

Original Research Article

## Assess and Compare Objective Structured Clinical Examination (OSCE) Versus Traditional Clinical Examination (TCE) Regarding Denver Developmental Screening Test (DDST II) in Terms of Preference

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### ABSTRACT

**Background:** Using the right method of evaluation plays a considerable role in getting the appropriate result and making the right judgment.

**Aim and objectives:** Present study aimed to assess and compare the preference among undergraduate nursing students regarding Denver Developmental Screening test II as evaluated by OSCE and TCE in Group I and Group II and to associate preference score with selected variables in both the groups.

**Methods:** A Quantitative research approach with non experimental Descriptive Comparative design was used. Further cross over design was used in this non experimental study to nullify the carry over effect. 160 B.Sc. Nursing students were selected as a sample in the study. Group I included 80 students from B.Sc. Nursing 3rd year and Group II included 80 students from B.Sc. nursing 4th year from M.M. College of Nursing Mullana, Haryana who were selected by using Total Enumerative sampling technique. Structured Preference rating scale was used. The calculated Cronbach's reliability value for the scale in OSCE was 0.74 and in TCE 0.78. In Group I implementation of OSCE and TCE regarding DDST II and In Group II implementation of TCE and OSCE regarding DDST II in terms of students' preference was carried out (Cross over). OSCE was carried out with video based station and TCE was carried out on children confined to 3-4 years (36-48 months).

**Results:** Findings of the study indicate that OSCE was effective in terms of students' preference within groups [ $t' (79) = 2.71, t' (79) = 4.19 (p < 0.05)$ ] and between groups [ $t' (79) = 2.74, t' (79) = 1.26 (p < 0.05)$ ]. There was no significant association of preference with selected variables.

**Conclusion:** OSCE was effective in terms of students' preference regarding DDST II.

**Key words:** Objective Structured Clinical Examination (OSCE), Traditional Clinical Examination (TCE), Denver Developmental Screening Test (DDST II), Preference.

### INTRODUCTION

Screening can be defined as a concise, legal, systematize assessment that assists during the early identification of patients at danger for a developmental and/or behavioral disorder. [1] Several developmental screening tests are available in the pediatrics which can be used in infants and children. [2]

Evaluation is an organized assessment of the values or level of some object. Evaluation is also a systematic process of determining the extent to which the pupils are able to achieve educational objectives. The process of evaluation includes selecting the appropriate methods, techniques, administration and interpretation of results to improve learning of learner.

Evaluation helps the learner to know what they should learn and provides information about their progress and helps to recognize the areas of difficulties in learning. [3]

Traditional tests mainly concentrated additionally on students' knowledge based on their retention and the evaluation skills such as problem solving skill, critical thoughts and communicating skills with the patient or client. Effective and correct method of scientific evaluation should enterprise to all nursing faculties and clinical instructors. Performance based assessment is a type of assessment which meets these criteria, and example of a performance-based assessment is "Objective Structured Clinical Examination" (OSCE). [4]

The Objective Structured Clinical Examination acquires a number of intrinsic assistance. Students interpersonal and communication skills, problem-solving abilities, teaching and assessment skills and decision making skills are basically evaluated by OSCE. By giving importance to individual competencies both the process and the product are been tested. [5]

As compare to the traditional examination OSCE covers a broad range of clinical skills. OSCE is a method in which the specific components are divided into stations and the components can take in the form of small scenarios, simulations, case studies, multiple choice questionnaires or short theoretical questions. [6]

A cross-sectional descriptive study conducted to assess nursing student's perception and preference of OSCE over TCE. A sample of 156 students who had been previously exposed to TCE and OSCE were participated in the study. The result of the study concluded that majority of the students 136 (84%) felt that TCE is more difficult whereas 20 (12.8%) felt OSCE was more difficult. Majority of the students (95.5%) preferred OSCE for assessment. In relation to validity and reliability of OSCE, 124 (79.5%) of all the students felt it provides a true measure of essential clinical skills, 130 (83.3%) felt its scores are

standardized, 143 (91.7%) felt it is a practical and useful experience and 135 (86.5%) felt student's personality, ethnicity and gender will not affect OSCE scores. [7]

## MATERIALS AND METHODS

This study was conducted in a nursing college with the approval of ethical committee of the university. A written and informed consent was obtained from the students. A Quantitative research approach with non experimental Descriptive Comparative design was used. Further cross over design was used in this non experimental study to nullify the carry over effect. 160 B.Sc. Nursing students were selected as a sample with an inclusion criteria that either male or female and able to speak and understand both English and Hindi. Group I included 80 students from B.Sc. Nursing 3rd year and Group II included 80 students from B.Sc. nursing 4th year from M.M. College of Nursing Mullana, Haryana who were selected by using Total Enumerative Sampling technique. Structured Preference rating scale was used. The calculated Cronbach's reliability value for the scale in OSCE was 0.74 and in TCE 0.78. OSCE was carried out with video based station and TCE was carried out on children confined to 3-4 years (36-48 months).

The videos regarding Denver Developmental Screening Test II was prepared by researcher on different children confined to 3-4 years (36-48 months) in the following place like Hospital, School and Anganwadi. The videos were in Hindi language and 10 sets of videos on 10 different children regarding DDST II were made to prevent contamination of batches and these videos were randomly assigned to each student in the batch. The duration of each video is 10-15 minutes.

The videos include all the four domains/stations regarding DDST II including: Personal social development, Fine motor development, Language development, Gross motor development.

Group I undergone Video Based OSCE for 2 days. Participants were shown with the video before completing DDST II test. Soon at the completion preference scale was filled up. For the next 8 days the same group undergone DDST II test by TCE method where participants performed the test on individual child. Soon at the completion preference scale was filled up. The same procedure was repeated for the second group where the implementation of TCE was done before OSCE (Cross over) to nullify the carryover effect.

## RESULTS

The personal characteristics of both the profiles were comparable. The computed chi square value for the selected variables in group I and II for age (0.66), religion (1.8), place of residence (2.31), percentage of marks in previous year (2.54), percentage of attendance in growth and development classes (10.70) and hobbies (14.09) were found to be non significant at 0.05 level of significance. Hence it was revealed from the findings that group I and II were homogenous with regard to these selected variables except gender which was statistically significant at 0.05 level of significance

The undergraduate nursing students' preference on OSCE 45 (56.25%) had preferred, 33 (41.25%) were uncertain and 2 (2.5%) had not preferred whereas on TCE 37 (46.25%) had preferred, 38 (47.5%) were uncertain and 5 (6.25%) had not preferred in Group I. In Group II shows that majority of undergraduate Nursing students 41 (51.25%) had preferred, 37 (46.25%) were uncertain and 2 (2.5%) had not preferred on TCE whereas on OSCE more than half 58 (72.5%) had preferred, and 22 (27.5%) were uncertain. The mean, median, standard deviation, standard error of mean and 't' value were calculated within the group and between the group as per standard criteria (table 1, 2 & 3).

The calculated 't' value within group for both the groups were 2.71 and 4.19 which is statistically significant at 0.05 level of significance. Concludes OSCE was preferred more than TCE (Table-1)

The calculated 't' value between group for both the groups were 2.74 (significant at 0.05 level) and 1.26 (non significant at 0.05 level). Cross over concludes TCE had an influence for OSCE but no influence of OSCE on TCE (Table-2).

Table-1: Mean, Mean difference, Standard deviation of difference, Standard Error of mean difference and "t" value within Group I and II. N=160

Groups	Preference	Mean	M <sub>D</sub>	S.D <sub>D</sub>	SE <sub>MD</sub>	"t" value	p value
Group I (n=80)	OSCE	15.15	0.64	0.21	0.02	2.71	0.008*
	TCE	14.51					
Group II (n=80)	TCE	15.07	1.13	0.65	0.07	4.19	0.001*
	OSCE	16.20					

"t"(79)=1.64 \*Significant (p<0.05)

Table-2: mean, Mean difference, Standard deviation, Standard Error and "t" value between Group I and II. (Cross over) N=160

Method of evaluation	Students' preference	Mean	M <sub>D</sub>	S.D <sub>D</sub>	SE <sub>MD</sub>	"t" value	P value
OSCE	Group I (n=80)	15.15	1.05	0.55	0.06	2.74	0.008*
	Group II (n=80)	16.2					
TCE	Group I (n=80)	14.51	0.56	0.11	0.01	1.26	0.21 <sup>NS</sup>
	Group II (n=80)	15.07					

"t"(79)=1.6 \*Significant (p<0.05) NS= Not Significant (p>0.05)

Table-3: The mean, Mean difference, Standard deviation of difference, Standard Error of mean difference and "t" value between Group I and II. (Non- cross over) N=160

Method of evaluation	Groups	Mean	M <sub>D</sub>	S.D <sub>D</sub>	SE <sub>MD</sub>	"t" value	p value
OSCE	Group I(n=80)	14.66	1.93	0.53	0.05	6.65	0.001*
TCE	Group II(n=80)	12.73					
TCE	Group I(n=80)	11.78	3.24	0.03	0.00	10.15	0.001*
OSCE	Group II(n=80)	15.02					

"t"(79)=1.64 \*Significant (p<0.05)

The calculated 't' value between group for both the groups were 6.65 and 10.15 which was significant at 0.05 level. Non Cross over concludes OSCE was highly preferred than TCE between both the groups (Table-3).

Table 1, 2 and 3 concludes that there was a significant difference in mean

preference score within and between both the groups. Hence research hypothesis was accepted and null hypothesis was rejected.

Frequency and percentage distribution of item wise preference scale analysis on OSCE and TCE among both the groups are described as per the standard criteria (table 4 and 5).

**Table-4: Item wise frequency and percentage of Group I. n=80**

Sr. No	Preference Items	OSCE			TCE		
		Agree f (%)	Neutral f (%)	Disagree f (%)	Agree f (%)	Neutral f (%)	Disagree f (%)
1	Exam well administered	62(77.5)	15(18.75)	3(3.75)	60(75)	19(23.75)	1(1.25)
2	Exam less stressful	41(51.25)	25(65)	14(17.5)	27(33.75)	39(48.75)	14(17.5)
3	Examination well structured and sequenced	57(71.25)	19(23.75)	4(5)	44(55)	30(37.5)	6(7.5)
4	Highlighted areas of weakness	36(45)	35(43.75)	9(11.25)	37(46.25)	39(48.75)	4(5)
5	Students provided level of information needed	53(66.25)	23(28.75)	4(5)	50(62.5)	28(35)	2(2.5)
6	Wide knowledge area covered	49(61.25)	29(36.25)	2(2.5)	51(63.75)	21(26.25)	9(11.25)
7	Exam consistent /reliable	49(61.25)	26(32.5)	5(6.25)	44(55)	29(36.75)	7(8.75)
8	Exam were suitable for different student level	57(71.25)	23(28.75)	0	46(57.5)	31(38.75)	3(3.75)
9	Exam relates theory with practical	55(68.75)	20(25)	5(6.25)	57(71.25)	17(21.25)	6(7.5)
10	Fair method of evaluation used in examination.	56(70)	22(27.5)	2(2.5)	42(52.5)	34(42.5)	4(5)

**Table-5: Item wise frequency and percentage of Group II. n=80**

Sr. no	Preference Items	OSCE			TCE		
		Agree f (%)	Neutral f (%)	Disagree f (%)	Agree f (%)	Neutral f (%)	Disagree f (%)
1	Exam well administered	62(77.5)	16(20)	2(2.5)	74(92.5)	6(7.5)	0(0)
2	Exam less stressful	37(46.25)	22(27.5)	21(26.25)	37(46.25)	25(31.25)	18(22.5)
3	Examination well structured and sequenced	51(63.75)	25(31.25)	4(5)	70(87.5)	10(12.5)	0(0)
4	Highlighted areas of weakness	30(37.5)	44(55)	6(7.5)	29(36.25)	46(57.5)	5(6.25)
5	Students provided level of information needed	57(71.25)	17(21.25)	6(7.5)	63(78.75)	16(20)	1(1.25)
6	Wide knowledge area covered	49(61.25)	28(35)	3(3.75)	56(70)	21(26.25)	3(3.75)
7	Exam consistent /reliable	52(65)	26(32.5)	2(2.5)	64(80)	15(18.75)	1(1.25)
8	Exam were suitable for different student level	45(56.25)	32(40)	3(3.75)	54(67.5)	23(28.75)	3(3.75)
9	Exam relates theory with practical	53(66.25)	23(28.15)	4(5)	57(71.25)	21(26.25)	2(2.5)
10	Fair method of evaluation used in examination.	56(70)	21(26.25)	3(3.75)	61(76.25)	16(20)	3(3.75)

## DISCUSSION

Present study reveals that majority undergraduate nursing students' preference on OSCE 45 (56.25%) had preferred, 33 (41.25%) were uncertain and 2 (2.5%) had not preferred whereas on TCE nearly half 38 (47.5%) were uncertain, 37 (46.25%) had preferred and 5 (6.25%) had not preferred in Group I. In Group II shows that majority of undergraduate Nursing students 41 (51.25%) had preferred, 37 (46.25%) were uncertain and 2 (2.5%) had not preferred on TCE whereas on OSCE more than half 58 (72.5%) had preferred, and 22 (27.5%) were uncertain. These finding is consistent with the study conducted by Nkeiruka Ameh, Mohammed A (2015) Majority of the students (95.5%) preferred OSCE for assessment. [7]

Present study reveals that the calculated "t" value of Group I and II i.e. 2.71 and 4.19 is more than the table value at df (79) at 0.05 level of significance. This shows that difference in mean score on undergraduate nursing students' preference regarding DDST II as evaluated by OSCE and TCE in Group I and II are true and not by chance. This indicates that OSCE was effective in terms of Undergraduate nursing students' preference regarding DDST II in both Groups. This finding is consistent with the study conducted by Hala M. M. Bayoumy and Hanaa Yousri, (2012) Students' perception on objective structured clinical examination (OSCE) and TCE ranged between 2.84±1.19 to 1.85±0.99. [8]

Majority of the students in group I 62 (77.5%) on OSCE had agreed regarding exam well administered, 57 (71.25%)

agreed that examination well structured and sequenced and 57 (71.25%) agreed that questions were suitable for different student level whereas on TCE 60 (75%) had also agreed item exam well administered and 57 (71.25%) agreed that exam relates theory with practical. Most of the students on OSCE 41 (51.25%) and on TCE 27 (33.75%) agreed item that exam less stressful. Majority of the students in group II 62 (77.5%) on OSCE had agreed regarding exam well administered and 57 (71.25%) students agreed that students provided level of information as needed whereas on TCE most of the students 74 (92.5%) had agreed regarding exam well administered and 63 (78.75%) students agreed that students provided level of information as needed. Most of the students on OSCE and TCE 37 (46.25%) agreed item that exam less stressful.

The results are consistent with the study conducted by Pierre et al., (2004) which revealed that the majority of students in cohort agreed about, the OSCE exam characteristic as comprehensiveness by 90%, transparency 87%, fairness 70% and authenticity of the required task 58-78%.<sup>[9]</sup>

Similar results by Eldarir et al., (2011) and Furlong et al., (2005), who reported that the majority of students felt the OSCE was less stressful than other exam and intimidating.<sup>[10]</sup>

## CONCLUSION

To put in the nutshell, present study revealed that most of the students preferred OSCE over TCE in both groups. Further there is a significant difference of preference in group I and Group II as evaluated by OSCE and TCE.

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we acknowledge that the above research was original work of authors.

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