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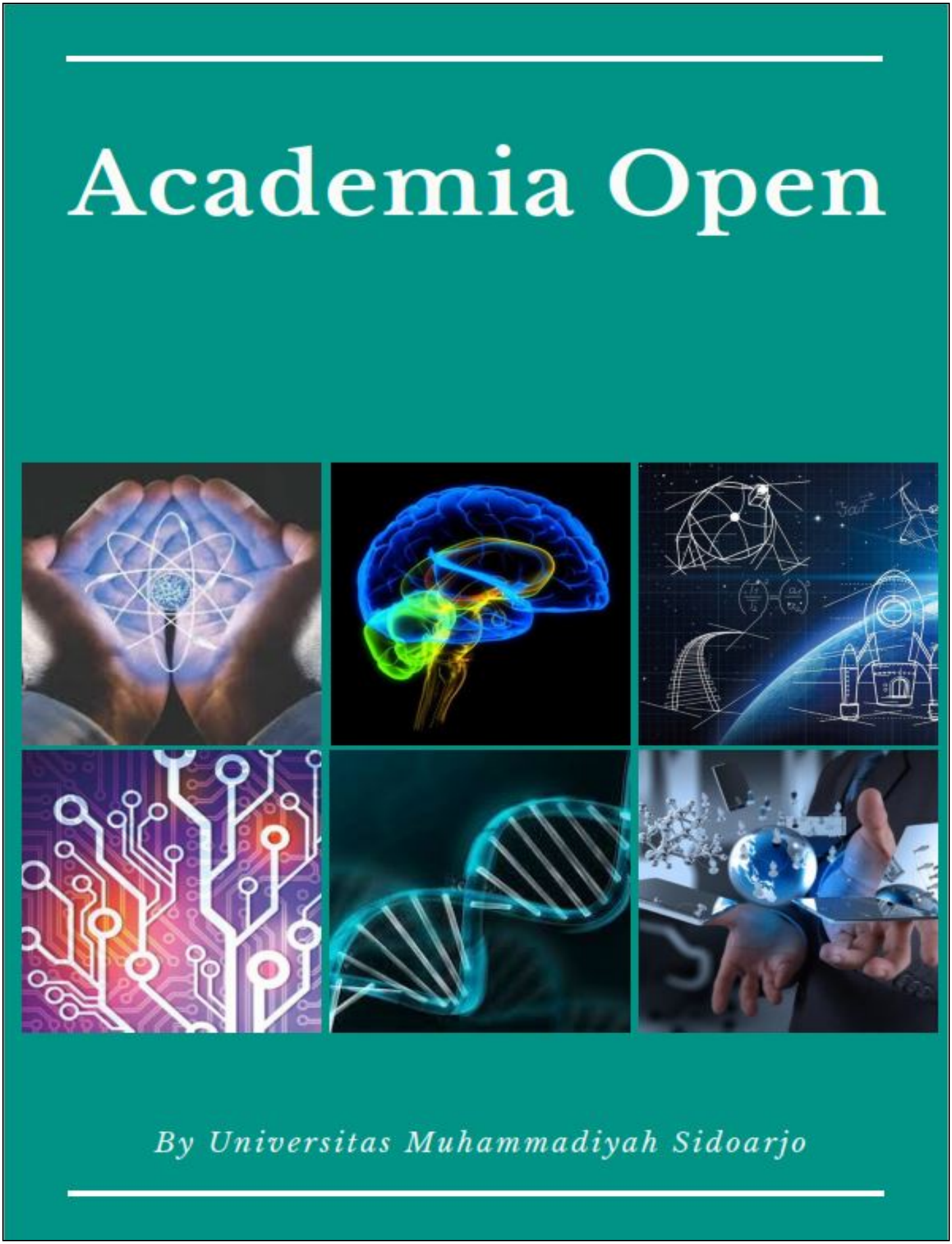

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Conflict of Interest Statement

The author[s] declare that this article was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Nurses` Practices concerning Care of Transition to Oral Feeding in Preterm Neonate

Praktik Perawat terkait Perawatan Transisi ke Pemberian Makanan Oral pada Neonatus Prematur

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Abstract

Background: Premature neonates often struggle with oral feeding due to physiological immaturity, necessitating skilled nursing support during the transition from tube to oral feeding. **Knowledge Gap:** Despite the critical role of nurses in this process, there is limited evidence on their practices and the factors influencing their effectiveness. **Aims:** This study aimed to evaluate nurses' practices in caring for neonates transitioning to oral feeding and to identify predictive factors, such as education and training, that influence these practices. **Methods:** A descriptive cross-sectional study was conducted at Al-Batoul Training Hospital in the Diyala Governorate from October 2023 to February 2024. A non-probability convenience sample of 60 nurses was assessed using a 35-item checklist, validated by experts and tested for reliability (Cronbach's alpha = 0.81). Data analysis involved descriptive and inferential statistics, with simple linear regression employed to identify relationships between nurses' practices and demographic variables. **Results:** The findings revealed that 86.7% of nurses exhibited inadequate practices, with the majority (65.0%) having less than 5 years of experience and 85.0% not attending training courses. Regression analysis indicated that education level ($p = 0.007$) and attendance of training courses ($p = 0.001$) were significant predictors of practice quality. **Novelty:** This study is among the first to quantify the inadequacy of nurses' practices in the transition to oral feeding in a developing country context, highlighting education and training as critical areas for intervention. **Implications:** The results underscore the urgent need for healthcare organizations to implement comprehensive training programs and educational initiatives aimed at improving neonatal care practices, particularly in NICUs, to ensure better health outcomes for preterm infants.

Highlights:

1. Significant nurse practice deficiencies in neonate oral feeding transition.
2. Education and training crucial for improving nurse performance.
3. Need for comprehensive neonatal care training programs.

Keywords: Premature neonates, oral feeding, neonatal care, nurse practices, training programs

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Introduction

Preterm neonates, infants born before 37 weeks of gestation, commonly have a host of problems, especially in passing through the stage of successful feeding from a bottle to the mouth [2]. The most important part of the neonatal care, which can be provided only by healthcare professionals, especially the nurses, to guarantee the best results for the most vulnerable group of patients, the newborns. The nutritional care facilitated during this transitional period of oral feeding for preterm infants highly influences their short- and long-term health [3]. Nurses as the main providers of nursing care, do the transition process primary tasks, including assessment, intervention, and education [4].

Cautious transitioning of preterm neonates to oral diet involves a multidisciplinary approach that takes into account various physiological, developmental and environmental aspects. Nursing actions during this phase cover a spectrum of activities including responding to feeding cues, assessing suck-swallow-breathe coordination and providing the appropriate feeding ways [5, 6]. Moreover, nurses are also required to identify and resolve the difficulties associated to good oral feeding, like respiration difficulties, stomach complications, and immature brain [7].

Lately, we have seen a shift towards scientifically backed nursing techniques, which are aimed at improving the quality of oral feeding for premature newborns during the transition period. Over the years, research activities focused on different nursing care practices in this area, from analyzing the effectiveness of particular feeding strategies to examining the influence of nursing education and training on patient outcomes [8,9]. Thus, these studies highlight the value of involving research findings into clinical practices more to improve the quality of care given to neonatal preterm and their families. Although neoatal care has improved to a great extent, challenges still exist in stringent implementation of the evidence-based, nursing practices that focuses on the transition to oral feeding in preterm infants. Complexities like staff turnover, workload issues, and variations in patient care settings may seriously impede the smooth implementation of standardized care protocols [10]. Developing from this, neonatal care is a multifaceted field that always requires a regular review and revision of nursing techniques in order to conform to the latest research and best practice [11].

Considering the above, this article attempts to provide a detailed analysis of the nursing roles and tasks that are associated with transition into oral feeding for preterm neonates. Through the process of restating the existing literature, finding the loopholes in the present knowledge and providing insights on the clinical implications, the study wishes to join the discussion on the best nursing care for this specific group of patients.

Methods

A descriptive cross-sectional study design was adopted by evaluation approach was conducted at Al-Batoul Training Hospital in the Diyala Governorate where that hospital was decided to be a primary place for collecting data during the period from October 1st, 2023 to February 26th, 2024.

A Non-probability "Convenience" sampling which is the type of sampling methods considering the accuracy and the representativeness of the data to be collected was employed. The nurses' sample was taken, and there was a total of 60 participants. They were evaluated based on 3 observations checklist.

This questionnaire consists of two part include the socio-demographic characteristics include nurses age, education level, years of experiences, duration of work in NICU and training courses. In addition, a checklist consisting of 35 practices related to switching to oral nutrition was used, measured on 3-level type of Likert Scale (1= Never, 2=Sometime & 3=Always). Three correct practices out of 3 observation were rated as always and scored (3). Out of 2-1 correct practice out of 3 observation were rated as sometimes and scored (2). No correct practice out of 3 observation was rated as never and scored (1). Accordingly, points can be taken range from 35-105. The higher average defined as adequate practices. The checklist was validated by experts and then its reliability was verified through a pilot study The Cronbach-alpha value in current was 0.81 which indicate the higher reliability.

Statistical analysis were performed using the IBM SPSS 20.0 software. Numbers and percentages were employed to rank the variables, while mean and standard deviation were utilized to statistically describe the continuous variables. A Kolmogorov-Smirnov (K-S test) test were used to test normality. Additionally, Simple Linear Regression test were run to evaluate any predicted relationship between the nurses practices and variables. A 0.05 threshold for statistical significance was used.

Result and Discussion

Result

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SDVs	Classification	No.	%
Age	20 to less than 25	9	15.0
	25 to less than 30	40	66.7
	30 and more	11	18.3
	Min.- Max.	24-39	
	Mean± SD	29.76±11.07	
Education level	School Nursing	13	21.7
	Diploma Nursing	29	48.3
	B.Sc Nursing	18	30.0
Years of Experiences	1 to less than 5 yr	39	65.0
	5 to less than 10 yr	17	28.3
	> 10 yr	4	6.7
Duration of work in NICU	1 to less than 3 yr	49	81.7
	3 to less than 5 yr	7	11.7
	>5 yr	4	6.7
Training Courses	No	51	85.0
	Yes	9	15.0

Table 1. *Socio-Demographic Characteristics*

No. Number; %= Percentage

Findings analyzed nurses socio-demographic characteristics in context their practices concerning care of transition to oral feeding in preterm neonate, it has been observed that the age sample ranged from 24 to 39 years, with an average age of 29.76±11.07 years. Notably, the diploma in nursing were predominated (48.3%). Years of experience related findings, (65.0%) were less than 5 years. Regarding duration of work in NICU, (81.7%) were less than 5 years. In terms of training courses, (85.0%) were no attended training.

Scale	M ± SD	Score	No.	%
Nurses Practices Scale(35 Q)	49.33±7.139	Inadequate	52	86.7
		Partially	8	13.3
		Adequate	0	0.0
		Total	60	100.0

Table 2. *Nurses Practices*

Level of Assessment [Inadequate=35-58.33; Partially= 58.34-81.66; Adequate= 81.67-105]

The study results indicate that the (86.7%) of nurses were inadequate practices concerning care of preterm neonate during transition to oral feeding (49.33±7.139).

Variables	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
Age	.726	1.259	.059	.577	.566
Education level	2.796	.994	.282	2.813	.007
Years of Experiences	.417	1.329	.036	.314	.755
Duration of work in NICU	1.238	1.762	.099	.703	.485
Training courses	9.463	2.688	.477	3.521	.001

Table 3. *Relationship between Nurses Practices and their Socio-demographic Variables*

Dependent Variable: Nurses Practices

The results of the simple linear regression test reveal that the education level (β = 0.282, p = .007) and training courses (β = 0.477, p = .001) are predicated variables of nurses practices concerning care of preterm neonate during transition to oral feeding.

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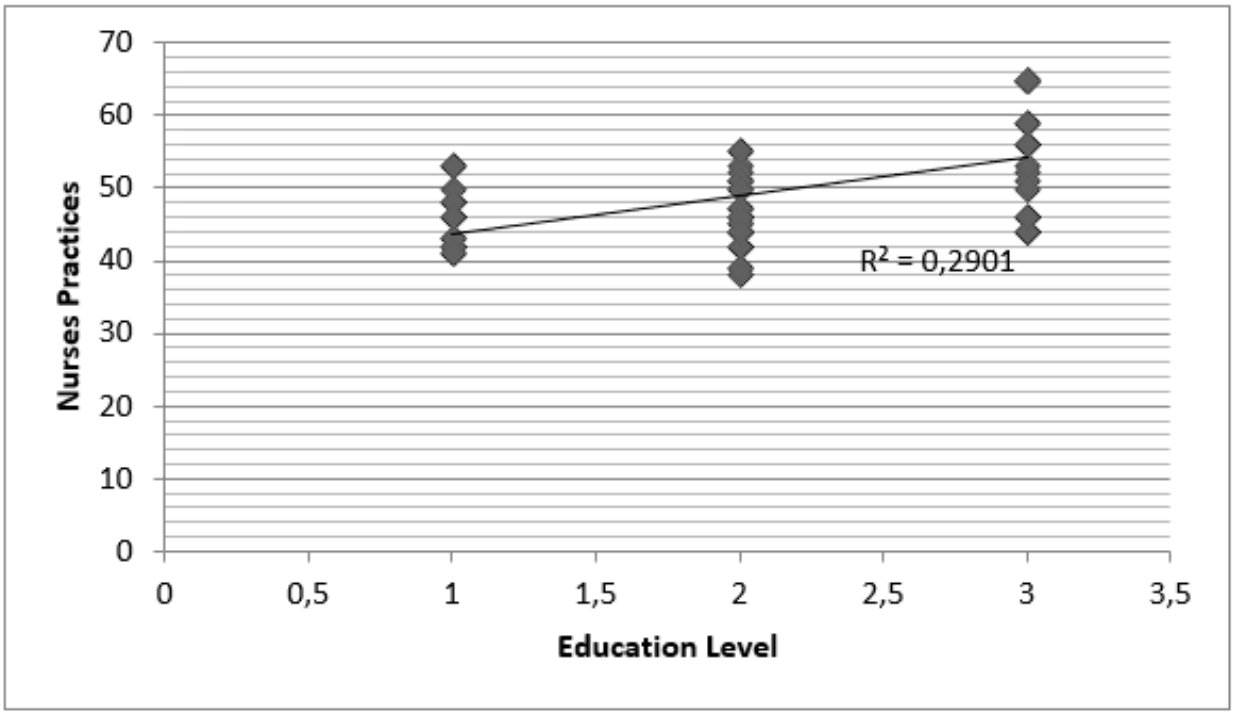

Figure 1. *Nurses Practices and Education level*

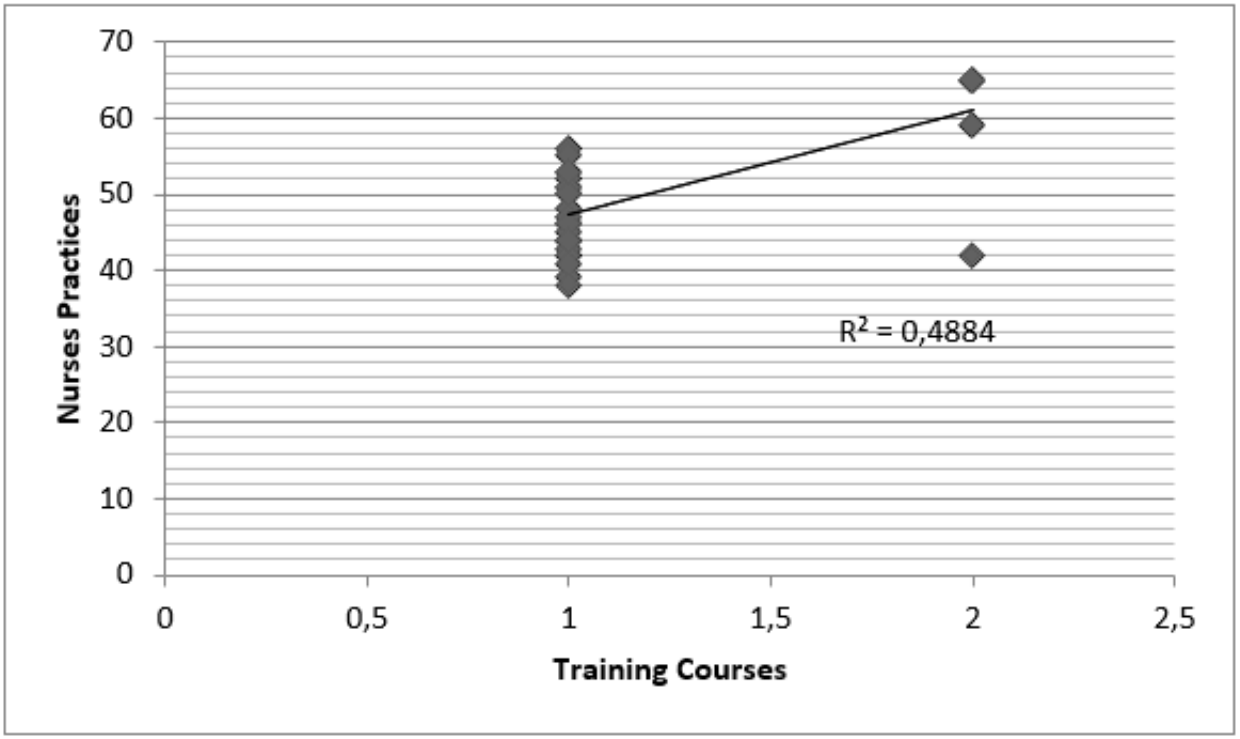

Figure 2. *Nurses Practices and Training Courses*

Discussion

Nurses Characteristics

Socio-demographic factors of nurses determine their approach to patient care, especially in specialized areas like neonate preterm feeding transition. As shown in the research which focused on the dynamics of the age situation, it

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was observed that the age range of the sample of nurses varied from 24 to 39 years and the average age was 29.76±11.07 years. The age group distribution in this case shows that most of the nurses who took part in the research were still relatively young, which could mean that they had limited exposure to training programs and their level of experience was not that high. Rookie nurses with the right get-up-and-go attitude and the vigor of a teenager but lack the level of experience that comes with more years in the field [12,13].

And to proceed, the research outcomes show that a vast majority (65.0%) of nurses had less than half a decade of experience. This low level of experience could be at stake here and might influence their confidence and competence in the field of complex situations, such as the transition from gastric feeding to oral feeding in preterm neonates. As a result, experience has been shown to be associated closely with the clinical competence and the ability of nurses to make decisions during the course of their work [14]. Consequently, it is likely that those nurses who are new to this profession may require additional support and orientation in order to successfully face the difficulties that appear in this important aspect of neonatal care.

Also, the length of time working in the Neonatal Intensive Care Unit (NICU) would be a key factor that needs to be addressed. The result of the study showed that majority (81.7%) of the nurses work in the NICU for less than 5 years. Being a part of a NICU clinical team requires one to be extremely competent and well informed as these infants have special needs for their preterm gestation. Nurses may experience some challenges in adjusting to the environment of neonatal care if they are not used to it. Among other complexities in this environment are the management of oral feeding transitions. This thus demonstrates the importance of ongoing education and mentorship programs in improving the level of competency of rookie nurses in NICU settings [15].

Moreover, the study too found that the majority of nurses (85.0%) had not undergone any training programs on the management of preterm neonates when they commenced the process of feeding orally. The implementation of training and professional development programs is of utmost importance because this ensures that nurses have the relevant skills and abilities to deliver top-notch care. Possible lack of training in this particular area might result in the shortage of knowledge and skills among nurses that may end up as safety and welfare downfall of preterm infants under their care [16].

Nurses Practices

The study has a very alarming finding that, 86.7% of nurses were not capable of caring for preterm neonates during the transition to oral feeding which shows a very significant gap in neonatal care. The proportion of nurses who indicated this difficulty as an issue (a significant figure), indicates the possibility of a gap in training, comprehension, or compliance with established methodologies for this critically sensitive period of transitioning preterm neonates to oral feeding. The process of oral feeding transition is the most important step in preterm infants healthcare, because it is a sign their ability to provide their own nutrition, and it is closely linked with their growth and development.

A number of variables which can be a reason for inefficiencies in nursing during this transitional stage can be listed. Among the possible factors, there could also be inadequate educational or training programs that would specifically focus on the particular needs and issues that come up during the period of the transition from tube feeding to oral feeding. Research has shown that in some cases health professionals with lack of proper training or knowledge gaps, can lead to suboptimal care practices, particularly in the area of neonatal care [17.18]. Lack of in-depth knowledge of the complexities linked with feeding preterm neonates can hinder nurses to efficiently support these newborns who are in an uncertain phase of their life.

Thus, healthcare environments also have their own environmental factors which also play a role in the poor quality of nursing practices when it comes to the care of preterm neonates as they are being transitioned to oral feeding. The provision of high patient-to-nurse ratios, the fact that nurses are time-constrained, and the possibility that their attention can be divided by other nursing duties [19, 20] may negatively affect the care provided to preterm infants. In such contexts, nurses might struggle to provide enough time and attention to accurately follow the preterm neonates in the process of transition from tube feeding to oral feeding, which might result in inconsistent practices and subsequently, adverse outcomes.

Moreover, intra-organizational aspects in healthcare institutions in terms of availability of resources, protocols, and interdisciplinary collaboration can be a major determinant of nursing practices in neonatal care. Literature shows that good protocols, multidisciplinary teamwork, and the availability of specialized resources may possibly improve the quality of care given to preterm infants during the transition to oral nutritional support [21]. On the contrary, non-existence or scarcity of standardized protocols or sufficient resources can create nursing practice inconsistencies and may increase the risk of substandard patient outcomes.

The results of the study indicates that the nursing standards are not adequate in caring for preterm infants who are transiting from tube to oral feeding. This finding underlines the need for interventions that will aim at improvement of neonatal care. Concerning the educational and training, environmental factors, and organizational support, they are pivotal for bettering nursing practices as well as for optimizing outcomes for preterm babies in this period of their development.

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Nurses Practices and Predicted Variables

The output of the simple linear regression analysis gives us a lot of important information regarding the nurses' practices in regard to postural management of premature infants during the transition from tube feeding to oral feeding. To highlight, the two variables involved in the prediction, that is, the educational level of nurses and training courses, are shown to have a significant effect on the nurses' practices in this subject. In this case, the beta coefficient (β) for education level is estimated at 0.282 and the p-value is 0.007. In addition, the beta coefficient for training courses is 0.477 and p-value is 0.001, the same with the other factors.

One factor is the positive beta coefficient for the education level, which indicates that as the educational attainment of nurses gets higher, there is a corresponding improvement in their practices concerning the care of preterm neonates through the transition to oral feeding. With this result to be consistent with the literature stating that the increased level of education among health professionals is usually associated with better skills and outcomes of the patient care [22]. Nurses who have an advanced degree may be equipped with a deeper comprehension of neonatal physiology, the methods of feeding, and the corresponding complications which allow them to be more effective in the care given to a neonate in this important phase of neonatal development [23].

To illustrate, the strong relation between training courses, their beta coefficient clearly highlights the necessity for continuous professional growth in order to progress in nursing practices focused on preterm neonatal care especially when a baby is transitioned from a tube to an oral feeding. Training classes, which may incorporate a variety of topics, may include breastfeeding support, neonatal nutrition and developmental care practices, all of which are paramount to enhance outcomes for preterm infants [24, 25]. Through the completion of such courses, nurses are able to accumulate specialized knowledge and skills that are directly transferable to better care practices. This, in turn, will result in improved health which in the end will enhance the well-being of the preterm infants.

Moreover, for education level and training courses we found p-values equal to .007 and .001, respectively, which are highly statistically significant, and this strengthens our faith in the relationships we found between these predictors and nurses' practices. This provides grounds to assume that the association factors recognized in multivariate analysis are most likely not random; therefore, they support the validity of the results.

The findings of the simple linear regression test show that the educational level and training courses are the main predicting variables in terms of nurses' care practices for the preterm neonates during the transition to oral feeds. The report suggests that there is a need to devote resources in both formal education and continuing professional development to build the capacity of nurses in neonatal care. This is seen as a cornerstone to the quality care of preterm infants, and ultimately, to improved outcomes.

Conclusion

The study highlights a significant deficiency in nurses' practices regarding the care of preterm neonates during the transition to oral feeding, with level of education and training courses emerging as influencing factors. Healthcare organizations prioritize comprehensive training programs and educational initiatives aimed at enhancing nurses' skills and knowledge in neonatal care.

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