       | -1.773     | 0.083       |
| 28       | -2.972     | 0.004       | -2.53      | 0.014       | -3.383     | 0.001       | -2.275     | 0.028       |

### Table 5
Results from Osgood’s Semantic Differential Scale. ("Overall Assessment" of OSPE by the students) N = 252.

| Items analysed:   | Fair: Unfair, |
|                  | Useful: Useless, |
|                  | Good: Bad, |
|                  | Effective: Ineffective |

| Class            | No of students | Mean     | Standard deviation | Kendall’s Tau b Correlation Coefficient between Rank in their class and Total of “Overall Assessment” items | Significance (one tailed) |
|------------------|----------------|----------|--------------------|---------------------------------------------------------------------------------|--------------------------|
| First Year       | 77             | 23.8312  | 2.88098            | 0.179(*)                                                                        | 0.014                    |
| Second Year      | 61             | 16.9344  | 4.70414            | 0.043                                                                          | 0.319                    |
| Third Year       | 69             | 21.6522  | 4.56272            | -0.003                                                                         | 0.488                    |
| Fourth Year      | 45             | 19.2444  | 5.03693            | 0.125                                                                          | 0.121                    |

*Significant at 5%.
Table 6
Results from Osgood’s Semantic Differential Scale (Students’ assessment of “specific characteristics” of OSPE) N = 252.

| Class                  | No of students | Mean    | Standard deviation | Kendall’s Tau b Correlation Coefficient between Rank in the class and Total of “specific characteristics” | Significance (one tailed) |
|------------------------|----------------|---------|--------------------|-------------------------------------------------------------------------------------------------|---------------------------|
| First year             | 77             | 23.584  | 2.97512            | 0.159(*)                                                                                       | 0.027                     |
| Second year            | 61             | 17.754  | 5.18863            | -0.004                                                                                         | 0.483                     |
| Third year             | 69             | 21.3768 | 4.35587            | 0.028                                                                                         | 0.37                      |
| Fourth year            | 45             | 19.8667 | 4.38282            | 0.134                                                                                         | 0.106                     |

*Significant at 5%.

Table 7
Tests of significance of the “Overall Assessment” and “Specific Characteristics” Scores N = 252.

|                        | First Year | Second Year | Third Year | Fourth Year |
|------------------------|------------|-------------|------------|-------------|
| t                      | 23.852     | 1.551       | 10.29      | 4.321       |
| Sig. (2-tailed)        | 0.001      | 0.126       | 0.001      | 0.001       |
| Total of Overall Assessment items | 22.37     | 2.64        | 10.254     | 5.918       |
| Total of Attitude items |            | 0.011       |            |            |

Table 8
Skill oriented vs. Knowledge oriented and Taxing vs. Non-Taxing N = 252.

|                        | First Year | Second Year | Third Year | Fourth Year |
|------------------------|------------|-------------|------------|-------------|
| t                      | 12.834     | 0.238       | 3.89       | 7.442       |
| Sig. (2-tailed)        | 0.001      | 0.813       | 0.001      | 0.001       |
| Skill-Oriented: Knowledge-Oriented | 3.267 | -0.187     | 2.186     | 5.014       |
| Taxing: Non-taxing     |            | 0.852       | 0.032      |            |

As evident from Table 6, the students approved of OSPE and felt that it was “Fair”, “Useful”, “Good” and “Effective” (Mean scores 23.8, 16.9, 21.7 and 19.2 respectively).

Kendall’s Tau b Correlation Coefficient between Rank of the students in the class and Total of the “overall assessment” items revealed that the 1st year students who score a high rank in class have a positive “overall assessment” of OSPE. However, in the case of the other three classes of students there was no significant correlation between rank in class and “overall assessment” of OSPE.

The aspects taken up in Table 6 pertain to the students’ assessment of “specific characteristics” of OSPE namely:

“Varied: Monotonous,
Active: Passive,
Exciting: Dull” and
“Interesting: Boring”.

As evident from Table 6 the students approved of OSPE and felt that it was “Varied”, “Active”, “Exciting” and “Interesting” (Mean scores 23.6, 17.8, 21.4 and 19.9 respectively).

Once again Kendall’s Tau b Correlation Coefficient between Rank of the students in the class and Total of the “specific characteristics” items revealed that the 1st year students who score a high rank in class have a positive attitude towards the OSPE. However, in the case of the other three classes of students there was no significant correlation between rank in class and “specific characteristics” of OSPE.

As per the Osgood scoring system the mean score for any item is 4 and for four items together the mean would be 16. Table 7 shows the results of tests for the significance of the difference between the overall score and 16.

It can be seen from Table 7 that for first, third and fourth year students both “overall assessment” and “specific characteristics” scores are significantly positive. As far as second year group is concerned the “overall assessment” and “specific characteristics” scores are positive but only the “specific characteristics” score is significantly positive.

Table 8 presents the students views regarding the nature of OSPE. The focus is on two types of assessment: first, is OSPE skill-oriented or knowledge oriented and second is OSPE a taxing evaluation procedure or not.

It can be seen from Table 8 that the first, third and fourth year students were significantly of the view that OSPE was skill oriented rather than knowledge oriented and taxing rather than non-taxing. On the other hand the second year students showed mixed responses.

4. Discussion

The study showed that the students on the whole (with the exception of the second year students) had a positive assessment of OSPE (in terms of being “Fair”, “Useful”, “Good” and “Effective” as well “Varied”, “Active”, “Exciting” and “Interesting”) OSPE.

These findings are broadly in agreement with a number of other studies:

In Malik S.L et al. it was found that the majority of students showed a positive attitude to OSPE, and high-rank students had a greater intensity of positive attitude [8].

In the study conducted by El Nemer & Kandeel [3] it was...
reported that most students viewed OSCE as a fair assessment tool which covered a broad area of knowledge, allowed them to compensate in some areas and minimized their chances of failing.

Dandannavar V S, Alan S also reported that OSPE provides a questions and a fair method of assessment as there is uniformity of students [2].

Mater et al. [9] in their study on "The Impact of the Objective Structured Clinical Examination Approach for Clinical Evaluation Skills on the Student’s Performance in Nursing College", found that 65% of the students considered OSCE as a fair examination method and 69% of them felt it provides a true measure of essential clinical skills.

Although OSCE was accepted and perceived positively by undergraduate nursing students as a new method to assess clinical skills. Hatamleh and Sabeeb have argued that certain negative aspects such as extra stress of OSPE can be managed through better orientation and preparations [6]

Shadia et al. [16] also concluded that stressors could be decreased with better planning and familiarizing the students with the stations and limitations of OSCE through practice during the term.

Harden and Gleeson [5] have recommended that OSPE should be combined with the traditional practical examinations. However, this study has found that the second, third and fourth year students were of the opinion that OSPE should be the only mode of practical examination.

The suggestion that all practical examinations should be in the form of OSPE is new. It remains to be seen if this preference for OSPE on the part of the students is based on sound educational reasons or is simply due to their assessment that OSPE is (a) more scoring (b) requires less effort (c) easier to prepare for.

As far as the detailed arrangements of OSPE were concerned one clear issue that was raised by the students relates to inadequate time at procedural stations. This issue certainly needs to be taken care of even while efforts should be made to continue with and further develop the OSPE method of practical examination even while retaining the standard practical examination.

4.1. Implications for practice and research

OSPE should not be the only mode of practical examination, it should be combined with classical practical exam. OSPE should be a part of final clinical assessment as OSPE helps in the recall of knowledge as well as tests details of the steps of a procedure.

4.2. Limitations

The study is limited to Nursing undergraduate students of AIIMS, New Delhi only.

The questionnaire was administered after their practice practical examination, and not after the final examination.

5. Conclusion

OSPE is a robust method of examination yet physically taxing for students. Most of the students considered OSPE to be fair, useful, good, effective, varied, active, exciting and interesting but also taxing. The study also revealed that there is strong relation between Rank in Class and Assessment of OSPE among the second year students but not among the other students.

Conflict of interest

None.

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Ethical approval

The study was approved by Ethics Committee, AIIMS, New Delhi. Written informed consent from all participants was obtained.

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Appendix A. Supplementary data

Supplementary data related to this article can be found at http://dx.doi.org/10.1016/j.jniss.2016.12.003.

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