Effect of Different Teaching Modalities on Neonatal Nurses' Performance about Neonatal Resuscitation

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Abstract

Background: Every neonate has the right to a resuscitation performed at a high level of competent. Every neonatal care unit must ensure that the nurse and physician provide high quality of including those attending the deliveries, are appropriate trained in neonatal resuscitations. Aim of the study was to assess the effect of different teaching modalities on neonatal nurses' performance about neonatal resuscitation. Research design: quasi experimental research design. Research Settings: the study was conducted in ten Neonatal Intensive Care Units selected randomly from all Neonatal Intensive Care units at Cairo governorate Subjects: sixty nurses were selected by simple random sample attend the delivery of neonate and provide immediate neonatal care for neonates, working at the previously mentioned settings. Nurses were divided into two identical group I(GI) received the traditional methods videotape then demonstration and group II(GII) received videotape then Competent based training Tools or data collection: questionnaire sheet to assess knowledge and Clinical performance monitoring indicator checklist to measure the application of neonatal resuscitation standard for neonatal resuscitation used for each nurse in each group three time pre, immediate post after the application of the different modalities of teaching after six months. Results: revealed that there was no statistically significant difference between (GI) and (GII) pre implementation of the different teaching methods while there was a highly statistically significant difference after six months. Conclusion: it could be concluded that competent based training was the best methods for teaching skill compared with the traditional methods demonstration. Recommendation: application of competent based training (Learning by doing) as a method for teaching neonatal resuscitation for all the neonatal nurses.

Keywords

Neonatal Resuscitation is intervention after a neonate is born to help neonate to breath and to help neonatal heartbeat. Before a neonate is born, the placenta provides oxygen and nutrition to the blood and removes carbon dioxide. After a neonate is born, the lungs provide oxygen to the blood and remove carbon dioxide (Travers & Ambalavanan, 2021).

The successful transition from intrauterine to extrauterine life is dependent upon significant physiologic changes that occur at birth. In almost all infants (90 percent), these changes are successfully completed at delivery without requiring any special assistance. However, about 10 percent of infants will need some intervention, and 10 percent will require extensive resuscitative measures at birth (Zhang et al., 2020).

The first moment of a newborn life can be critical. This time when the neonate is making an abrupt transition from mothers, uterus to be extrauterine environment. A major problem that can be arise during this time is asphyxia (Patel et al., 2019), Immediately after delivery and within one minute of umbilical cord clamping, spontaneous respiratory start. Clamping the cord result in hypoxemia, which is the main stimulus for respiration. Physical stimulus as or tactile stimulation respiration simple after. Simple assessment depends on the three variables, including color, respiratory effort and the heart rate (Pickup et al., 2019).

Neonates are more often subject to asphyxia and are more likely to be in need of resuscitation than any other age group (Patel et al., 2019). Every neonate has the right to a resuscitation performed at a high level of competent Every neonatal care unit must ensure that the nurse and physician provide care including those attending the deliveries are Appropriate trained in neonatal resuscitation.

Birth asphyxia has been identified by the WHO as the most frequent cause of early deaths worldwide, accounting for about 20% of neonatal mortality (Desalew et al., 2020). Although prompt resuscitation after birth can prevent many of the deaths and reduce disabilities in survivors from birth asphyxia, the WHO has concluded that resuscitation is often not initiated or the methods used are inadequate or wrong training healthcare providers in standardized formal neonatal resuscitation training (SFNRT) programmer may improve neonatal outcomes.

All of us researchers, educator, physician and neonatal nurses must work together to provide the education and training to achieve this. Selecting the best method of teaching neonatal resuscitation is one of essential academic teacher role. Different methods of teaching can be used Competency-based training (CTB) methodology is learning by doing (Dudding et al., 2022). It was first successfully introduced during the Child Survival Project, continued during the Mother Care Project, and later refined by Master Trainer and Clinical Supervisor from the Health Mother/Healthy Child Project.

Implementing CBT, emphasis is placed on how participants apply the acquired knowledge, attitude and skills required for specific job tasks Implementing (CBT) may offer greater opportunity than real-life situations for explicit teaching and learning and the purposeful refinement of relevant knowledge and skills. Further, such training has the potential to improve clinical decision n making, sharpen skills, increase confidence as team leaders, and improve overall teamwork (Dudding et al., 2022).

Significance of The Study

Approximately 10% of newborns require some assistance to begin breathing at birth. About 1% requires extensive resuscitative measures Desalew et al. (2020). Although the vast majority of newly born infants do not require intervention to make

the transition from. Birth asphyxia contributes to 19% of the 4 million neonatal deaths worldwide every year. In addition to its contribution to mortality, birth asphyxia can result in cognitive impairment, epilepsy, cerebral palsy, and chronic diseases in later life. Approximately 10% of newborns (4–7 million per year) require some form of assistance at birth. This makes neonatal resuscitation a frequently performed medical intervention (Dempsey et al., 2015).

Every delivery should be attended by at least 1 skilled person whose only responsibility is the management of the newborn. In CBT simulate different scenarios to ensure that place have sufficient personnel and the trained team should perform all necessary procedures quickly and efficiently. For a complex resuscitation, this will require 4 or more people (Katheria, Rich, & Finer, 2013).

Aim of The Study was to

Assess the effect of different teaching modalities on neonatal nurses' performance about neonatal resuscitation.

Research hypothesis

There is a statistically significant difference between the two different teaching modalities.

Method

Research Design

A quasi-experimental research design was utilized to conduct this study. Two group pretest posttest design was adapted.
Independent variable: In this study independent variable is the different teaching modalities.
Dependent variables: In these study dependent variables is the neonatal nurses' performance.

Research Settings

The study was conducted at ten Neonatal Intensive Care Units selected randomly from all Neonatal Intensive Care units at Cairo governorate.

Study participants

Sixty nurses were selected by simple random sample. Six nurses from each neonatal unit, working at the previously mentioned settings. Nurses were divided into two identical groups. Videotape plus demonstration were used to Group (I) GI and Videotape plus Competency-based training (CTB) were used to Group (II) GII.

Tools of Data Collection

Data were collected by using of the following tools: The first tool was a questionnaire sheet: It was designed by the researcher after reviewing the current available literature and it was written in Arabic Language to suit all nurses' categories. It was adapted by the researcher from the written examination for neonatal resuscitation design by American Heart Association and American Academy of Pediatric 1987, 1991 and modified at 2010. It included the characteristic of the studied nurses such as age, educational level, year of experiences and previous training.

The questionnaire sheet consisted of 6 parts. Each part design for specific lesson concerning neonatal resuscitation. The questions in form Matching, True and False, Multiple choices, fill in and case situation it was used Pre and Post implementation the different teaching modalities demonstration versus CBT.

Instrument Measures

Each part has its score according to the numbers of items included as the following. Preparing for Resuscitation (10) (two point can be missed, Initial Steps of Newborn (20), Positive-Pressure Ventilation (15), Alternative Airways (10), Chest Compressions (5), Medications (10), Total Successful completion of the posttest requires a score of at least 10, 20, 15. 10. 5 and 10 Total score 70 (two point can be missed from each part i.e., 2 items only can be missed 12 score from the total can be missed. Successful completion of the posttest requires 58 < 70 the total mean scored then was calculated suitable statistical test was

performed the different between total mean score GI and GII.

The 2nd tool was a clinical performance monitoring indicator to measure the application of neonatal resuscitation standard for neonatal resuscitation used for each nurse in each group Pre and Post implementation the different teaching modalities. A clinical performance monitoring indicator is a performance checklist of items was created, validated, and modified in sequential phases involving: an expert committee, review, and feedback by Neonatal Resuscitation Program instructors for feasibility and criticality and use of the performance checklist by Neonatal Resuscitation Program The final 20-item performance checklist was assessed by the researcher three time pre, immediate post after the application of the different modalities of teaching, later after six months. Each studied nurse was evaluated using clinical performance monitoring checklist for application of neonatal resuscitation standard checklist to evaluate neonatal performances for the two groups.

Scoring System

Competent neonatal nurse performs 100% which is regarded as complete and correct. Competent i.e., successfully perform the initial steps and all steps on a neonatal manikin ability to demonstrate, perform the procedures, make correct decision and take the appropriate action based on those decision. Incompetent neonatal nurse performs incomplete, missing one or more steps or make incorrect decision or inappropriate action.

Validity

Content validity of the questionnaire sheet was submitted to a panel of 4 of neonate physician and pediatric nursing experts with more than ten years of experience in the field. Modifications of the tools were made according to the panel's judgments on clarity of sentences, appropriateness of content, sequence of items and accuracy of scoring and recording

Reliability

Test- retest reliability was performed to confirm reliability of the tools. Cronbach' s ecoefficiency alpha ranged between 0.6- and 0.9-person correlational coefficient indicated high internal consistency, as it ranged between 0.6 and 0.8. The findings from validity and reliability suggested that the tools of the study could form viable tools and might be used as a data collection tools for the current study.

Pilot Study

Henceforth, pilot study was carried out on 6 neonatal nurses those represent 10 %, the results of the data obtained from the pilot study helped in modifications of the study tools in form of decrease the number of True and False, Multiple choices, fill in questions The studied nurses in the pilot study were excluded from the studied subjects.

Ethical Consideration

Before the study begun, the researcher reviewed the past and current, available local and international related literature using available books, articles, periodicals and magazines to be acquainted with the various aspects of the research problem.

The research approval was obtained from the scientific research ethical committee in the Faculty of Nursing, Ain Shams University. Consent was obtained from after a brief explanation for the aim of the study from the selected nurses. as well as assured about confidentiality of data collected that were used for the purpose of the study only. Nurses were informed that the withdrawn was the right of each one from the study at any time without giving any reason.

Data Collection

The actual field work stated at the beginning of

Sep. (2013) and was completed by the end of March (2014). The researcher was available two day/weekly (Thurs, and Saturday) for 6 weeks to collect the pretest and another 12 weeks for the practice during morning and afternoon shift using the previously mentioned study tools. The researcher started by introducing giving the brief idea about the aim of the study. Verbal and written consent was obtained from the nurse to share in the study. The researcher distributes the questionnaire sheet at time which arranged with each unit on Thursday and Saturday weekly for 5-6 week successively. Each time 4 to 6 nurses respond the questioner within 30 -45 minute. Followed by watching and listening to American Heart Association of Neonatal Resuscitation Videotape. The immediate posttest was performed for each group. After 6 weeks the researcher starts to implement the different teaching methods. The demonstration and redemonstration for GI and CBT for GII. The researchers met each group twice/week for 45 to 60 minutes. The time of implementation was from 6-7 week for each group. So, the implementation of the was achieved with 6-7 months.

Group (1) watching and listening to American Heart Association of Neonatal Resuscitation Videotape then the researcher practicing of neonatal resuscitation step by step on manikin followed by practicing of each studied neonatal nurse on manikin.

GII application of CBT is learning by doing the Six lessons concerned neonatal resuscitation. Each lesson had learning objectives based on skill outline in CBT task analysis and reflected in the content of the clinical protocol .Start with a purpose story, intended to motivate learner, schedule illustrated each part and the sequences for developing basic competency and skill mastery the neonatal resuscitation at work place, each session plan address specific tasks, should be used as a training guideline competencies and skill and provided, observable learning objective for each skill listed. Subsequent lessons were situational awareness, Initial Assessment: determine if the newborn can remain with the mother or should be moved to a radiant warmer for further evaluation. Airway (A): Perform the initial steps to establish an open Airway and support spontaneous respiration Breathing (B): Positive-pressure ventilation is provided to assist Breathing for babies with apnea or bradycardia. Other intervention (continuous positive airway pressure [CPAP] or oxygen) may be appropriate if the baby has labored breathing or low oxygen saturation.

The neonatal resuscitation plan was designed in 6 sessions. Each studied nurse had attended the 6 session and repeats each task on manikin and provision and guidance by the researcher. In each unit 3nurses received Neonatal Resuscitation training by demonstration redemonstration modality in Thursday and CBT modality in Saturday. So, the researcher ensures that at least one nurse well trained to be present during delivery in each unit.

Moreover, an official permission was taken from the hospital administrator to start the study, as well as the hospital administrator after and the director of each unit asks the researcher to train the neonatal staff. Each hospital determined the time met with the subjects individually to explain to the purposed the study and to obtain their consents and cooperation.

Data Analysis Techniques

After data were collected, data were coded and transferred into specially designed formats (Excel program) to be suitable for computer feeding. Frequency analysis and manual revision were used to detect possible error. The data was statistically analyzed using the statistical Package for the Social Science (SPSS) done, using (SPSS) version 16.0 statistical software package data were preferred using descriptive statistics in the form of frequencies, percentage for qualitative, means and

standard deviation for quantitative data, quantitative continuous data categorical variable was compared using chi-square test.

Results

Table (1): Shows that the total means score knowledge for (GI) pre was 28 + 4.9 pre and the total means score knowledge for (GII) pre was 26.5 + 6.4. Comparison the two mean(t1) There was no statistically significant differences between GI and GII in total knowledge regarding neonatal resuscitation before the application of the two different methods of teaching as t =1.019 at P level 0.312.

While there was a highly statistically significant difference between pre and post for GI in total knowledge regarding neonatal resuscitation as t3 =15.9 at P level 0.001 as well as there was a highly statistically significant difference between pre and post for G (I I) in total knowledge regarding neonatal resuscitation as t4 =25.2 at P level 0.001. But the mean total score post application the two different methods of teaching regarding neonatal resuscitation for G I was45+3.1 while GII was 62+4.31 comparison the mean score total knowledge proved that there was a highly statistical as t=17.53 at P level <0.001.

Figure (1) Shows that there was a highly statistically significant difference between GI and G (II) in total knowledge regarding neonatal

resuscitation post application of the two different methods of teaching demonstration versus CBT.

Table (2) Shows There was no statistical significant differences between GI and GII in total performance pre implementation of different teaching modalities demonstration versus competent based training (learning by doing) as X20.000 at P level 1.000but there was a highly statistical significant difference between GI and G(II) in total performance level regarding neonatal resuscitation post application of the two different methods of teaching demonstration versus CBT as X2 2=14.35 at 0.001 significance level. While there was a highly statistically significant difference between pre and post demonstration for GI as in pre only 6.7% were competent compared to 40.0% post implementation but there was a highly statistically significant difference between pre and post in the performance level for GII as in pre 6.7% were competent compare to 90.0competent post implementation of CBT as X4=38.4 at 0.001 significance level.

Figure (2) there was a highly statistically significant difference between GI and G (II) in total performance level regarding neonatal resuscitation post application of the two different methods of teaching demonstration versus CBT.

Table (1): Comparison between the Two Groups by their Total Mean Score Knowledge Regarding Neonatal Resuscitation Per and Post Different Teaching Modalities

Item	Group 1(GI)		Group II(GII)		t_1 (p-value)	t_2 (p-value)	t_3 (p-value)	t_4 (p-value)
	Pre	Post	Pre	Post				
Preparing for Resuscitation (10)	3±1.1	6±1.1	2.5±1.2	9±1.0	1.682 (0.098)	11.053 (<0.001**)	10.563 (<0.001**)	22.792 (<0.001**)
Initial Steps of Newborn (20)	10±1.0	13±1.1	10±2.2	18±1.0	1.133 (0.262)	18.422 (<0.001**)	11.053 (<0.001**)	18.132 (<0.001**)
Positive-Pressure Ventilation (15)	7±1.1	12±0.1	6±1.1	13±1.1	3.521 (0.008*)	4.959 (<0.001**)	24.794 (<0.001**)	24.646 (<0.001**)
Alternative Airways (10)	3±1.1	5±0.2	3±1.2	8±1.1	0.336 (0.738)	14.697 (<0.001**)	9.798 (<0.001**)	16.823 (<0.001**)
Chest Compressions (5)	2±0.5	4±0.5	2±0.5	5±0.01	0.775 (0.442)	10.952 (<0.001**)	15.492 (<0.001**)	32.857 (<0.001**)
Medications (10)	3±0.1	5±0.1	3±0.2	9±0.1	0.024 (0.981)	154.919 (<0.001**)	77.460 (<0.001**)	146.969 (<0.001**)
Total (70)	28±4.9	45±3.1	26.5±6.4	62±4.31	1.019 (0.312)	17.538 (<0.001**)	15.969 (<0.001**)	25.200 (<0.001**)

T1: Comparison between G 1 and G II in pre implementation the different teaching modalities **T2:** Comparison between G 1 and G II in post

implementation the different teaching modalities **T3:** Comparison between pre and post for G (I)those received Videotape plus demonstration as

a teaching modality.

T4: Comparison between pre and post for G

(II)those received Videotape plus CBT as a teaching modality.

Table (2): Percent of competent achieved by different teaching modalities regarding neonatal resuscitation

Performed Item	Group 1								Group 2								X₂ (p-value) (1)	X₂ (p-value) (2)	X₂ (p-value) (3)	X₂ (p-value) (4)
	Pre				Post				Pre				Post							
	Competent		Incompetent		Competent		Incompetent		Competent		Incompetent		Competent		Incompetent					
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%				
Preparing for Resuscitation	2	6.7	28	93.3	10	33.3	20	66.7	3	10.0	27	90.0	28	93.3	2	6.7	0.150 (0.698)	20.742 (<0.001**)	5.104 (0.024*)	38.443 (<0.001**)
Initial Steps of Newborn	3	10.0	27	90.0	12	40.0	18	60.0	2	6.7	28	93.3	27	90.0	3	10.0	0.150 (0.698)	14.359 (<0.001**)	5.689 (0.017*)	38.443 (<0.001**)
Positive-Pressure Ventilation	2	6.7	28	93.3	14	46.7	16	53.3	2	6.7	28	93.3	27	90.0	3	10.0	0.000 (1.000)	11.091 (<0.001**)	10.313 (<0.001**)	38.443 (<0.001**)
Alternative Airways	2	6.7	28	93.3	16	53.3	14	46.7	2	6.7	28	93.3	28	93.3	2	6.7	0.000 (1.000)	10.313 (0.002*)	13.413 (<0.001**)	41.667 (<0.001**)
Chest Compressions	3	10.0	27	90.0	14	46.7	16	53.3	2	6.7	28	93.3	27	90.0	3	10.0	0.150 (0.698)	11.091 (<0.001**)	8.208 (0.004*)	38.443 (<0.001**)
Medications	1	3.3	29	96.7	8	26.7	22	73.3	1	3.3	29	96.7	28	93.3	2	6.7	0.000 (1.000)	25.069 (<0.001**)	4.706 (0.030*)	45.117 (<0.001**)
Total	2	6.7	28	93.3	12	40.0	18	60.0	2	6.7	28	93.3	27	90.0	3	10.0	0.000 (1.000)	14.359 (<0.001**)	7.547 (0.006*)	38.443 (<0.001**)

$1=x^2$: Comparison between group 1 and group 2 in pre implementation of the different teaching modalities

$2=x^2$: Comparison between G 1 and GII in post implementation of the Video + Demonstration for GI and Video+ CBT for GII

$3=x^2$: Comparison between pre and post in implementation of the Video + Demonstration for GI

$4=x^2$: Comparison between pre and post t implementation of the Video + Competent based training CBT for GII

Discussion

The need for resuscitation and assistance during the immediate transition from fetal life is seen in up to 10% of all infants. Preterm infants, because of their anatomical and physiological characteristics need more resuscitative interventions at birth and are at increased risk for developing major short- and long-term morbidities. These morbidities are potentially modifiable by delivery room well trained team resuscitation strategies in the first minutes of life.

The current study was aimed to study the effect of different teaching modalities on neonatal nurses' performance about neonatal resuscitation. The study was conducted at ten Neonatal Intensive Care Units selected randomly from all Neonatal Intensive Care units at Cairo governorate.

Represent all type of neonatal intensive care Governmental and nongovernmental. Sixty nurses were selected by simple random sample attend the delivery of neonate and provide immediate neonatal care for neonates, working at the previously mentioned settings. Nurses were divided into two identical group (GI) received the traditional methods videotape then demonstration and (GII) received videotape then Competent based training.

On determining the effectiveness of different teaching modalities on neonatal nurses' knowledge about neonatal resuscitation the study revealed that there was no statistical significant difference between (GI) and (GII) pre implementation of the different teaching methods regarding the essential evidence base scientific knowledge for Preparing of Resuscitation, Initial Steps Resuscitation, and Newborn initial Steps Positive-Pressure Ventilation, Alternative Airways, Chest Compressions and medications.

The two groups before implementation forget to turn on the radiant warmer, check resuscitation supplies and equipment before starting the initial resuscitation. Suction equipment, Bag-and-mask equipment, Intubation equipment were completely neglected. Nurses consider this equipment is physician responsivity. Regarding medication the nurses consider only Epinephrine (1:10,000 solutions).

Pre implementation the highest mean scores the both groups had gained was for initial steps for resuscitation. The researcher reaches into conclusion that the highest mean score for this task that neonatal nurses suggest that this is the main role then the physician take the other role.

The purpose of teaching using a demonstration method is to show the process of occurrence of an event according to the teaching materials, how they are attained and the ease to be understood by the studied nurses in teaching learning process. The comparison between pre and post total knowledge for G (I) those received Videotape plus demonstration as a teaching modality revealed that there was a highly statistically significant difference between total knowledge regarding neonatal resuscitation for pre and postimplementation the demonstration for GI.

The present study there was a highly statistically significant difference between pre and post for total knowledge regarding neonatal resuscitation in G (II). Those how trained by CBT. Competence is defined as 'the ability to do something successfully', that is, the ability to perform a given task. In learners simply have to demonstrate. Nurses can do a task, activity or exercise well enough to be assessed as "competent" In other words; nurses must be successful at the task they are given to complete.

On investigation the mean total score post application the two different methods of teaching regarding neonatal resuscitation for G I and GII comparison the mean score total knowledge proved that there was a highly statistical between the two-group post implementation. This is indicating that the CBT is best method compared with demonstration. This is due to the fact that in CBT what was gained was the actual should be performed.

Every delivery should be attended by at least one trained person whose only responsibility is the infant, and who is capable of initiating resuscitation. Either that person or someone else who is immediately available should have the skills required to perform a complete resuscitation. When resuscitation is anticipated, additional personnel should be present in the delivery room before the delivery occurs. The present study the researcher tries to find out the most suitable methods for practical teaching that enable the neonatal nurses to apply the evidence-based knowledge in the actual patient situation. The neonatal nurses should have judged, problem solving and prioritizing the task according to situation analysis.

On performing comparison between neonatal nurses' performances GI versus GII in pre implementation the different teaching modalities it was clear that was no statistically significant differences between GI and GII in total performance pre implementation of different teaching modalities demonstration versus competent based training (learning by doing).

All studied nurses exposed to the same situation and asked to perform according to the studied protocol for neonatal resuscitation. The researcher directly supervision the studied nurses for fulfillment of the criteria according to the protocol and checklist for Equipment, initial assessment to determine whether resuscitation is required. None of studied nurses have approximately 30 seconds to achieve a response from one step before deciding whether neonate need to go on to the next.

Evaluation and decision making are based primarily on respirations, heart rate, and color. As well as nurses did not realize that the Apgar score is not used to determine when to initiate resuscitation or in making decisions about the course of resuscitation. Resuscitation is in seconds not minute.

The studied nurses did not recognize that if the infant is still apneic, tactile stimulation is performed by slapping or flicking the soles of the feet or by gently rubbing the back once or twice and evaluate respiration, heart rate (counted in 6 seconds then multiplied by 10 and color. All of them started to perform intubation and cardiac massage.

Most of the research has illustrate a positive nurses' responses to learning by demonstration.

All studied nurses showed interest in demonstration than other methods of teaching. The present study revealed that there was a highly statistically significant difference between pre and post demonstration for GI but none of the studied nurses had reached the competent level as described by the protocol. Videotapes have many educations uses and application it is not expensive and easily manipulated Video tapes ensure that the resuscitation protocol is done exactly as the same instruction. in relation to GI none of the studied nurses reached the desired competent level in spite of being a highly statistically significant difference between pre and post demonstration for GI post demonstration.

As the comparison between neonatal nurses' performances regarding Neonatal Resuscitation Per and Post implementation of Videotape plus demonstration for G 1 the current study revealed that there was a highly statistically significant difference between pre and post demonstration for GI. Comparison between pre and post for G (I)those received Videotape plus demonstration as a teaching modality

Neonatal nurses' performances GI versus GII in pre implementation the was different teaching modalities The present study revealed that there a was statistically significant difference before and after implantation Video plus demonstration to GI related to for Preparing of Resuscitation, Initial Steps Resuscitation, and Newborn initial Steps Positive-Pressure Ventilation, Alternative Airways, Chest Compressions and medications.

On investigation the differences between neonatal nurses' performances regarding neonatal resuscitation per and post implementation of Videotape plus Competent based training GII the present proved that there was a highly statistically significant difference between pre and post in the performance level for GII as the majority of the studied group had reached to the competent level.

The researcher practices a variety of scenarios to ensure that studied nurses have sufficient personnel immediately available to perform all of the necessary tasks for neonatal resuscitation. If the neonate is breathing and heart rate is more than 100 beats/minute but with central cyanosis, free-flow oxygen (5-8 L/minute) is administered by an oxygen mask held firmly over the infant's face, or oxygen tubing cupped closely over the neonate's mouth and nose. the neonate is apneic /gasping or heart rate is less than 100 beats/minute, even if breathing or central cyanosis persists despite 100% free flow oxygen, positive pressure ventilation is indicated.

None of GI in case of persistent apnea give positive pressure ventilation. As well as Positive pressure ventilation (PPV) is performed using a resuscitation self-inflating bag with a reservoir. None of GI emphasis for oxygen reservoir. Ventilate with a rhythm of (breathe, two, three, breathe, two, three, etc.,), and at a rate of 40-60/minute. None of GI ventilate with the lowest pressure required to move the chest adequately. The first few breaths will often require higher pressures (30-40 cmH2O) and longer inflation time than subsequent breaths (15-20 cmH2O). Its improvement during PPV is indicated by a rapid increase in heart rate and subsequent improvement in color and oxygen saturation, muscle tone and spontaneous breathing. If there is no physiologic improvement and no perceptible chest expansion during PPV, the following actions should be attempted.

None of GI Reapply mask to face using light downward pressure and lifting the mandible upward the mask. Reposition the head. Check for secretions; suction mouth and nose. None of GI After 30 seconds of PPV, evaluate the heart rate: Heart rate >100 beats/minute → evaluate the color and if cyanosed give free flow oxygen as before. Heart rate >60 but <100 beats/minute → repeat PPV for 30 seconds.

Heart rate <60 beats/minute → provide PPV with chest compressions for second.

Minority of the studied nurses GI performs one cycle of three compressions and one breath takes 2

seconds. During chest compression, ensure that chest movement is adequate during ventilation, supplemental oxygen is being used, compression depth is one third the diameter of the chest, pressure is released fully to permit chest recoil during relaxation phase of chest compression, thumbs or fingers remain in contact with the chest at all times.

Heart rate is >100 beats/minute, discontinue compressions and gradually discontinue ventilation. If the newborn is breathing spontaneously. If heart rate is >60 beats/minute, discontinue compressions. The heart rate is <60 beats/ minute, give epinephrine, preferably intravenously, and intubate the newborn if not already done.

Group I did not realize the fact that one person experienced in endotracheal intubation should be available to assist at every delivery. Intubation procedure ideally should be completed within 20 seconds. Also, GI did not emphasis for Chest x-ray confirmation, if the tube is to remain in place post initial resuscitation.

A cardiac stimulant, that is indicated when the heart rate remains below 60 beats/minute, despite 30 seconds of assisted ventilation followed by another 30 seconds of coordinated chest compressions and ventilation. The IV (through the umbilical vein. Endotracheal administration may be considered.

Neonatal nurses' achievement is evaluated against common learning standards and consistently applied to all nurses' performance expectations that are all forms of assessment are standards-based and criterion-referenced, and success is defined by the achievement of expected standards, not relative measures of performance nurse- to-nurse comparisons. With the advances in neonatal care, most of the newborns, even those with severe respiratory problems, can be salvaged. Anticipation and preparation are the first observation and repeated examination is the key to successful management of neonatal essential steps in successful management.

Comparison between neonatal nurses' performances G1 and GII post implementation the different teaching modalities the present study illustrated that there was a highly statistically significant difference between GI and G (II) in total performance level regarding neonatal resuscitation post application of the two different methods of teaching demonstration versus CBT which together with studied nurses.

Conclusion

The study concluded that, CBT for as a teaching modality for neonatal resuscitation had a statistically significant effect on gaining knowledge as well as improving the skill and facilitates problem solving and coping skills to achieve the desire competent level to perform neonatal resuscitation safety. The researcher now be sure that in the ten selected NICU there is at least one skilled person whose only responsibility is the management of the newborn at every delivery. Competency-based training (CTB) methodology is learning by doing is the best methods for teaching skill compared with the traditional methods demonstration.

Recommendations and Implications

The study could be recommended: For the usage Competency-based training (CTB) methodology is learning by doing as the best methods for teaching skill up till discovery others new trend. Further research studied is needed in order to be able to generalizing the results.

The findings of the study have several implications for the following fields such as nursing administration, nursing services, nursing education, general education, neonatal education and nursing research.

- **Nursing Administration:** nurse administrator should encourage the nursing staff for the cost-effective production of the "CBT" as a strategy for in job training. Moreover, administrator should motivate the nurse educators in planning and arranging the planned teaching program based on CBT.
- **Nursing Service:** nursing service department the panel of adequately prepared nurses for developing and implementing CBT educational programs for newly employee the

teachers and authorities to organize a planned educational program for higher education.

- **Nursing Education:** nursing curriculum should include more content on the different aspects of neonatal resuscitation,
- **Public Education:** carefully prepared Neonatal educational programs as a part of mass education will be useful in creating awareness among the general public, instead of preparing advertisements only on. Nurses are a vital source in educating the public through such programs and health education.
- **Nursing Research:** since nursing studies in this area of education neonatology is few, tool-technique can be used for further research studied. Further the investigator may utilize the suggestions and recommendations for conducting further studies.

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