

# Effect of Video Film about Normal Delivery care on Maternity Students' Anxiety, Satisfaction and Performance in Delivery Room

<sup>1</sup>Entesar Fatouh Abed Elmoneim, <sup>2</sup>Nagia Ibrahim Hassan

<sup>1</sup>Assistant Professor of Maternal & Newborn health Nursing, Faculty of Nursing, Helwan University, Cairo, Egypt.

<sup>2</sup>Lecturer Psychiatric Nursing and Mental Health, Damanhour University, Egypt

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**Abstract:** Nursing students frequently report feeling of anxiety prior to entering their first clinical setting in obstetrics courses. Video film is a teaching and learning strategy that is used in nursing education to prepare students for the clinical workplace. The study aimed: to evaluate the effect of video film about normal delivery care on maternity student's anxiety, satisfaction and performance in delivery room. A quasi experimental design was adopted. Convenient sample of 200 students recruited from third -year undergraduate maternity nursing students, which divided into two equal groups (100 students for control/ traditional lab group) and (100 students for study / video group ). The study was conducted at two Settings 1) maternity nursing lab at the Faculty of Nursing- Helwan university 2) labor and delivery room of maternity hospital. Data was collected by using 1) Visual analogue anxiety scale (ten centimeters bar shaped) and State Trait Anxiety Inventory (STAI) after the intervention in clinical area. 2) An Observation checklist: 3) Students' satisfaction scale.

**Results:** The two subjective anxiety indicators are lower in the video group than in the traditional lab group with statistically significant difference between the two groups. ( $t=2.440$ ,  $p=.016$ ). The students' performance was significantly higher among video training group than control group.

**Conclusion:** The students who trained by video about delivery reported lower anxiety scores, high practical competences and higher satisfaction than students who trained by traditional lab only.

**Recommendation:** Using video film in clinical training immediately before going to delivery room is a recommended learning strategy.

**Keywords:** Clinical Video; Anxiety; Nursing Students; State Trait Anxiety Inventory, VAS.

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## I. INTRODUCTION

The quick variations and increased complexity of today's world present new challenges and put new demands on our teaching system. The presence qualified skilled competent nurses, optimal student learning for high quality maternity care is a leading factor in averting maternal death. Nursing teaching needs placement in a variety of clinical settings to gain hands-on experience and to apply theory to practice. Preparation for practice entails more than developing skills in the lab. It necessitates developing an ability to provide safe and effective care to other human beings in various clinical settings. [1] Clinical practice is significant for the professional development of undergraduate nursing students. This aspect of developing expertise as a student nurse can be very stressful to nursing students and create anxiety. Clinical experiences have been identified by maternity students as one of the most anxiety-producing components of the nursing program. High levels of anxiety during nursing education may have negative effects on students' learning and may also influence students' performance, decision-making and caring competences. [2]

Anxiety has two main components: worry and emotionality. During states of anxiety or stress, the body releases adrenaline. Adrenaline is recognized to cause physical symptoms, such as amplified heart rate, sweating, and rapid breathing [ 3].Worry refers to cognitive issues, such as negative expectations or inadequacy feelings, but emotionality refers to the physical symptoms, such as increased heart rate, muscle tension . Both are aversive elements can create anxiety, but the cognitive factors which have the strongest connection to performance.[4] Putwain, Woods & Symes (2010), found that a little academic self-concept was connected with higher worry and tension about their abilities to do well on a test. [5] Furthermore, mental health experts reported that excessive stress will decrease the body's immune system, affecting hormonal systems work and impact on mental and physical condition. [6]

Nursing practice should focus on area of specialization and creating innovative new methods in teaching. This will require agreement and shared goals between care organizations and learning programs like educational video and simulation based practice in well set-up labs. .Simulation -based nursing education is considered to be a useful educational intervention to improve knowledge and attitudes of health personnel, and patient outcomes Simulation refers to activities that mimic the reality of a clinical environment and that are designed for demonstrating procedures and promoting decision making and critical thinking. .Simulations in health professional education take the forms of role play, videotaped interactions, case studies, demonstrations, computer-based learning modules, online activities, standardized patients, virtual reality applications, and mannequins or plastic body parts. Education through video simulation prior to entering clinical setting reduces the anxiety level of nursing students and contributes to various outcomes for students' learning processes [7]

Traditional teaching methods usually don't achieve students' desires to be active learner, as they don't allow time for independence, critical thinking, this require nursing educators to shift from a teacher centered to student – centered approach, which can foster independence in learning, creative problem- solving skills, a commitment to life- long learning and critical thinking . Nowadays, Internet, film video and telecommunication, mobile phones and other communication technological advances allow for instant to local-global linkages, as well as cost effective information transfer and intelligence gathering. Nurses and other health professionals need to have access to these technologies but also be equipped with the necessary knowledge and skills to use these devices for optimum impact [8] .These practical skills can be improved through effective teaching methodologies i.e. video teaching and simulation based practices. Nurses must be encouraged and valued for their unique contributions to the system and recognized for their ability to adopt, and adapt to change- not only in patient populations but also in health care delivery. Review of literature had revealed several beneficial effects of clinical simulation. In the study of Thomas & Mackey (2012) a significant increase was observed in the level of students' confidence, who were trained clinical skills using simulation, compared to the traditional training group in areas such as diagnosis and symptoms of disease, patient assessment, nursing interventions, and evaluation. [9] It purposely offers the opportunity for students to improve the intended learning outcomes such as clinical skill performance, knowledge acquisition, clinical reasoning ability and student satisfaction. [10].

Student satisfaction with learning is defined as the degree to which students believe they have opportunity to be involved in a learning activity and to receive feedback about their learning. The role of the clinical teacher in enhancing student satisfaction is associated with “pacing the student to professional competency,” which involves diagnosis of readiness, selection of clinical problems, supervision, and evaluation. These categories, although not exhaustive or exclusive, provide a useful framework for considering the functions of the clinical teacher that may enhance student satisfaction by using effective clinical teaching strategies that are appropriate for student needs and enhance their development [11,12].

#### **Significance of the study:**

It was notice that maternity students experience high levels of anxiety during their initial clinical practices during labor clinical rotations. To redress these difficulties and to achieve the learning objectives of the maternity nursing practicum, new teaching and learning strategies such as video film in clinical area should be used .The use of video film as a teaching strategy for nursing students has been documented both for clinicians and nursing students. It can provide students with realistic clinical learning environments to increase their knowledge, self-confidence, and decrease their anxiety immediately prior to entering maternity clinical practice settings. It is imperative for maternity nursing educators to investigate the effectiveness of new learning technologies, in order to provide the nursing students with the best learning opportunities. Considering the lack of Egyptian studies that addressed video subject in maternity specialty, this

study was conducted to assess the effectiveness of video film of normal delivery care in reducing students' anxiety, relieving stress of clinical environment, achieving the perfect performance of students in delivery room and enhancing their satisfaction.

**Aim of the Study:**

To evaluate the effect of video film about normal delivery care on maternity students' anxiety, satisfaction and performance in delivery room, through the following objectives.

**Objectives:**

1. To compare the levels of anxiety among students who trained by video film and those who trained only by traditional lab as methods of teaching.
2. To compare the students' performance gained by video film and those who trained only by traditional lab as methods of teaching.
3. To determine the level of nursing students' satisfaction who trained by video film compared to only traditional lab.

**The study hypothesized that:**

**H 1:** The anxiety level of student nurses after watching the video film will be significantly lower than those who only trained by traditional laboratory training.

**H 2:** The performance score of student nurses in the delivery room will be significantly higher in the video film group than who only trained by traditional lab..

**H 3:** Maternity nursing students who trained by video film exhibit higher score of satisfaction than those who trained only by traditional lab.

## II. MATERIALS & METHODS

**Design:**

A quasi-experimental posttest design was used.

**Setting:**

The study was conducted in two settings:

(1) Maternity nursing lab at the Faculty of Nursing- Helwan University, Egypt. It contains two laboratory rooms (Traditional lab) equipped with low fidelity technology in maternity and newborn simulator. However, the low fidelity full-body simulated parturient women mannequin (Noelle TM Gaumard simulator for Labor and Delivery)

(2) Labor and delivery room of Ain Shams Maternity Hospital

**Sampling:**

Convenient sample of 200 students included in the study, recruited from third -year undergraduate maternity nursing students during 1<sup>st</sup> and 2<sup>nd</sup> semester of the academic year 2014 -2015 and undergoing to their first clinical obstetrics training, which divided into two equal groups (100 students for *control / traditional lab group* during 1<sup>st</sup> semester) and (100 students for *study / video film group* during 2<sup>nd</sup> semester. Each group were divided into 5 groups, each group (20) students, each group divided into 2 subgroups of 10 students.

**Tools of data collection:**

After reviewing related literatures and theoretical knowledge of various aspects of the problem using books, articles, periodicals and web sites to develop tools for data collection to fulfill the aim of the study, four tools were used:

**Tool I: A Structured Interviewing Questionnaire Schedule:** It was designed by the researchers after reviewing related literatures; to be filled from each student. It covers the data related to general characteristics (age, marital status, gender, residence and prior experience with delivery (5 questions).

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**Tool 2: Anxiety Assessment tools:** it consisted of three parts to assess the subjective anxiety of the nursing students:

**Part 1- State Trait Anxiety Inventory (STAI) [13]:** It was used to evaluate students' anxiety levels post intervention for the experimental and control groups.. It is a 20-item, 4-point anxiety checklist, the total score ranged from 20 points to 80 points. It is also possible to calculate a total score of anxiety. Approximately 10 minutes are required to complete the STAI .The higher score means higher anxiety state. The total score of State Trait Anxiety Scale (STAI) was classified as the following:

- 1 - Normal anxiety state < 20
- 2 - Mild anxiety state 20 - < 40
- 3 - Moderate anxiety state 40 - < 60
- 4 - Severe anxiety state 60 - 80

**Part 2: Anxiety Visual Analogue Scale (VAS) [14]:** It was a 10cm-length VAS (Visual Analogue Scale). The scale is a bar with two extreme anxiety states. It starts at 0 which represented "I'm fully relaxed", while the opposite end at 10 points represented "I feel extreme and severe anxiety. Students were asked to check the point that represented their anxiety. The anxiety scores were recorded as the following.

- 1 - No anxiety = 0
- 2 - Average anxiety = 1- 3.5
- 3 - Medium anxiety = 4- 7.5
- 4 - High anxiety =8-10

**Part 3: Physiological parameters indicators:** The physiological parameters were a systolic and diastolic blood pressure and a pulse rate. They were measured by mercurial sphygmomanometer; a radial pulse rate was measured manually by the researchers.

**Tool 3: An Observation checklist:** It was mostly developed from a checklist supported by USAID 2008.[15] .It was used to evaluate the students' performance in delivery room during 2<sup>nd</sup> , 3<sup>rd</sup> stage of labor and immediate care of newborn. It consists of 20 items (5 items about preparation for spontaneous vaginal delivery, 3 items centered on supportive care, 3 items focused on maternal-fetal monitoring, 9 items centered on performing basic nursing actions). Each item was scored 3 if competently performed; scored 2 if incompletely performed, and scored 1 if the task is not performed. Total score ranges from 20 to 60, the higher score indicates the better performance.

### **Tool 4: Students' satisfaction scale:**

This scale was developed from the National League for nursing (NLN, 2005) [16] It consists of 5 items that was originally designed to assess students' satisfaction regarding the both methods. The scale was adapted by replacing the word simulation to video based simulation, to measure the students' satisfaction with the two assigned learning experiences either video simulation or conventional. Each item was scored using a 5 point Likert scale which categories and scored as: Strongly disagree scored 1, disagree scored 2, undecided scored 3, agree scored 4, while strongly agree scored 5. Total score ranged from 5 to 25, the higher score indicates the higher satisfaction.

### **Tool validity and reliability:**

Validity of the developed tools was achieved by 5 panels of experts in the field of maternity nursing and psychiatric nursing and no modifications was needed. The tool reliability of the STAI was evaluated by Rule & Traver, 1983 [17] which using 29 undergraduate students before and after a stressful social analogue situation. Concurrent validity between the STAI Anxiety Scale and to other scales that measure anxiety was evaluated by Spielberger, et al, 1995[18].

### **The Pilot study:**

Prior to data collection, pilot study was conducted on (10) students from each group. It was carried out to evaluate the content validity, efficiency of the tool, and to find the possible obstacles and problems that might be faced during data collection. Students included in the pilot study were excluded from the sample, to avoid contamination of research sample.

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### Ethical Consideration:

For conduction of the study, a written permission was taken from the dean of the faculty of nursing. Helwan University and an official letter were sent to the selected area of the study. The aim of the study was explained to every student before participation. Data collection was anonymous, and confidentiality of the data was secured. Data collection was used for research only and it burned after data analysis.

### The Field of Work:

- Data collection for this study was carried out from the beginning of 1<sup>st</sup> semester to the end of 2<sup>nd</sup> semester of the academic year 2014 -2015.
- The researchers explain the aim of the study to the all students and reassure them that information collected would be treated confidentiality and that it would be used only for the purpose of the research without implication for their course grade.
- Generally, all students during either first or second term were assessed for personal data by self-administered questionnaire. Each interviewing time ranged from 15-20 minutes. Either control group or study group were divided into 5 sub-groups, each group (20) students. Training for labor and delivery care was provided for each group over a period of four weeks by using traditional lab and clinical training of maternity hospital.

### Control/Traditional Group:

- All students in the first term were enrolled as control group (Traditional lab) and all of them received a theoretical course in maternity nursing covering labor care skills.

They receive one theoretical lecture for 2 hours about management of normal labor and 6 hours practical training in the maternity lab skills at faculty of nursing. In lab skills, the researcher discuss the aim and requirements of the procedure and then demonstrate the management of 2<sup>nd</sup> and 3<sup>rd</sup> stages of labor and the fetal monitoring on a mannequin for 20 minutes. Then, each student practiced the same procedure for 15 minutes on the mannequin. All students were asked to divide themselves into pair teams; one assign the maternity nurse role, and the other assign the role of a nurse who is receiving the neonate, while the researcher assigned the obstetrician role in all teams and this role was not involved in the evaluation process. The posttest was done at clinical training of hospital to assess the students learning outcomes.

- **Study / Clinical Video Film Group:** All students in second term were enrolled as study group (clinical video simulation group) . At first, all of them receive the same educational content with the same manner in traditional lab as control group **plus** watching a 20-minute produced video portraying about management of normal delivery and care of laboring woman immediately before they first going to the real delivery room, also receive educational session for about 30-45 minutes power point presentation on the management of 2<sup>nd</sup> and 3<sup>rd</sup> stages of labor . After the session, the researcher allow the student 10-minute debriefing session providing immediate feedback to the students on their knowledge, skill performance, and clinical reasoning. The debriefing session aimed to answer questions, clarify concerns. The students' performance was evaluated by the assigned faculty supervisor using the developed observation checklist to maintain consistency of the scoring.

- **Evaluation phase:** Students of both groups were evaluated for the physiologic indicators for anxiety ( systolic & diastolic blood pressure, pulse rate ), and. all students were reported how much anxiety they felt by scoring visual analogue scale (VAS) and State Trait Anxiety Scale (STAI). Students' performance was evaluated by the observational checklist at the real delivery room where the students provide care for parturient women during second and third stages of labor .Also the student's satisfaction with the new clinical training experience was evaluated.

### Statistical analysis:

Data entry and statistical analysis were done using the Statistical Package For Social Science (SPSS) version 16.0 statistical software package. Socio-demographic characteristics, and anxiety scores were described by frequency, percentile, mean, and standard deviation.

Significance of results was considered as follows:

P < 0.01 Highly significant.

P < 0.05 Significant.

P > 0.05 Not significant.

### III. RESULTS

**Table (1):** This table illustrates the socio-demographic characteristics of the students. The mean of age of the students was 20.8 + 0.74 in video group compared to 20.7 + 0.81 in traditional lab group. As regard students gender there was 72.0% in traditional lab group compared to 67% in video film were females. Only 5.0% in video group compared to 2.0 of traditional lab group were married. Also more than three quarter of both video and traditional lab groups were have not prior experience with delivery (75% and 79% respectively). Totally there was no statistically significant deference between both groups regarding socio-demographic data.

**Table (2):** This table shows that the three physiological anxiety indicators were slightly lower in the video group than in the traditional lab group. The mean systolic BP and diastolic BP of the video group were 113.23±10.82mmHg and 73.18±9.49 mmHg, compared to 119.89±11.62 mmHg and 78.19±9.52 mmHg in the control group respectively. The mean pulse rate was increased in traditional lab group (88.79±8.94) than in video group (78.78±9.21), with highly statistically significant deference between the two groups. The two subjective anxiety indicators are also lower in the video group than in the traditional lab group with statistically significant deference between the two groups, where P values were .016 for STAI and .019 for VAS.

**Table (3)** Illustrates that the mean scores of all items related to normal vaginal delivery care were significantly higher in video training group compared to traditional group where P value was 0.000 for each. In addition, the total score was significantly higher in video group than traditional group where P value was 0.000.

**Figure (1):** Reveals that, the students in video group had a significant higher score of all items of satisfaction regarding the teaching method used compared to traditional lab group.

**Table (4):** Illustrates that, there was a significant correlation between the mean of total anxiety score and deferent age group where P value was .017. While, there was no significant correlation between gender and total anxiety scores in both groups.

**Table (1): Sociodemographic Characteristics for Two Studied Groups N= 200**

Sociodemographic Characteristics		Groups				X <sup>2</sup>	P. Value
		Video film		Traditional lab			
Age in Years (Mean±SD)		20.8+ 0.74		20.7 + 0.81		0.81	0.682
		No	%	No	%		
Gender	Female	67	67.0	72	72.0	0.047	0.829
	Male	33	33.0	28	28.0		
Marital Status	Married	5	5.0	2	2.0	0	1
	Single	95	95.0	98	98.0		
Residence	Rural	38	38.0	32	32.0	1.329	0.249
	Urban	62	62.0	68	68.0		
Prior Experience With Delivery	Through internet Video					T=11.392	0.07
	Self, Partner, or relative						
	No Experience	2	2.0	6	6.0		
		75	75.0	79	79.0		

\* Significant < 0.05

Table (2): Difference between both Groups Regarding Physiological Indicators and Subjective Anxiety Indicators (N=200)

Variables	Video Film N = 100	Traditional Lab N=100	T	P
<b>Physiological anxiety indicators :</b>				
Systolic blood pressure	113.23±10.82	119.89±11.62	3.439	.001*
Diastolic blood pressure	73.18±9.49	78.19±9.52	2.509	.040*
Pulse rate	78.78±9.21	88.79±8.94	3.440	.001*
<b>Total Anxiety Indicators :</b>				
STAI	40.25±11.29	48.46±8.92	2.440	.016*
VAS	6.14±3.73	7.81±4.02	1.32	.019*

\* Significant < 0.05

Table (3) Mean scores of the student performance toward care of normal vaginal delivery in both groups (n=200)

Score Items	Video Film N=100	Tradtional lab N=100	Sig. test
	Mean± SD	Mean± SD	
1. Preparation for delivery	13.84±1.79	8.42 ±1.68	t =15.622, p 0.000
2. Supportive care	9.60±0.64	6.12 ±1.33	t =16.630, p 0.000
3. Maternal-fetal monitoring	5.82±1.76	3.82 ±1.32	t =6.434, p0.000
<b>4. Basic nursing actions:</b>			
• Dry baby	6.31±1.20	5.01±1.02	t =9.725, p 0.000
• Cord cut	4.95±1.01	2.52±2.01	
• Injection	5.65±1.19	4.99±0.98	
• Handling baby	6.58±1.50	4.02±0.86	
• Placental examination	5.66±2.8	4.01±1.01	
• Helping in the suture	4.97±0.16	3.45±0.09	
• Immediate care of the newborn	8.36±1.02	5.88±1.09	
• Uterine assessment	6.25±0.02	4.09±0.36	
<b>Total Score</b>	48.73±8.9	33.97 ±7.4	t =18.820, 0.000

\*significant<0.05

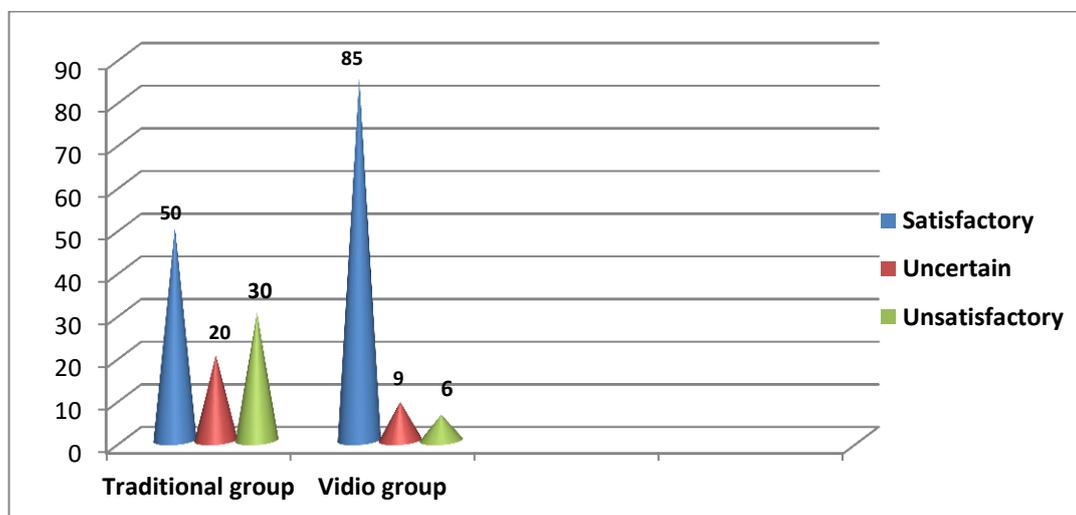


Figure (1): Students' satisfaction between both studied groups regarding the teaching method used.

Table (4) Relationship between age groups, gender and total anxiety scores among both groups

Variables	Total anxiety score (Video Film)	Total anxiety score (Traditional Lab )	T	P
<b>Age Groups :</b>	<b>Mean± SD</b>	<b>Mean± SD</b>		
18-20 years old	41.93±13.08	42.91±9.88	<b>2.426</b>	<b>.017*</b>
21-24 years old	37.50±7.29	41.64±6.92		
<b>Gender :</b>				
Male	40.32±10.11	40.48±8.61	<b>.008</b>	<b>.994</b>
Female	43.30±11.97	45.33±8.96		

\*Significant<0.05

#### IV. DISCUSSION

Clinical experiences have been recognized by nursing students as one of the most anxiety-producing components of the nursing program. High levels of anxiety during nursing education may have undesirable effects on students' learning and may also affect their performance, decision-making and caring capabilities [2] The current study aimed to evaluate the effect of video film about normal vaginal delivery care on maternity students' anxiety, satisfaction and their performance in delivery room. The present study findings revealed that there are significant improvement in students anxiety indicators after using video film about vaginal delivery care immediately before going to delivery room compared to the student receiving traditional lab only .This findings achieved the first research hypothesis " The anxiety level of student nurses after watching the video film will be significantly lower than of those who only trained by traditional laboratory training.". These results are in agreement with Purfeerst, (2011), who reported that, the clinical experiences have been identified by nursing students as one of the most anxiety-producing components of the nursing program [2]. High levels of anxiety and stress during nursing education may have negative effects on students' learning and may also influence students' performance, decision-making and caring capabilities. Also Putwain, Woods & Symes (2010)[5], found that a low academic self-concept was associated with higher worry and tension about their abilities to do well on a test. From the researchers' point of view, the students were very anxious toward the clinical area of delivery room because, it is the first time to manage laboring women; more than three quarter of the studied subjects have not any prior experience with delivery.

The study findings revealed that the video film students' group had achieved higher performance scores than only traditional laboratory training group, this results were accept the second study hypothesis “ The performance score of student nurses in the delivery room will be significantly higher in the video film group than the traditional lab group”. These results may be due to the clear and simple demonstration of normal delivery care through the high quality of educational materials utilized in C D videos. Also, the students were having curiosity regarding advancing technology of normal delivery care, this consequently reflected upon their high learning achievement. This results were in agreement with Young et al., (2012) [19] who studied the effect of simulation-based education on clinical competence in maternity nursing and indicated a higher clinical performance post simulation. Also the current study findings were harmonious with Marzouk, (2015) [ 20 ] who studied the effect of simulated delivery room classes on maternity nursing student's satisfaction and practical achievement .Furthermore, the study results were consistent with Bruce et al., (2009) [21] who studied a concurrent exercise between nursing students using a computer-assisted simulator and reported a statistically significant increase of knowledge among the pre and posttest scores for the graduate level students. Similarly the results of Dearmon et al., (2013) [ 22 ] who studied the effect of simulation-based orientation of baccalaureate nursing student preparing for their first clinical experience showed that the knowledge base of the students was significantly higher after the simulation-based orientation .On the other hand , Kim and Jang (2011) [23] who studied the effect of a simulation on cardiopulmonary care knowledge and new nurses’ clinical performance abilities concluded that the study group had significantly improved knowledge about cardiopulmonary care, more than clinical training group. While, the present study findings were in disagreement with Akhu-Zaheya et al., (2013) who studied the effect of simulation on knowledge gain, retention, and self-efficacy of nursing students in Jordan. They reported that there was no difference in knowledge acquisition or retention [ 24 ]

Regarding students' satisfaction of the two training methods, the current study results revealed that the students had higher score of satisfaction regarding video film as a training method compared to traditional lab one. This result supported the third study hypothesis "Maternity nursing students who trained by video film exhibit higher score of satisfaction than those who trained only by traditional lab." The significantly higher satisfaction score that was reported by the students of the video film group give them a chance to engage in real situation by watching scientific videos about normal delivery, demonstration and re-demonstration which encourage them to learn well and to increase their self-confidence during providing care in real setting and thus enhances their satisfaction levels. These results were in agreement with Marzouk, (2015) who revealed that students of the simulation group were reported a significantly higher satisfaction scores compared to the clinical training group [20] While the present study results were dispute with Alfes (2011) who assessed the use of simulation with beginning nursing students and showed that there was no statistically significant differences between the study and the control group related to satisfaction with learning. This difference of satisfaction may be explained by that, the satisfaction was evaluated with using different tools, different sample size, different methods, and in different specialties [25] In addition, the present study results were in disagreement with [26] who reported that there is no a significant difference in the satisfaction of students, who were trained caring for pediatric patients through simulation, compare to those trained through the traditional method. The cause of the inconsistency of these results with the present study could be the type of study, applied instruments, &/ or the difficulty of students to be engaged in new strategy that they were not costumed with in teaching clinical practice. .

#### V. CONCLUSIONS AND RECOMMENDATIONS:

It was evident from the present study findings that education through video film prior to entering clinical setting was highly significant effective method than only traditional lab training in reducing the maternity students' anxiety level and contributes to higher performance level. So based on the study results, it was recommended that providing the maternity nursing students with data show and large screen for easy showing the educational videos or simulated delivery room at clinical training setting is effective. The integration of advanced technology in educational/ learning process of nursing motivates the students to acquire highly learning outcome more than good clinical performance.

#### Limitations of the study:

The high number of students in each group participating in this study, because the literature suggests that four students in a group is more ideal (27).

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