Massage Therapy Guidelines for Nurses Regarding Improving Weight of Preterm Neonates

* Yara Mohamed Hassan Elsorat, **Faten Shafik Mohmoud, ** Samah Mostafa Khalaf,
* Technical Nursing Institute, Faculty of - Benha University, **Pediatric Nursing, Faculty of Nursing, Benha University Lecturer of Pediatric Nursing ,Faculty of Nursing , Benha University.

Abstract

Aim : this study was aimed to assess massage therapy guidelines for nurses regarding improving weight of preterm neonates through; ass nurses' knowledge and practice regarding massage therapy and evaluate effect of massage therapy on preterm' weight .**Design**:A quasi-experimental design was used to conduct the study .**Setting :**The study was carried out at neonatal intensive care units (NICU) of Benha University Hospital ،Benha Teaching Hospital and Specialized Pediatric Hospital .**Sample :**A simple random sample of 60 preterm neonates admitted to the NICU and 60 nurses in the previously mentioned settings .**Tools of data collection** :Two tools were used: tool (1) interviewing questionnaire including three parts and tool (2) including three parts .**Results** :The results revealed that. Total knowledge was higher in posttest than pretest. Total practice was higher on posttest than pretest. There was positive correlation between total nurses' knowledge and their total practice on pretest and posttest. There was a statistical significance correlation between total nurses' practice and total weight of preterm neonates. Preterm neonates' weights improve at posttest than pretest .**Conclusion** : The study concluded that, the guidelines were effective in improving nurses' knowledge and practice regarding preterm neonates massage therapy .**Recommendations** :the study recommended that nurses need continuous training programs to improve their knowledge and practice regarding preterm neonates massage therapy.

Key words: Nursing care ،Preterm neonates ،massage therapy .

Introduction

Preterm neonates is defined as childbirth occurring at less than 37 weeks or 259 days of gestation, so it is a major determinant of neonatal mortality and morbidity and has long term adverse consequences for health. The survival rate of preterm infants with LBW has been increasing since the 1980s because of the advancement in high-technology neonatal care preterm infants are at high risk of suffering from various kinds of developmental impairment. One of these impairments is gastrointestinal dysmotility, a condition that commonly affects preterm infants, is particularly significant. Underdeveloped gastrointestinal function and immature peristaltic activity result in poor

weight gain and prolonged parenteral nutrition requirement *(WHO, 2012).*

Preterm neonates' massage therapy can promote weight gain, increase gastric motility and vagal activity in preterm infants. The vagal activity refers to the activity of the vagal nerve. In addition to ʻraising in vagal activity and gastric motility are significantly related to weight gain as observed in infants who receive massage therapy. Moreover, increased activity can promote growth and development in preterm infants. Vagal stimulation in preterm infants through a moderate-pressure massage may enhance gastric motility and increase the release of food absorption hormones, which contribute to weight gain*) Global Journal of Health science.(2015ʻ*

Massage therapy is one of the oldest health care practices known to history. References to massage therapy are found in Chinese medical texts more than 4,000 years old. Today, massage therapy is one of the most popular healing modalities. It is defined as any of a number of techniques in which the body surface and musculoskeletal system are stroked, kneaded, pounded and pulled. Massage therapy has a time-honored history in medicine that stretches back to ancient Greece: Hippocrates was an early advocate of massages, and recommended them on a daily basis to ease pain and prevent stiffness *(American Massage Therapy Association, 2011).*

In recent days, Massage therapy has been attracted by nursing staff in neonatal intensive care units (NICUs), and in this regard Massage therapy is one of the most nursing performances for increasing premature infants' weight. So, nurses should be aware of the effect of guidelines that help them for better provision of the care and increasing their quality in applying preterm neonates' massage therapy. As the Correct usage of the guidelines lead to quality promotion and makes the nurses responsible for their practice *(Chan et al., 2015).*

Moreover, for maintaining and developing standard guidelines, it is necessary for the nurses to develop and organize their knowledge and practice regarding effect of massage therapy on weight gain of preterm neonates. Also, nurses should update their knowledge about benefits of neonatal massage therapy by periodic follow up of recent guidelines in neonatal massage therapy at NICUs *(Badr et al., 2011).*

Significance of the study:

It has been argued that preterm neonates are high risk groups. So, they are exposing to several situations that affect their growth and development such as; hypothermia, stress during blood sample and decrease in their weight. Massage therapy is a method that is believed to increase weight of preterm neonates *(Indian Pediatrics, 2010).* So, this study will conduct the massage therapy to improve weight gain in preterm neonates and enhance nursing knowledge and practice about benefits of massage therapy in weight gain of preterm neonates.

Aim of the study

The study aimed to:

Assess massage therapy guidelines for nurses regarding improving weight of preterm neonates through:

- Assessing nurses' knowledge regarding massage therapy.

- Assessing nurses' practice regarding massage therapy.

- Evaluating effect of massage therapy on preterm' weight.

Research hypothesis:

1) Nurses will have satisfactory knowledge related to massage therapy after implementing massage therapy guidelines.

2) Nurses will have competent practice in application of massage therapy.

3) Preterm neonates' weight will be improved after implementation of massage therapy guidelines.

Subjects and Method

Research Design:

A quasi-experimental design was used to fulfill the aim of this study.

Setting of the study:

This study was carried out at neonatal intensive care units (NICU) of Benha University, Benha Teaching hospital and Specialized Pediatric hospital at Benha city.

Sample :purposive sample.

Sample Size:

-The available (60) nurses working at previously mentioned settings who accept to share in the study.

-The available (60) preterm infants admitted to NICU from September 2015 to February 2016.

Selection criteria:

(a) Criteria of preterm infants:

1- Gestational age less than 37 weeks.

2- Birth weight less than 2500 gm.

3- Free from any congenital anomalies.

4- No other medical diseases.

)b) Criteria of inclusion the studied nurses:

- Years of experience more than one year.

- Bed side nurses who provide direct care for the admitted preterm neonates.

Tools of data collection: Data were collected through the following tools:-

Tool I :interviewing questionnaire:

It was designed by the researcher after reviewing related literatures and under supervision of supervisors, it composed of three parts.

Part (1): Personal data of the studied nurses such as; name, gender, age , educational level, years of experience, job specification and attendance of training programs.

Part (2): The studied preterm Neonate`s characteristics from record sheet and data about physical condition of the preterm neonates includes; gestational age, gender, date of admission, weight on admission and type of feeding.

Part (3): Knowledge of the studied nurses about preterm neonates massage therapy it includes; a multiple choice question sheet adopted from *(Hanson, 2013)* to assess the studied nurses knowledge about massage therapy as; definition, types, benefits of massage therapy, viewing massage therapy, perform therapy, massage discussion benefits of massage with parents, educate parents massage therapy, preparation for massage therapy session, uses fluids in massage session, limitation of massage therapy, and role of nurses during massage therapy. It was written in Arabic language. Questionnaire consists of 11 questions each question was

scored as the following; correct scored answer 1 and incorrect scored answer 0.

Tool II:

Part (a): An observational check list about massage therapy adopted from *(Field, 1995).*used after training nurses on massage therapy.

Part (b): An observational checklist regarding nurses' practice about weighing preterm neonates adopted from *(Kavitha, 2015).*

Part (c): Charting weight of preterm infant before and after massage therapy for seven days designed by the researcher under supervision of supervisors

Field of work

A written permission :

An official permission was obtained from the dean of Benha nursing faculty and directed to hospitals' administrators of the previously mentioned settings explaining the purpose of the study and methods of data collection.

Tool validity:

For validity assurance purpose, tools were submitted to a jury of three experts in pediatric nursing to be sure for questionnaire items (content validity). The reliability of tools were done related to each other by)cronbach's co-efficiency alpha) for the questionnaire (alpha = .88) Pearson correlation co-efficiency was used to test the internal consistency (r=0.o2, 0.98) for all items of the questionnaire

Ethical considerations:

The researcher explained the aim of the study to the nurses and they were informed that the study is harmless. The researcher secured that all the gathered data are confidital and are used for the research purpose only. The nurses were informed that they are optionally allowed either to participate or not in the study and they have the right to withdraw at any time.

Pilot study:

A pilot study was carried out on 10% (6 nurses and 6 infants) of the expected sample size to evaluate the reliability and validity of tools. No modification was done for data collection. Therefore, the sample of pilot study was included in the total study sample.

Data Collection Procedure:

The study was implemented for a period of 6 months starting from September 2015 to February 2016. Implementation of study was carried out in neonatal intensive care units at Benha University hospital, Specialized Pediatrics hospital and Benha Teaching hospital. The study was conducted six days per week, two days in each hospital as Benha University hospital (Saturday and Sunday), Specialized Pediatric hospital (Monday and Tuesday) and Benha Teaching hospital (Wednesday and The study was implemented for a period of 6 months starting from September 2015 to February 2016. Implementation of study was carried out in neonatal intensive care units at Benha University hospital, Specialized Pediatrics hospital and Benha Teaching hospital. The study was conducted six days per week, two days in each hospital as Benha University hospital (Saturday and Sunday), Specialized Pediatric hospital (Monday and Tuesday) and Benha Teaching hospital (Wednesday and Determine the role of nurse during massage session.

- Design the massage therapy guidelines.

Planning phase:

After determining the needed knowledge and practice, the researcher

designed guidelines about deficient knowledge and practices instructed for nurses regarding preterm massage therapy and its effect on improving weight of preterm neonates.

Implementation phase :

The guidelines were implemented in NICU at Benha University hospital ،Benha Teaching hospital, and Specialized Pediatric hospital at Benha city. The guidelines was designed and included a teaching module. It contained, definition of massage therapy, benefits of massage therapy, types of massage therapy, contraindications of massage therapy, importance of massage therapy for preterm neonates specially its effect on improving weight of preterm neonates, preparation for massage therapy session, role of nurse during massage therapy, and steps of massage therapy.

Twelve teaching sessions were conducted focusing on knowledge included in the guidelines. It composed of eight cognitive sessions and four psychomotor sessions. Each session lasted for 60 minutes and each session contained a number of 4-5 nurses. Teaching methods used were discussion, lectures, demonstration, redemonstration and role play. The researcher began to demonstrate the massage therapy procedure on the studied preterm neonates then the studied nurses began to redemonstrate the massage therapy procedure, then the researcher observed each studied nurse while doing massage therapy and weighing the studied preterm neonates. The preterm neonates massage therapy session last for 15 minutes and weighing preterm neonates before and after doing massage therapy then the studied nurses recording the weight before and after doing massage therapy along three shifts to be able to estimate the improvement in the weight of the studied preterm neonates. The weight of the studied preterm neonates was improved after applying massage therapy for seven days.

Evaluation phase:

- Reassessment for nurses' knowledge about massage therapy to evaluate their knowledge after implementing the guidelines.

- An observational checklist about massage therapy was used to evaluate the nurses' practice.

Statistical design:

Data were coded and transformed into specially designed form to be suitable for computer data entry process. Data were manipulated and analyzed by using SPSS (statistical package for social science) version 20. Graphics were done by excel program Quantitative data were presented by mean and standard deviation. Qualitative data were presented in the form of frequency distribution tables, number and percentage. It was analyzed by chi- squared test (x). The paired t- test was used for comparison of means of two dependent groups. Correlation analysis between quantitive variables was achieved through calculation of pearson's correlation co-efficient) r-value .(A significant difference was considered when (p (0.05 >and it was considered highly significant when (p_.(0.001>**Limitation of the study:**

The researcher was faced with the following limitations:

- Nurses overloaded by work.

- Some of nurses refused to participate in the study.

Results

Table (1) as illustrated in table 1 one third of the studied nurses were aged between 25< 30 years (30%) with a mean age of 29.4 ± 5.7. while majority of them had clinical nursing institute (40%). More than half (53%) of them had more than 7 years of experience

with mean ± SD 29 ± 5.7 and all of them have not any training course about neonatal massage therapy.

Table (2) as shown in table 2 more than half (58.3%) of preterm neonates' gender were male. Also, more than half (60%) of them were receiving mixed feeding. The gestational age of the studied preterm neonates were with mean (32.3 ± 2.4). Regarding weight of the studied preterm neonates were with mean ± SD (1609 ± 419.8).

Figure (1) as illustrated there were significant differences between pre and posttest total knowledge scores.

Figure (2): As reveled in figure 2 the majority (93.3%) of the studied nurses have good practices in applying preterm neonates' massage therapy and measuring preterm neonates' weight in post program compared to preprogram.

Table (3) as manifested in table 4 there were significant differences in preterm neonate's weight through seven days; as in first day mean ±SD was (1623.4 ± 417.2) pre massage therapy and became (1667.3 ± 415.4) post massage therapy. And in seventh day mean ± SD was (1968.6 ± 440.9) pre massage therapy and became (2018.6 ± 437.3) post massage therapy with (p<0.001) through seven days pre and post massage therapy. Also, there were statistical significance differences in all table's items except at fourth day and sixth day.

Table(4) there were positive correlation between nurses' knowledge and practices regarding preterm neonates massage therapy (p<0.001).

Table (5) there were positive correlation between total practice scores and weight improvement through seven days in pre and posttest (p<0.001).

Table (1): Distribution of the studied nurses according to their personal characteristics (n=60)

Item	No	%
Age in years		
< 25	13	21.7
25<30	18	30.0
30<35	15	25.0
≥ 35	14	23.3
Mean ±SD	29.4±5.7	
Gender		
Female	60	100.0
Male	0	00.0
Level of education		
Bachelor degree in nursing	14	23.3
Clinical nursing institute	24	40.0
Secondary school of nursing	22	36.7
Experience (Years)		
1 < 3	12	18.3
3 < 5	8	11.7
5 < 7	8	11.7
≥ 7	32	53.3
Training Courses related to neonatal massage therapy		
Yes	0	00.0
No	60	100.0

Table (2): Distribution of the studied preterm neonates regarding their personal data (n=60).

Item	No	%
Gestational age		
<30	11	18.3
30< 37	49	81.7
Mean ± SD	32.3 ± 2.4	
Weight on admission /gram		
<1500	23	38.3
1500-<2000	22	36.7
2000-2400	15	25.0
Mean ± SD	1609 ± 419.8	
Gender		
Male	35	58.3
Female	25	41.7
Types of feeding		
Artificial	24	40.0
Mixed	36	60.0

Figure (1): Distribution of the studied nurses regarding total knowledge scores about preterm neonates' massage therapy

Table (3): Distribution of the studied preterm neonates' weight pre and post preterm neonates massage' therapy along seven days

Item	Pretest	posttest	T	p-value
	mean ±SD	Mean ±SD		
First day	1623.4±417.2	1667.3±415.4	17.566	.000
Second day	1677.9±421.3	1726.2±421.9	15.853	.000
Third day	1735.1±423.4	1786.9±426.0	17.734	.000
Fourth day	1794.4±428.0	1843.7±433.5	1.191	.239
Fifth day	1851.6±434.7	1903.7±437.2	23.362	.000
sixth day	1910.7±437.9	1960.5±438.5	.825	.413
Seventh day	1968.6±440.9	2018.6±437.3	19.425	.000

Figure (**2**): Distribution of the studied nurses regarding total practices scores of applying preterm neonates' massage therapy and measuring preterm neonates' weight pre and post program.
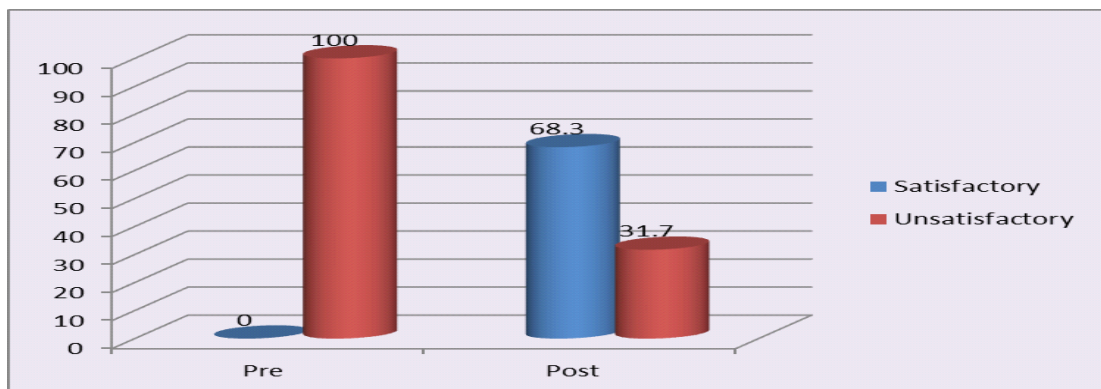

Table (4): Correlation between nurses' knowledge and practices regarding preterm neonates' massage therapy posttest.

	Total knowledge scores	
	R	p
Total practices score	0.9	0.000

Table (5): Correlation between application of preterm neonates' massage therapy practices and weight in seventh day posttest.

	weight in seventh days	
	R	p
Total practices scores	0.23	0.001

Discussion

Massage therapy is one of complementary and alternative therapy which is used for many benefits in health care. One of the most its benefits are, that is used for preterm neonates especially enhance weight of preterm neonates. Also, massage therapy is used for many, benefits to preterm neonates as neurological development, visual development, social development, decreasing hospital stay, and improving low birth weight in preterm neonates to prevent it's complication on preterm neonates in future days **(International Journal of Complementary Alternative Medicine, 2015).**

The present study is a quasi-experimental included 60 nurses and 60 preterm neonates at neonatal intensive care units from different hospitals; Benha University Hospital, Benha Teaching Hospital, and Specialized Pediatric Hospital at Benha City. Aimed to assess massage therapy guidelines for nurses regarding improving weight of preterm neonates through; assessing nurses' knowledge regarding massage therapy, assessing nurses' practice regarding massage therapy and evaluating effect of massage therapy on preterm' weight.

Regarding personal characteristics of the studied nurses the present study revealed that, the mean age and standard deviation of the studied nurses were 29 ± 5.7yrs old. Also,

all of the studied nurses were females. Meanwhile, half of them had secondary school in nursing. These findings supported by *Abdel- Aziz (2010)*, in a study entitled "quality of nursing care for neonates with respiratory distress syndrome"who found in her study that the majority of nurses had secondary school diploma in nursing and all of them were females.

The present study revealed that, more than half of the studied nurses had > 7 years of experience, and all of studied nurses didn't received previous training courses in the field of neonatal massage therapy at NICU or received it during educational curriculum. This rendered them inexperienced in applying massage therapy to preterm neonates. This findings supported by *Hanson (2013),* in a study about nurses perspective about neonatal massage therapy at NICU" who found that the majority of nurses didn't attending training courses in NICU. This is reflected that nurses in the studied settings in intense need for training in this area.

Concerning the personal characteristics of the studied preterm neonates, it was noted that the mean age of their gestational age were (32.3± 2.4) weeks and the mean age of their birth weight were (1609±419.8) grams. Also, more half of them were males. These findings agreed with *Abdel-Aziz (2010)*, who found that the mean gestational age of neonates were 32.4±2.44 weeks and slightly more than half of the preterm neonates were males.

Also, the present study revealed that, two thirds of preterm neonates were mixed feeding. These findings agreed with *Refat (2012)*, in a study entitled " Effect of massage therapy on weight and length of stay of low birth weight preterm neonates in neonatal intensive care units" who found that the nearly of preterm neonates were receiving mixed feeding.

Regarding the comparison between pretest and posttest nurses' knowledge about preterm neonates massage therapy, the present study revealed that, there were statistical significant differences between pretest and posttest. This may be due to the effect of guidelines on their knowledge improvement. Moreover, *Salehi et al. (2014)* in a study entitled" the effect of education and implementation of evidence-based nursing guidelines on infants' weight gaining in NICU" reported that, educational program designed to enhance cognitive knowledge was the least on pretest while it improved at posttest after implementation of evidence-based massage therapy guidelines. And in my point of view, this might be due to the studied nurses didn't receive knowledge about neonatal massage therapy in their nursing curriculum. In relation to total practices scores of massage therapy the current study revealed that the studied nurses' practice was competent after implementation of guidelines. These results agreed with *Diego et al. (2014),* entitled" Preterm infant weight gain is increased by massage therapy and exercise via different underlying mechanisms" who mentioned that the nurses' practice was improved after implementation of massage therapy educational session. In my opinion, the nurses should update their practice about preterm neonates massage therapy.

In relation to charting of preterm neonates weight pre and post massage therapy session. The current study revealed that, there were significant differences in preterm neonates weight pre and post massage therapy. The preterm neonates' weight was increased in the seven day compared to the first days. These results were supported by *Fallah et al. (2013) ,* in a study entitled " sunflower oil versus no oil moderate pressure massage leads to greater increases in weight in preterm neonates who are low birth weight" who found that the weight of preterm infants were increased after application of massage therapy three times every day for seven days. In my point of view, improving preterm neonates' weight after seventh days of massage therapy is the

magic and powerful evidence to be sure those guidelines had a good effect on practice of the studied nurses.

In the current study, correlation between nurses' total knowledge about neonatal massage therapy and their practice on pre and posttest, the study results illustrated that, knowledge and practice of nurses were poor before implementation of the guidelines in pretest. While, in posttest, knowledge and practice of nurses was improved due to implementation of the guidelines. These results agreed with *Melnyk et al. (2014)*, in a study entitled "The Establishment of Evidence Based Practice Competencies for Practicing Registered Nurses and Advanced Practice Nurses in Real World Clinical Settings" who recommended that providing nurses with knowledge relating to preterm neonates massage therapy is one the evidence-based nursing practice for increasing premature infants' weight. In my opinion providing guidelines for nurses according to the newest researches have an important role in providing solutions and standardizing methods and they are counted as helpful tools and guides for the nurses in neonatal intensive units.

Conclusion

In the light of the study findings, it was concluded that, the guidelines about massage therapy were effective in improving nurses' knowledge and practice regarding preterm neonates massage therapy and the weight of preterm neonates was improved after applying massage therapy.

Recommendations

Based on the results of the current study, it was recommended that:

• Standard guidelines about benefits of massage therapy for preterm neonates and training courses must be available in the department for nurses' staff in the hospital, to help them to improve nursing care.

• Nurses should have the modern technology and update their knowledge that help them in promoting care and raising their practice at NICU.

• Massage therapy should be included in the curriculum of the undergraduate nurses' students.

Recommendation for further researches

• Further studies should be conducted to replicate the study on a larger sample of neonates and nurses for generalization of results.

Further studies should be conducted for other clinical outcomes from applying of massage therapy to preterm neonates.

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