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Nurses' Compliance in Positioning of Neonates Admitted in Neonatal Intensive Care Unit, Dubai Hospital by Using a Standardized Tool

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Abstract

Background: A fundamental Nursing skill in the care of preterm infants is positioning. Several positions encompass neonatal positioning. These are supine, prone, side lying, and head up tilted position. The Critically ill Neonate is a vulnerable population, which is dependent to the intensive care environment to support physiologic and neurobehavioral development. *Purpose:* This study is aimed to evaluate the Nurses' Compliance in Positioning of Neonates admitted at Neonatal Intensive Care Unit, Dubai Hospital, 2019 with the use of a Standardized Positioning Tool. *Method:* This is a cross sectional study carried out in the Neonatal Intensive Care Unit, Dubai Hospital at Dubai Health Authority in the year 2019. A convenient, non-probability sample which consists of 81 nurses was used in the study. Data coding was made, data entry to SPSS 21 software has been carried out and data analysis using 95% level of significant tests with a P value <0.05. Chi-square test was be used to find the significant relationship between nominal variables. Descriptive statistics was used to find the mean, standard deviation and frequencies. *Result:* The study shows the staff compliance to the neonates' position. 86.4% of the staff have an optimal compliance, 12.3% have an acceptable compliance and only 1.2% showed poor compliance. Chi-square test showed that there is no significant relationship between (Age, Level of education and Experience,) with staff performance. *Conclusion and Recommendations:* Compliance was more among the older staff with longer time of experience. They have the higher percentage of optimal compliance. On the other hand, the compliance was higher among other nationalities compared to Emirati nurses. This is because the majority of nurses are expiates compared to Emirati nurses. The level of education has no effect on staff compliance. More education and monitoring are required to achieve an excellent compliance among all NICU staff.

Keywords

Neonatal Positioning, Nurses' Compliance, Neonates, United Arab Emirates, Neonatal Intensive Care Unit

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1. Introduction

A fundamental Nursing skill in the care of preterm infants is positioning. Several positions encompass neonatal positioning. These are supine, prone, side lying, and head up tilted position. Numerous research illustrates an array of result determined by positioning the different body parts of

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preterm infants. Furthermore, it was shown in numerous researches that there is a connection with Sudden Infant Death Syndrome (SIDS) and prone sleep position [1]. To avert SIDS, the American Academy of Pediatrics advocates on putting the healthy preemies to a non-prone position [2]. Preterm infants who are asymptomatic, those without respiratory distress syndrome and growers or those being prepared to go home are encouraged to refrain from the prone sleep position. Health care workers dealing with healthy preterm neonates are presented with a conflict since other studies show that preterm infants in prone position have less time awake, more quiet sleep, less cry and less movement [3]. What constitutes the most advantageous sleep position for preterm infants remains undetermined.

There is an inclination to maintain the preterm infants' position in supine. It is primarily done to facilitate handling and observation. Despite the fact that many research shows the pros and cons for both supine and prone position among preterm infants for their physiological well-being.

The Critically ill Neonate is a vulnerable population, which is dependent to the intensive care environment to support physiologic and neurobehavioral development [4]. On a worldwide basis, the foundation of treatment among the preterm neonates is the Neonatal Intensive Care. Preterm births (<37 wk gestation) was estimated at around 15 million in 2010. Many preterm who survive tackle different physical and psychological consequences. Thus, priority setting is crucial at the global and regional levels [5].

Neonatal Positioning is an essential skill a NICU Nurse should possess [6]. One of the earliest neurodevelopmental interventions in the neonatal intensive care unit (NICU) is therapeutic positioning, and it is often nursing judgment as to how an infant is positioned during rest [7]. Developmentally supportive positioning has been a practice that is associated with developmental care. Positioning aimed at minimizing the potential short and long- term complication associated with hospital care [8]. Despite the reported benefit of positioning and empirical evidence to support developmental and supportive positioning, there is an inconsistency in Nursing Practice and implementation [2]. The positioning of neonates has been focused on safe infant sleep. Premature infants spend time prone while hospitalized to promote appropriate growth and development. Accordingly

This study is aimed to evaluate the Nurses' Compliance in Positioning of Neonates admitted at Neonatal Intensive Care Unit, Dubai Hospital, 2017 with the use of a Standardized Positioning Tool. This study will determine the current practice and assess the nurses' skill in positioning.

2. Methodology

This is a cross sectional study carried out in the Neonatal Intensive Care Unit, Dubai Hospital at Dubai Health Authority in the year 2019. A convenient, non-probability sample which consists of 81 nurses was used in the study. Data collection has been done with the use of the IPAT survey (Infant Positioning Assessment Tool). The questionnaire has been tested by experts and validity test has been done. Mary Coughlin developed the Infant Assessment Positioning Tool. Content Validity of the IPAT was based on research evidence and expert opinion from both clinical experts and researchers in developmental care. The IPAT provides a consistent reference resource across clinicians within and between NICU Sites. Another demographical data tool was developed by the author to collect the demographical data (age, gender, nationality, and level of education). Data coding was made, data entry to SPSS 21 software has been carried out and data analysis using 95% level of significant tests with a P value <0.05. Chi-square test was be used to find the significant relationship between nominal variables. Descriptive statistics was used to find the mean, standard deviation and frequencies.

3. Result Part

Table 1 describes the Demographical Date of the Participants. The study sample consists of 81 female participants, with a mean age of 34.94 (SD ± 8.566). 11.98 is the average years of experience with SD of ± 8.226. Qualifications of the participants includes Bachelor's Degree in 86.4%, Diploma in 12.3% and Master's Degree in 1.2% (Table 1).

Table 1. Demographical Data.

Variables	Mean	SD
Age	34.94	±8.566
Years of Experience	11.98	±8.226
Variable	Group	Percentage
	BSN	86.4%
Level of Education	Diploma	12.3%
	Master	1.2%

The study shows the staff compliance to the neonates' position. 86.4% of the staff have an optimal compliance, 12.3% have an acceptable compliance and only 1.2% showed poor compliance (Figure 1).

Table 2 shows the Association between the nurses' performance with the different variables (Level of Education, Age and Years of Experience). Chi-Square test showed that there is no significant difference between the different factors which includes the Level of Education and age, on the Nurses' compliance on neonatal positioning (Table 2).

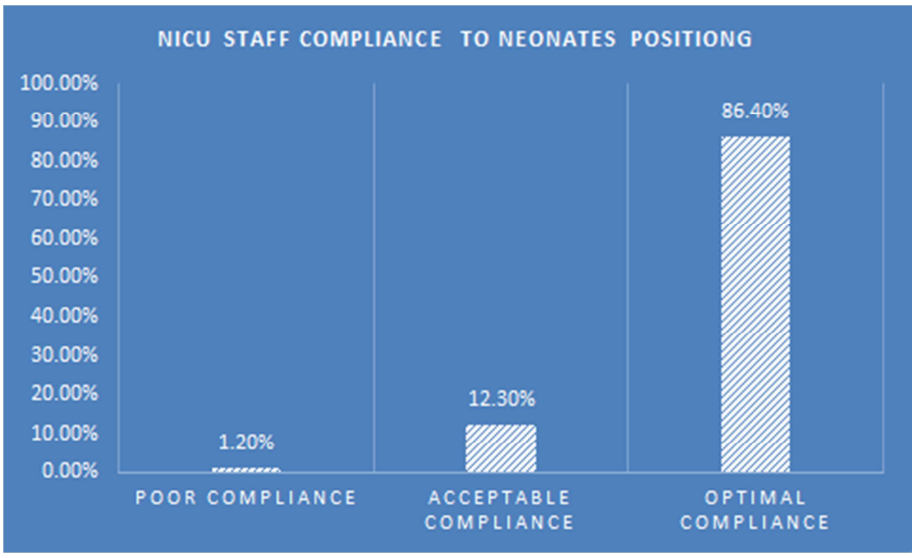

Figure 1. NICU staff compliance to Neonates position.

Table 2. Association between nurses' Performance and other factors.

Variable	Group	Poor Compliance	Acceptable Compliance	Optimal Compliance	P-Value
Level of Education	Diploma	0%	0%	100%	.315
	BSN	1.4%	10%	88.6%	
	General nursing	0%	42.9%	57.1%	
	Master	0%	0%	100%	
Age	25-34	1.8%	16.4%	81.8%	.728
	34-44	0%	9.1%	90.9%	
	45-54	0%	0%	100%	
Year of Experience	5-10	7.7%	15.4%	76.9%	.391
	11-15	0%	14.6%	85.4%	
	16-20	0%	25%	75%	
	More than 20	0%	5.9%	94.1%	

4. Discussion Part

The main purpose of this study was to assess the level of staff compliance to neonates' positioning. The key finding of this study is that in NICU, Dubai Hospital there is a high optimal compliance to neonates' position. Optimal staff compliance was 100% among Diploma and Master's Degree holders, and 88% among BSN holders. On the other hand, optimal compliance was less among staff with general nursing holders. Despite these differences, formal education was not significant *(p >.315)* effect on the short-term quality of neonatal positioning. The possible cause of these variations in optimal compliance could be referred to variation in the sample size, wherein the majority was BSN holders. In contrast other study conducted by Perkins, found that there is a significant effect of education on staff compliance [8].

Older staff has higher compliance compared to younger staff. The percentage of optimal compliance among 45-54-year age group was 100%, while among 25-34-year age group was 81.8%. There was no significant relationship between age and compliance *(p >.728)*. We can conclude that the older staff have higher compliance due to the long years of experience.

Finally, the staff with more than 20 years' experience have higher compliance than the other staff 94.1% and the high percentage of poor compliance was among staff with 5-10 years' experience 7.7%. This significantly indicates that the years of experience affect the staff compliance. Nevertheless, it showed a statistically opposite result *(p >.381)*.

Improper positioning may cause muscle contractures that interfere with the infant's neurologic and psychomotor development. In the course of a single day, NICU nurses reposition the infant around eight times, often resulting in misalignment that can create pain and interrupt sleep [9].

There is firm evidence in literature of the association between nurse work overload and poor patient outcomes and compliance [10]. There is also evidence on literature of a relationship between understaffing and the decrease compliance and increase side [11].

5. Conclusion

This is the first study conducted in the United Arab Emirates scrutinizing the compliance of NICU staff to the neonates' position. Moreover, there are limited articles discussing this topic. Generally, the NICU staff compliance to neonates' position at Dubai Hospital is good with a percentage of 86.4%. More monitoring and education should be done to the staff to attain an optimal compliance of 100%. recognize nonsupine.

It has been noted that the compliance was more among the older staff with longer time of experience. They have the higher percentage of optimal compliance. On the other hand, the compliance was higher among other nationalities compared to Emirati nurses. This is because the majority of nurses are expiates compared to Emirati nurses. The level of education has no effect on staff compliance. More education and monitoring are required to achieve an excellent compliance among all NICU staff.

It should be noted that there are several possible limitations to this study. The result of this study cannot be generalized because of the small sample size. It was conducted in only one unit at Dubai Hospital and therefore cannot be compared to international studies. Further studies in different institutions with more sample size is required for an accurate result and equal representation of participants. Another limitation that we should consider is the diversity of people in the UAE. The culture and background could affect the result.

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Statement of Ethics

Ethical approval was obtained from Dubai scientific research ethics committee in Dubai Health Authority (DHA) prior data collection.

Disclosure Statement

The authors declare that they do not have conflict of interest. All the authors, read and approved the submitted version. All authors confirm that the manuscript is our own original work.

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Author Contribution

K. A: Principle investigator, N. S: Data analyst and corresponding author, H. H: supervisor.

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