

OSCE Tool for Improving B. Sc. Nursing Students' Antenatal , Examination

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Abstract

Background: Objective Structured Clinical Examination has gained acceptance as a benchmark for clinical skills assessment. The aim of this study was to examine the efficacy of Objective Structured Clinical Examination tool for improving B.Sc. nursing students' antenatal examination.

Methods: Subjects: All "70" B. Sc. nursing students in the fourth year, faculty of nursing Menoufia University, Egypt was included in the sample. Instruments: It consisted of a structured interviewing questionnaire and observational checklist, which consisted of 5 Objective Structured Clinical Examination stations including antenatal history-taking, general examination, standardized blood pressure measurement technique skills, standardized body weight measurement technique skills and antenatal advice skills. All tools were used for pre-post intervention.

Results: The study showed that there was statistical significant improvement in final B. Sc. nursing students' antenatal examination practices skills in posttest than pretest. Also, there was statistical significant improvement in Objective Structured Clinical Examination station regarding vital signs after intervention.

Conclusion: implementation of Objective Structured Clinical Examination tool has succeeded in achieving significant improvement in final B. Sc. nursing students' antenatal examination practices skills.

Recommendations: implementation of Objective Structured Clinical Examination tool through teaching-assisted videos for all clinical skills.

Keywords: Antenatal examination, Nursing, Objective Structured Clinical Examination

I. Introduction

Objective Structured Clinical Examination (OSCE) was first introduced by Harden and Gleeson into medical education in Scotland in 1975 [1]. Objective Structured Clinical Examination (OSCE) is a modern type of evaluation and often used in medical sciences to measure clinical skills such as communication, clinical examination, medical procedures / prescriptions / techniques, and interpretation of results [2]. The method that has used in many psychiatric and other clinical centers worldwide [3-5] has shown a credible validity and reliability [6].

OSCE normally consists of several short stations, in which each examinee is examined on a one-to-one basis with one or several examiner(s) and either real or simulated patients, computer simulators [7], moulages [8] or videos [9]. Students have a fear of being overwhelmed by a lack of experience. Their anxiety level influences their decision-making, which is directly related to clinical judgment. High student anxiety can lead to decreased student learning. In addition, when students lack confidence in their ability to complete a nursing skill, they focus on their feelings of anxiety in not knowing what to do or their concern that they will make a mistake. The fear of making mistakes is the highest anxiety-producing situation for both junior and senior-level students [10].

OSCE clinical skills are tested and then practiced repeatedly until one perfects the skill. Candidates rotate through stations, completing all stations in their circuit. It is considered an improvement over traditional examination methods because the stations can be standardized, fairer peer comparison and complex procedures can be assessed without endangering patient's health [11]. Antenatal care (ANC) is recognized as a key maternal service in improving a wide range of health outcomes for women and children. It provides an opportunity to provide interventions for improving maternal nutrition, to encourage skilled attendance at birth and use of facilities for emergency obstetric care [12&13].

II. Literature Review

Maternal deaths have dropped dramatically from 543,000 a year in 1990 to 287,000 in 2010 of complications during pregnancy or childbirth [14]. They added that even though, most of these deaths could be avoided as the necessary medical interventions exist and are well known. The key obstacle in rural communities is pregnant women's lack of access to quality skilled care before, during and after childbirth. Investing in

making emergency obstetric care available round the clock is key to reducing maternal mortality. Poor people have less access to health services than richer people do, geographic and urban-rural inequities exist in many countries. The role of a community health nurse is to educate and counsel prospective parents by implementing existing prenatal programme, identifying pregnant mothers at risk, developing adequate prenatal follow-up and referral systems and promoting universal access to prenatal health care [15].

The OSCE has become a well-established method of assessment in medical education [16] and is increasingly being used as a method of assessment in nursing and allied health curricula [17&18]. Using audio-visual materials to teach psychomotor skills via role modeling is proven to be effective [19]. When using video materials, an opportunity exists for patients to identify with persons portrayed and the tasks they are performing [20]. [21] recommend that educators foster student learning through the integration of clinical and classroom teaching. Also, [22], in reviewing [21] work, suggests that educators emphasize teaching for a sense of salience, with the application of practical knowledge and skills in the context where the student is expected to perform. Teaching for a sense of salience requires the student to develop clinical reasoning skills, which involves multiple ways of thinking alongside the development of a professional identity [22].

Aspects of clinical practice are increasingly assessed by the use of OSCEs, which have gained acceptance as a valid measure of assessing student learning [23&24]. Also, they are perceived to be a meaningful and fair form of assessment with students feeling more prepared for, and more confident about, clinical practice. In addition, they are well evaluated in terms of learning [25&26]. OSCEs enable educators to provide a standardised assessment and provide students with the opportunity to display skills not easily observed in clinical areas such as responses to emergencies. However, the predictable format can lead to rehearsed performances and does not give any indication of how a student may perform in a 'real' clinical environment [27], or in an unpredicted situation [28].

The study carried out by [29] to assess the antenatal examination skills on Final Year B.Sc Nursing students studying in Dr. D. Y. Patil College of Nursing, Pimpri, Pune:18 with the help of OSCE. The researcher concluded that antenatal assessment by OSCE shows a better tool for examining and evaluating the students, than the customary or traditional methods because of the ease of evaluation of professional skills and the conceptualizations by the students. A review of the nursing literature was conducted by [30] through an initial search of the computerized databases of CINAHL, Pub Med, Google Scholar and Medline with full text to describe the utility of the OSCE as a strategy of measuring Clinical competence in nursing. Also, the review explores the perceptions of students and faculty in using OSCE in nursing education. The researchers conclude that OSCEs can be used most effectively in nurse undergraduate curricula to assess safe practice in terms of performance of psychomotor skills, as well as the knowledge associated with their application.

Another descriptive exploratory research study was conducted by [31] on 80 nursing students studied at Institute of Nursing in Riyadh city, Saudi Arabia to assess the nursing students' perception and feedback about OSCE examination. The study provided positive feedback about the OSCE attributes that it was a realistic assessment for the nursing practical course. Also, a descriptive survey design by [32] on 33, third year midwifery nursing students studied at school of nursing and midwifery, university of Dublin trinity college, Ireland To report midwifery students' attitudes towards a lactation and infant feeding OSCE. The findings of this study identified that midwifery students were neutral/unsure of the OSCE as a Strategy for assessing clinical competence. Finally, a retrospective, longitudinal study by [33] on 52 Gonzaga University family nurse practitioner students in USA. This study examined the correlation of the performance of FNP students on OSCEs with other clinical evaluative Methods. The study's findings demonstrates a moderate correlation between clinical evaluation and OSCEs in the first clinical course, suggesting that OSCEs in FNP programs can be useful in clinical courses.

III. The Aim Of The Study

The aim of the study is to examine the efficacy of OSCE tool for improving B.Sc. nursing students' antenatal examination.

IV. Research Hypothesis

Implementation of OSCE tool will succeeded in achieving improvement in final B. Sc. nursing students' antenatal examination practices skills.

V. Methods

5.1. Research Design: Quasi-experimental design (one group pre test post test design) was used to achieve the aim of the study.

5.2. Research Setting: The study was conducted at Community Health Nursing department, faculty of nursing, Menoufia University, Egypt.

5.3. Subjects

All "70" B. Sc. nursing students in the fourth year on the second term of the academic year 2013, Community Health Nursing department, faculty of nursing, Menoufia University, Egypt was selected. Non-Probability Convenience Sampling Technique was used for selection of the sample.

5.4. Data Collection Instruments

The researcher developed the data collection instrument after reviewing literature related to Objective Structured Clinical Examination (OSCE) and antenatal examination. In addition, it was utilized in this study. It consists of:-

5.4.1. Tool one: - A structured interviewing questionnaire. It consisted of 2 items on age of sample and name of the assessor.

5.4.2. Tool two: - Observational checklist which consisted of 5 OSCE stations including the following: Antenatal history-taking station 1; general examination station 2; standardized blood pressure measurement technique skills station 3; standardized body weight measurement technique skills station 4 and antenatal advice skills station 5. Each station assessed the student's competency in the following domains: Communication skills; clinical and procedural skills; and technical skills.

The assessment criteria and grading system used at each station. Initially, checklists for assessing station-specific tasks were used. These were replaced by a global rating scheme employing criteria aligned to three competency domains mentioned above. A numerical scale was used for statistical analyses of test results. Therefore, each station was graded as follows: **antenatal history-taking observational checklist station Not Done** (0 score) and **Done** (1 score).

In addition, **antenatal advice skills observational checklist station was be graded as follows:**

Not Met (0 score) and **Met** (1 score).

While the other observational checklist stations (general examination, standardized blood pressure measurement technique skills, standardized body weight measurement technique skills) were graded as follows:

Not done (0 score);

Fail, not competent (1 score);

Pass, not confident (2 score);

Confident pass (3 score);

Good, shows confidence, carries out technique skillfully (4 score); and

Excellent, expert confident practitioner (5 score).

Time Schedule for each station:- antenatal history-taking (40 minutes); general examination (20 minutes); standardized blood pressure measurement technique skills (5 minutes); standardized body weight measurement technique skills (5 minutes) and antenatal advice skills (10 minutes).

5.4.3. Reliability of the Tools

Reliability was applied by the researcher for testing the internal consistency of the tool, by administration of the same tools to the same subjects under similar conditions on one or more occasions. Answers from repeated testing were compared (Test-re-test reliability).

5.4.4. Validity of the Tools: They were tested for content validity by jury of four experts in the field of Community Health Nursing and obstetric Specialty to ascertain relevance and completeness.

5.5. Pilot Study: A pilot study was carried out on 7 B. Sc. nursing students in the fourth year on the first term of the academic year 2013 to test practicability, understandability of the tools and estimate time required for each station. Based on the findings of the pilot study, the necessary modifications were done accordingly. They were not included in the study sample.

5.6. Ethical Considerations :An oral consent was obtained from students to participate in the study. During the initial interview, the purpose of the study and the procedures were explained.

5.7. Study Period: the study started from 1 February 2013 to 30 May 2013.

5.8. Intervention's Educational Materials:

Teaching-assisted clinical Videos related items of antenatal care: Teaching-assisted videos were adopted from different **Internet sites, (2013)**. The content of videos included the following: - one video about general examination (37 minutes) [34], one video about standardized blood pressure measurement technique

skills (4 minutes, 56 seconds) [35], and one video about standardized body weight measurement technique skills (26 minutes, 20 seconds) [36].

5.9. Procedure and Data Collection

5.9.1. The OSCE

The content of the work-simulated examinations were based on the diversity of skills expected of community health nurse. Careful design of stations was required to ensure systematic and sufficient samples of the skill-based competencies, a key element of validity. A range of clinical videos regarding ante natal care including antenatal physical examination, standardized blood pressure measurement technique skills, standardized body weight measurement technique skills, typically expected in daily practice, were selected.

5.9.2. Implementation phase

At the beginning of the study students were divided into seven groups; each group consisted of ten students for seven faculty members (trained observers). And eight faculty members were trained to role-play the clinical scenario. Every student was assessed for 5 antenatal examinations each by using the newly developed format (Pre-test). It took about four weeks. An OSCE was then developed. Each student was given a feedback after the first assessment using OSCE. The researcher delivered a planned teaching on the technique of antenatal examination and demonstrated the same for each group separate using role-play and teaching clinical videos regarding physical examination, blood pressure measurement and body weight measurement.

First, students watched teaching clinical videos and after that, students engaged in a five sessions of role-plays and demonstration techniques to provide them the opportunities to practice technique of antenatal examination. Second, the researcher asked students about videos and then asked questions for brainstorming and encouragement to be actively participating with the researcher explanation of those videos until the researcher was sure about their understanding of the subject. It took about 60-90 minutes. It took 8 weeks. At the end, students were assessed using the same OSCE assessment format (Post- test). It took four weeks.

5.9.3. Evaluation

OSCE stations were used for objectively evaluating learner performance in clinical situations. They comprised ante natal examination skills; the learner performed antenatal history-taking, antenatal physical examination, standardized blood pressure measurement technique, standardized body weight measurement technique skills and antenatal advice while a trained observer scored the learner using an objective checklist developed for each station. Faculty members were trained to role-play the clinical scenario consistently for each learner; the trained observer was silent except for answering methodological questions and, as in the post intervention testing, providing constructive feedback.

5.10. Statistical Analysis

The collected data were organized, tabulated and statistically analyzed using Statistical Package of Social Studies (SPSS) version 19. Age was presented as range, mean and standard deviation. Other variables were categorical and were presented as number and percentages. Differences between categories of each variable pre and after interventions were statistically analyzed using Wilcoxon signed ranks test (Z). The total mean score of each station was presented, mean, standard deviation and the difference before and after intervention were compared using paired t test. The level of significance was adopted at $p < 0.05$.

VI. Results

Table (1): Antenatal History Taking OSCE Station Items Mean Total Score among studied students before and after intervention

Antenatal History Taking OSCE Station Items Checklists	Mean+SD of total score		t	p
	Pretest	Post test		
Getting ready	2.1+1.38	4.77+0.57	14.796	0.001
Setting the stage for the interview	6.39+1.62	6.39+1.92	0.000	1.000*
Obtaining the agenda and chief concern	1.89+1.42	5.24+1.15	14.197	0.001
History Personal Information	1.67+1.19	3.70+0.67	12.563	0.001
Medical and Surgical History	3.29+2.27	6.99+1.38	12.390	0.001
Family History	1.31+0.71	2.81+0.60	15.455	0.001
Daily Habits and Life style (first visit)	0.98+1.26	4.37+1.22	17.319	0.001
Obstetric History	1.51+1.64	3.77+0.66	10.269	0.001
Menstrual and Contraceptive History (First Visit)	2.40+1.64	4.39+1.03	8.292	0.001
Present Pregnancy (First Visit)	1.13+1.11	3.54+1.00	12.907	0.001
Danger Signs and Recording	0.66+0.66	1.87+0.38	14.969	0.001

*Not Significant

Table (1) illustrated OSCE station items of antenatal history taking mean total score before and after intervention. As noticed from the table, there was statistical significant improvement in OSCE station regarding getting ready, obtaining the agenda, history personal information and chief concern, medical and surgical history, family history, daily habits and life style (first visit), obstetric history, menstrual and contraceptive history (first visit), present pregnancy (first visit) and danger signs and recording of the studied students after intervention (4.77+0.57, 5.24+1.15, 3.70+0.67, 6.99+1.38, 2.81+0.60, 4.37+1.22, 3.77+0.66, 4.39+1.03, 3.54+1.00 and 1.87+0.38 respectively) compared with (2.1+1.38, 1.89+1.42, 1.67+1.19, 3.29+2.27, 1.31+0.71, 0.98+1.26, 1.51+1.64, 2.40+1.64, 1.13+1.11 and 0.66+0.66 respectively) before intervention. In addition, there was no statistical significant difference between total score of setting the stage for the interview before and after intervention where $p = (1.000)$.

Table (2): OSCE Station Items Related to General Examination Mean Total Score among Studied Students before and after Intervention

General examination OSCE Station Items Checklists	Mean+SD of total score		t	p
	Pretest	Post test		
Introduction and Vital Signs Check Radial Pulse	14.66+4.34	14.19+1.82	0.965	0.338*
Vital Signs Check Respiration	6.60+3.15	9.46+1.58	6.730	0.001
Assessment of General Well-being	8.59+6.90	26.49+5.07	17.208	0.001
Look for Pallor	8.69+4.25	13.80+2.42	8.235	0.001
Look for Signs of Jaundice	3.80+2.87	8.57+2.55	9.752	0.001
Head Examination	11.70+6.72	22.51+3.87	12.553	0.001
Neck Examination and Check for edema	7.34+4.61	14.10+1.87	11.722	0.001

*Not Significant

Table (2) demonstrated OSCE station items related to general examination mean total score among studied students before and after intervention. As noticed from the table, there was statistical significant improvement in OSCE station regarding vital signs check respiration, assessment of general well-being, look for pallor, look for signs of jaundice, head examination and neck examination and check for edema of the studied students after intervention (9.46+1.58, 26.49+5.07, 13.80+2.42, 8.57+2.55, 22.51+3.87 and 14.10+1.87 respectively) compared with (6.60+3.15, 8.59+6.90, 8.69+4.25, 3.80+2.87, 11.70+6.72 and 7.34+4.61 respectively) before intervention. In addition, there was no statistical significant difference between total score of introduction and vital signs check radial pulse before and after intervention where $p = (0.338)$.

Table (3): OSCE Station Items Related to Standardized Blood Pressure Measurement Mean Total Score among Studied Students before and After Intervention

Standardized Blood Pressure Measurement OSCE Station Items Checklists	Mean+SD of total score		t	p
	Pretest	Post test		
Prepared setting for measurement	12.31+4.36	23.61+2.52	18.548	0.001
Palpatory Method	19.44+7.58	27.73+3.33	8.194	0.001
Auscultatory Method	24.83+5.44	33.07+3.18	11.303	0.001
Documentation and Explain recommended follow up to woman	3.91+3.72	9.51+1.32	10.917	0.001

Table (3) displayed OSCE station items related to standardized blood pressure measurement mean total score among the studied students before and after intervention. As displayed, there was statistical significant improvement in OSCE station regarding prepared setting for measurement that was quiet and free of interruptions, palpatory method, auscultatory method and documentation and explain recommended follow up to woman of the studied students after intervention (23.61+2.52, 27.73+3.33, 33.07+3.18 and 9.51+1.32 respectively) compared with (12.31+4.36, 19.44+7.58, 24.83+5.44 and 3.91+3.72 respectively) before intervention

Table (4): Pre and Post Intervention Results of Studied Students Regarding OSCE Station of Met Standardized Body Weight Measurement

Standardized Body Weight Measurement OSCE Station Items Checklists	Pretest			Post-test			Z	p
	Fail/not competent	Pass	Competent Pass	Fail/not competent	Pass	Competent Pass		
Wash hands	50.0	11.4	38.6	2.9	1.4	95.7	7.219	0.001
Identify woman	12.9	24.3	62.8	2.9	0.0	97.1	7.062	0.001
Explain the importance of the procedure	42.9	15.7	41.4	2.9	0.0	97.1	7.182	0.001
Explain the procedure	22.9	22.9	54.2	5.7	0.0	94.3	6.720	0.001
Place a paper towel under and on scale	5.7	15.7	78.6	4.3	1.4	94.3	6.739	0.001
Instruct the woman to evacuate her bladder	68.6	7.1	24.3	5.7	0.0	94.3	7.320	0.001
Instruct the woman to place heavy objects on the area provided	70.0	7.1	22.9	4.3	0.0	95.7	7.382	0.001
Instruct the woman to remove shoes and step on the scale	24.3	22.9	52.8	0.0	1.4	98.6	7.429	0.001
Adjust the scale to zero.	44.3	12.9	42.8	5.7	1.4	92.9	6.992	0.001
Read the weight measurement	5.7	11.4	82.9	1.4	2.9	95.7	6.841	0.001
Assist the woman in stepping off the scale.	24.3	24.3	51.4	7.1	4.3	88.6	6.724	0.001
Provide a chair for the woman to sit on	27.1	25.7	47.1	2.9	0.0	97.1	7.384	0.001
Explain the finding to the woman	5.7	31.4	62.9	7.1	4.3	88.6	6.084	0.001
Return the scale to zero	62.9	12.9	24.2	10.0	1.4	88.6	6.814	0.001
Wash hands	62.9	5.7	31.4	5.7	0.0	94.3	7.103	0.001
Record weight in woman's card	72.9	8.6	18.6	1.4	0.0	98.6	7.559	0.001

Table (4) presented pre and post intervention results of studied students regarding OSCE station items of met standardized body weight measurement (item 1, item 2, item 3, item 4, item 5, item 6, item 7, item 8, item 9, item 10, item 11, item 12, item 13, item 14, item 15 and item 16). As presented, there was statistical significant difference between pre and post intervention results of studied students regarding OSCE station items of met standardized body weight measurement where $p = (0.001)$.

Table (5): Pre and Post Intervention Results of Studied Students Regarding OSCE Station Items of Met Antenatal Advice Skills

Antenatal advice skills OSCE Station Items Checklists	Pre test		Post test		Z	p
	No.	%	No.	%		
Select suitable setting for teaching.	52	74.3	65	92.9	2.711	0.007
Sit comfortably, avoid distracting movements, and look directly to woman.	60	85.7	66	94.3	1.732	0.083*
Greet the woman and her companion and offer the woman a seat	66	94.3	64	91.4	0.632	0.527*
Introduced your self by name	63	90.0	66	94.3	0.905	0.366*
Identified your role	41	58.6	64	91.4	4.004	0.001
Asked for the woman's full name	41	58.6	62	88.6	3.550	0.001
Ensured woman readiness, comfort, and privacy	42	60.0	60	85.7	3.286	0.001
Explain the importance of the teaching's topic	47	67.1	67	95.7	4.082	0.001
Ask about woman's previous feedback related topic	27	38.6	67	95.7	6.172	0.001
Use clear language that the woman can easily understood	61	87.1	59	84.3	0.500	0.617*
Avoid technical terms	50	71.4	62	88.6	2.353	0.019
Give correct and complete information.	49	70.0	56	80.0	1.347	0.178*
Maintain eye contact	65	92.9	61	87.1	1.155	0.248*
Put first things first	41	58.6	50	71.4	1.521	0.128*
Use pictures or illustration	31	44.3	68	97.1	5.925	0.001
Explain pictures and point to them as you talk	23	32.9	68	97.1	6.564	0.001
Look mostly at the client and not at the flip chart or poster	31	44.3	62	88.6	4.841	0.001
Repeat instructions	23	32.9	45	64.3	3.667	0.001
Be specific	44	62.9	62	88.6	3.402	0.001
Make links	44	62.9	52	74.3	1.461	0.144*
Organize information, put things in categories	37	52.9	52	74.3	2.611	0.009
Check understanding	32	45.7	53	75.7	3.550	0.001
Correct any misinformation or misunderstanding the woman may have	27	38.6	60	85.7	5.154	0.001
Summarize the teaching	18	25.7	55	78.6	5.516	0.001
Ask woman about present feedback related topic after teaching	27	38.6	63	90.0	5.555	0.001

*Not significant

Table (5) showed pre and post intervention results of the studied students regarding OSCE station items of met antenatal advice skills. As shown from the table, there was statistical significant difference between pre and post intervention results of studied students regarding OSCE station items of met antenatal advice skills (Item 1 item 5, item 6, item 7, item 8, item 9, item 11, item 15, item 16, item 17, item 18, item 19, item 21, item 22, item 23, item 24 and item 26) where $p=$ (0.007, 0.001, 0.001, 0.001, 0.001, 0.001, 0.019, 0.001, 0.001, 0.001, 0.001, 0.001, 0.009, 0.001, 0.001, 0.001, and 0.001) respectively. While, there was no statistical significant difference between pre and post intervention results of the studied students regarding OSCE station items of met antenatal advice skills (item 2, item 3, item 10, item 12, item 13, item 14 and item 20) where $p=$ (0.083, 0.527, 0.366, 0.617, 0.178, 0.248, 0.128 and 0.144) respectively.

Table (6): Total Score of Each OCSE Station before and After Intervention

OSCE station	Mean+SD		t	p
	Before intervention	After intervention		
Antenatal history taking checklist station one.	26.01±9.67	55.56±8.66	19.877	0.001
Antenatal physical examination checklist station two.	58.50±19.77	113.74±14.54	19.915	0.001
Standardized blood pressure measurement technique skills checklist station three.	63.67±15.18	98.90±7.26	17.260	0.001
Standardized body weight measurement technique skills checklist station four.	41.96±15.23	75.64±8.12	15.207	0.001
Antenatal advice skills checklist station five.	14.89±3.46	21.56±3.62	11.016	0.001

Figure (1): Total Score of each OCSE Station before and after Intervention

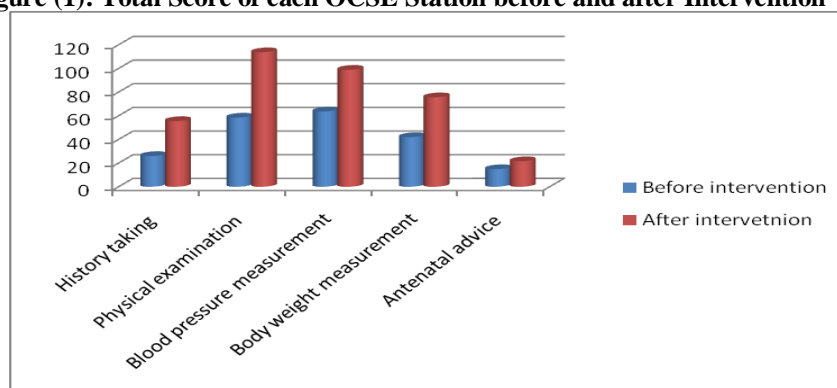


Table (6) and Figure (1) illustrated total score of each OCSE station before and after intervention. As noticed from the table and figure, there was statistical significant improvement in Antenatal history taking checklist OSCE station one, Antenatal physical examination checklist OSCE station two, Standardized blood pressure measurement technique skills checklist OSCE station three, Standardized body weight measurement technique skills checklist OSCE station four and Antenatal advice skills checklist OSCE station five after intervention (55.56±8.66, 113.74±14.54, 98.90±7.26, 75.64±8.12 and 21.56±3.62 respectively) compared with (26.01±9.67, 58.50±19.77, 63.67±15.18, 41.96±15.23 and 14.89±3.46) respectively before intervention.

VII. Discussion

Objective Structured Clinical Examination (OSCE) can be defined as an assessment of well-defined clinical skills [37]. An OSCE requires each student to demonstrate specific skills and behaviors in a simulated work environment with standardized patients [17] [38] [16]. The aim of this study was to examine the efficacy of OSCE tool for improving B.Sc. nursing students' antenatal examination.

Regarding total score of items of antenatal history taking OSCE station before and after intervention, the study findings revealed statistical significant improvement in students' mean total score of antenatal history taking OSCE station Items after intervention compared to students' mean total score before intervention (Table 1). This finding is similar to [39] findings; who conducted a comparative study on evaluating of knowledge and clinical practices of midwifery students in the courses of physiopathology, infectious and internal diseases and surgery based on Objective Structured Clinical Examination and traditional assessment methods. They reported that midwifery students' highest score in the courses 3 of physiopathology, infectious and internal diseases, and surgery was gained by OSCE method and the lowest score was gained by traditional method. In the same line with the finding of the present study was the study carried out by [40] who evaluate of the knowledge and practice of the third year student nurses about drugs by OSCE method. They reported that the mean practical score based on OSCE method was higher than the theoretical score (6.80±7.7) and 49.02±9.24) respectively.

Also, finding of the present study was consistent with [41] findings, who conducted a study on senior nursing students in cardiac intensive care unit, using OSCE test, and reported that the highest scores in the areas studied were related to the skills of history taking and physical examination. This may be attributed to the benefit from the educational content and use of advanced technology through using video scenarios and role-playing in teaching.

Concerning total score of items of general examination OSCE station before and after intervention, the finding of the present study revealed statistical significant improvement in students' performance on an OSCE and they demonstrated better communication and basic clinical skills after intervention than before intervention (Table 2). The finding of the present study is supported by [42] findings who studied effects of basic clinical skills training on Objective Structured Clinical Examination performance. They indicated that students participating in a communication and basic clinical skills curriculum with intermittent sessions of bedside-teaching performed significantly better on an OSCE and demonstrated better communication and basic clinical skills than students participating only in bedside teaching.

Also, this finding is similar to what was reported by [43] who conducted a study for comparison of traditional versus video based teaching on neurological assessment among undergraduate nursing students, and reported that in group B (video based teaching) pre-test results revealed that 66.6% of the students had poor skills and 33.3% had average skill on neurological assessment. While, posttest results showed that 86.6% of the students had average skill and 13.3% had gained good skill after attending video based teaching sessions on neurological assessment. Moreover, he showed that, the mean post-test knowledge and skill scores were significantly higher than the mean pretest scores, hence video-based teaching was effective in improving knowledge and skill of undergraduate nursing students on neurological assessment. In addition, finding of the present study was consistent with [44] who evaluate the impact of video based versus traditional lectures on student learning, and reported that average performances of all students demonstrated a slight superiority of video-based lectures over traditional ones. This may be attributed to multimedia can be a useful method to provide the fundamental and high profile skills.

Regarding total score of items of standardized blood pressure measurement OSCE station before and after intervention, the finding of this study revealed statistical significant improvement in students' OSCE's score and their clinical skills after intervention compared to OSCE's score and their clinical skills before intervention (Table 3). This foregoing present study is supported by [45] findings who studied the role of short intensive Task-Based Training Course in improving emergency medicine performance among interns in Duhok, Kurdistan Region, Iraq. They reported that after the implementation of Task based training module program (TBTM) and pre and post assessment of interns in regards to practical skill performance using objective structured clinical examination tool. The intervention group had gotten significant improvement in their clinical skills (both overall and for all individual tasks). In addition, for some tasks, the differences in the mean scores for the intervention group were double or triple of that of the control group.

This finding was consistent with the study's findings that carried out by [46] and conducted in the Medical City Teaching Hospital in Baghdad during the period January-September 2006 about training 92 doctors on cardiac and trauma life support. The researcher reported that no one gained the pass mark in the Advanced Cardiac life support, Basic Trauma life support, and Advanced Trauma life support questions before giving the lectures. After the lectures, all participants succeeded in gaining the pass mark for the same questions. Also, the present study finding was supported by [47&48] findings who reported that there was improvement in the procedural skill performance of doctors after being exposed to training. Moreover, the finding of the present study in congruence with [49] who studied the role of video-assisted structured teaching in improving aseptic technique during neuraxial block, and reported that the results of their study demonstrated a significant improvement in aseptic technique after a teaching intervention which included video assessment and demonstration.

In addition, finding of the present study is supported by [50] findings, who studied a one-group, prospective study to assess the use of simulation-based learning on doctor of pharmacy students' accurate performance of blood pressure (BP) measurement. All subjects received didactic classroom content on BP measurement immediately followed by simulation training on BP measurement with a high-fidelity simulator. Second simulation training on BP was provided two weeks later. A task-specific checklist was used to measure blood pressure assessment performance on the same high-fidelity simulator for all subjects after each simulation session. They reported that student performance of BP assessment showed significant improvement after each simulation training session ($p=0.029$). This may be attributed to the benefit from the educational content and use of advanced technology through using video scenarios and role-playing in teaching.

Concerning pre and post intervention results of studied OSCE station items of standardized body weight measurement, the study finding revealed statistical significant difference between pre and post intervention results of studied students (Table 4). This finding is supported by [51] findings, who studied the effectiveness of the use of simulation training in healthcare education. The researcher reported that

simulation training was an effective learning method as students from the experimental group, that were given the opportunity to observe and take part in high-fidelity simulation training followed by debriefing, made significantly higher improvements between their two OSCE performances than students from the control group.

Also, finding of the present study was consistent with [52] who studied a one-group pre-test/post-test study to assess the effectiveness of a simulation model to teach chest tube insertion to junior physicians. After pre-testing, all subjects underwent chest tube insertion training that involved observing and practicing chest tube insertion on the simulation model for two hours in small groups. One month after the training, all subjects were post-tested on chest-tube insertion using the same simulation model. Chest tube insertion skill was measured using a task-specific checklist. They reported that chest tube insertion scores significantly improved from pre-test to post-test ($p < 0.001$).

In addition, finding of the present study is supported by [53] findings to evaluate a task-based community oriented teaching model of family medicine for undergraduate medical students in Iraq, and reported that the task-based teaching model in family medicine significantly improved performance skills of the study participants. Moreover, the participants were found eager to learn a greater variety of skills and to examine a large number of cases if readily accessible. This may be attributed to the benefit from the educational content and use of advanced technology through using video scenarios and role-playing in teaching.

Regarding pre and post intervention results of studied students regarding OSCE station items of antenatal advice skills, the study finding revealed statistical significant difference between pre and post intervention results of studied students (Table 5). The finding of the present study was consistent with [54] who studied development and implementation of an Objective Structured Clinical Examination (OSCE) in an undergraduate pharmacy program. They reported that, the students scored the highest marks in insulin delivery devices counseling station (mean \pm SD = 17.6 ± 3.1), followed by drug-related problems (DRPs) identification/resolution and warfarin counseling stations with mean \pm SD of 17.36 ± 2.7 and 16.9 ± 2.2 , respectively.

Meanwhile, the study results in congruence with [55] who studied development counseling skills through pre-recorded videos and role play in a Pakistani medical school, and reported that there was a statistically significant difference in the communication skills of students when assessed in the post-intervention OSCE ($p = 0.000$). In addition, they concluded that videos and role-play in combination with community and clinical exposure are effective modes of teaching counseling skills to medical students. This may be attributed to multimedia can be a useful method to provide the fundamental and high profile skills.

Concerning total score of each OSCE station before and after intervention, the finding of the present study (table 6, figures 1) indicated that there was statistical significant improvement in students' mean total score of each OSCE station after intervention compared to students' mean total score before intervention. The study results in congruence with [56] who studied the role of a Vertically Integrated Geriatric Curriculum in improvement medical student's knowledge and clinical skills. They reported that student's performance on the geriatric functional assessment OSCE station progressively improved from pre-intervention performance (mean performance \pm standard deviation $43 \pm 15\%$ class of 2005, $62 \pm 15\%$ class of 2006, $78 \pm 10\%$ class of 2007; analysis of variance, $p < 0.001$). Similarly, student's performance on the geriatric knowledge test was significantly better for the classes of 2006 and 2007 than for the class of 2005 (model of ratio = 4.72; $p < 0.001$).

Also, finding of the present study was consistent with [57] who conducted a problem-based workshop for improving residents' breastfeeding assessment skills, and reported that OSCE scores after intervention were significantly better in the intervention group for the content areas assessing position and latch and the evaluation of sore nipples ($p < 0.001$ and $p = 0.05$, respectively). In addition, all residents in the intervention group correctly diagnosed the cause of both the sore nipples and low milk supply at the follow-up OSCE, with p values of < 0.001 and 0.068 , respectively. The intervention group felt significantly more confident in their breastfeeding problem solving ($p < 0.001$). Likewise, finding of the present study is supported by [58] who studied the use of an Objective Structured Clinical Examination (OSCE) for formative and summative assessment in a general practice clinical attachment and its relationship to final medical school examination performance, and reported that there was a marked improvement in all OSCE station scores. Pre-attachment scores for those stations measuring physical examination and problem solving skills were unrelated to prior clinical experience. Post-attachment OSCE mean scores were significantly correlated with final examination OSCE and total mean scores. This may be attributed to the benefit from the educational content and use of advanced technology through using video scenarios and role-playing in teaching.

VIII. Conclusions

The implementation of OSCE tool has succeeded in achieving significant improvement in final B. Sc. nursing students' antenatal examination practices skills. This improvement in final B. Sc. nursing students' antenatal examination practices skills led to students gain more confidence when confronted by pregnant women

present in the clinical settings, and to encourage them to reflect on a range of skills and competences they need to acquire related to antenatal examination.

OSCE, videos and role-play offered significant evidence towards successful implementation of a formal communication skills development initiative, under resource-limited circumstances.

Hence, it was concluded that the results provide important evidence that the use of OSCE, videos and role-play as a valuable teaching tools to communicate best practice information in a consistent way.

IX. Recommendation

Implementation of OSCE through teaching-assisted videos for all clinical skills.

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