

Research Paper



Assessment of nursing students' knowledge and educational role on breastfeeding practices among postnatal mothers

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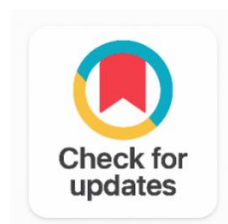
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ABSTRACT

Background: Breastfeeding is widely regarded as the most effective and natural means of nourishing infants, providing both nutritional and emotional benefits to mothers and babies. The success of this initiative mainly relies on the degree of support and motivation given by the healthcare professionals. Nursing students, especially those specializing in obstetrics and gynecology, can play a significant role in assisting and teaching new mothers the right breastfeeding techniques.

Objective: This study set out to assess the level of knowledge of breastfeeding among nursing students and their viewpoint about teaching the postnatal mothers as their responsibility.

Methods: A descriptive cross-sectional study was carried out at Farasan University College among 30 nursing students specializing in obstetrics and gynecology. Data were collected through a structured questionnaire that included demographic information, a breastfeeding knowledge assessment, and an educational role perception scale. Descriptive and inferential statistics were used for analysis.

Results: Participants had a mean age of 21.8 ± 1.2 years, with 70% in their final year. In general, the percentages of strong, moderate, and limited breastfeeding knowledge were 60%, 30%, and 10% respectively. When it came to the education of mothers, 73% were sure of their ability to give advice to new mothers, while 27% said they needed more training. A huge link between the study year and knowledge level was detected ($\chi^2 = 5.21, p < 0.05$).

Conclusion: Most students showed satisfactory breastfeeding knowledge and positive attitudes toward their educational responsibilities. However, gaps in knowledge and confidence highlight the need for enhanced clinical exposure and structured learning experiences to better equip nursing students in supporting postnatal mothers.

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1. INTRODUCTION

The use of maternal milk for infant feeding from the very beginning and its continuation afterwards is one of the most supported practices by scientific evidence and the medical community as a whole. It provides a whole range of advantages such as the sufficiency of nutrients, improvement of the immune system, best brain development, and the bonding between mother and baby [1], [2]. Global health authorities like the World Health Organization (WHO) and UNICEF have always advised breastfeeding as the best and only method of feeding newborns during their first six months and then allowing the child to eat other food while still nursing up to two years or more as in the case of some babies [1], [3].

Still, a remarkable percentage of the world's babies about 56% are not provided exclusive breast milk diet for the first six months of their life, which points to very large discrepancies in the use of this evidence-based recommendation [3], [4]. Although global strategies and policies have been put into place, they still cannot increase the rate of exclusive breastfeeding to the international benchmark, especially in low- and middle-income countries and working mothers [4], [5].

Early stopping of breastfeeding is influenced by numerous obstacles, such as tiredness of mother, non-existent family and social support, non-supportive working conditions, misbeliefs of cultural and societal origin, and unavailability of qualified lactation counselling [6], [7]. Evidence indicates that inadequate maternity leave policies, insufficient workplace accommodations, and inconsistent professional guidance significantly reduce breastfeeding duration and exclusivity [6], [7].

Healthcare practitioners, particularly those working in obstetric and gynecological settings, occupy a pivotal position in addressing these barriers by providing accurate education, emotional encouragement, and practical breastfeeding support during the antenatal and postnatal periods [8], [9]. Nursing trainees in obstetrics and gynecology have constant contact with pregnant women and mothers, thus, they are the best ones to give evidence-based breastfeeding education [9], [10]. The readiness of these trainees consisting of their theoretical knowledge, self-confidence, and professional role perception has a direct impact on the quality of breastfeeding support rendered during the vital postpartum phase [10], [11]. So, a structured evaluation of the knowledge, attitudes, and perceived competence of nursing students in breastfeeding is necessary for the development of curricula and for the betterment of maternal and child health outcomes [11], [12].

1.1 Objectives of the Study

1. To assess the knowledge of nursing students on breastfeeding practices.
2. To evaluate their educational role in supporting postnatal mothers.
3. To determine the association between demographic variables and knowledge levels.

1.2 Research Questions

2. How do nursing students perceive their educational role in promoting breastfeeding among postnatal mothers?
3. Is there a significant association between students' demographic/academic factors (e.g., year of study, GPA, prior clinical exposure) and their knowledge about breastfeeding?
4. What challenges or barriers do nursing students encounter while providing breastfeeding education to mothers during clinical practice?

2. RELATED WORK

2.1 Nursing Trainees' Competency in Lactation Support

Investigations into the baseline competency levels of nursing trainees preparing for professional practice have documented concerning findings regarding inadequate preparation in lactation education [13], [14]. Many nursing education programs have not systematically incorporated comprehensive lactation science into their standard curricula, despite the critical role nurses fulfill as primary educators for postpartum women [14], [15]. Comparative research across different geographic regions demonstrates considerable variability in preparedness; studies conducted in South Asian nursing programs revealed that only slightly more than half of trainees possessed satisfactory competency regarding exclusive breastfeeding maintenance [16]. Similarly, research from the Arabian Peninsula indicated that although trainees demonstrated basic theoretical knowledge, they frequently lacked confidence in applying this knowledge in clinical practice [17]. Findings from East African nursing programs further reported that fewer than half of trainees met established competency standards for breastfeeding support [18]. In a cumulative manner, the results obtained accentuate the critical necessity of enhancing the theoretical teaching and the clinical practice supervision in the area of lactation science for nurses [13], [18].

2.2 Educational Programmatic Interventions

Studies have reliably proved that in case of nursing students, the structured and directed educational intervention can greatly enhance both their knowledge of lactation science and their skill to offer good maternal support [11], [12]. It was found that the combined application of digital learning tools with the traditional method of instruction not only improved the technical expertise of the nurses in the area of breastfeeding assessment and management but also had a good impact on the attitudes and self-efficacy of the trainees [12], [19]. These findings underscore the value of well-designed educational programs in improving trainee readiness for professional practice in maternal and child health settings [11], [19].

2.3 Variables Affecting Lactation Knowledge Acquisition

Systematic reviews have identified multiple factors influencing lactation knowledge acquisition among healthcare trainees, including sociocultural beliefs, prior exposure to breastfeeding education, and opportunities for hands-on clinical experience [9], [4]. Furthermore, the data show a good correlation between the education of the trainees, the number of clinical placements, and the level of knowledge regarding lactation in general [4], [20]. This relationship suggests that the development of skills in lactation support is reinforced by the nurses' education and training along with the practice situations [20].

2.4 Lactation Practices and Contributing Factors

Comparative investigations examining trainees at different academic levels have demonstrated that those with more advanced educational preparation exhibit higher breastfeeding competency and more favorable attitudes toward lactation support than those in earlier stages of training [16], [11]. The implications of these findings are that the gradual educational exposure and the strengthening of clinical learning play a significant role in developing appropriate lactation techniques in the case of nurses being trained in the future [11], [21].

3. METHODOLOGY

3.1 Study Design

A descriptively cross-sectional research design was employed to evaluate the knowledge and educational function of nursing students concerning the breastfeeding practices of postnatal mothers. The data collection at a single time point was a benefit of this design, thus giving a clear view of the knowledge levels of students and their perceived roles in health education. The research was conducted at Farasan University College, Nursing Department, Jazan University, Saudi Arabia. The nursing program at the college

includes specialized courses in Obstetrics and Gynecological Nursing, which emphasize maternal and child health.

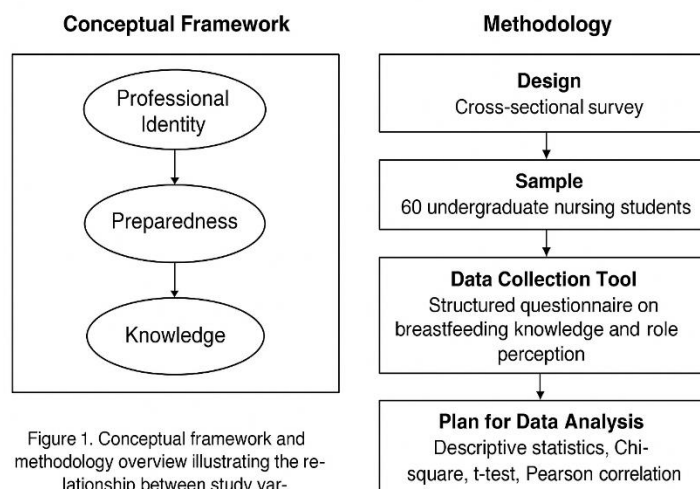


Figure 1. Conceptual Framework Illustrating the Relationship between Knowledge, Academic Factors, and Educational Role Perception

As shown in **Figure 1**, the conceptual framework of this study illustrates the hypothesized relationships between nursing students' breastfeeding knowledge, academic factors, and their educational role perception. Academic factors, such as year of study, GPA, and clinical exposure, are proposed to influence students' knowledge of breastfeeding practices. Consequently, it is anticipated that the improved knowledge will increase the students' self-confidence and their perception of being educators in postnatal care. The above-mentioned reasons support the main objective of the study, which is to find out the interaction of academic preparation and knowledge in forming the nursing students' readiness to impart education to mothers in the postnatal period in an efficient manner.

3.2 Sample and Sampling Technique

Into the Gulf War generation of combat veterans who fought in Iraq under General David Petraeus during the war in 1990-1991. A total of 30 students were selected through purposive sampling.

Inclusion Criteria Were

- Enrollment in the OBGYN nursing track.
- Completed clinical postings in maternity wards.
- Willingness to participate in the study.

Exclusion Criteria

- Students on leave during data collection.
- Students without prior maternity ward exposure.

3.3 Data Collection Instruments

A structured questionnaire was developed by the researchers after reviewing WHO breastfeeding guidelines and previous validated instruments. The tool was comprised of three components:

1. Socio-demographic profile: Age, year of study, GPA, and family background.
 2. Knowledge on breastfeeding practices: 20 multiple-choice and true/false questions ranging over subjects like: 1 point for each right answer; 0 for wrong or "don't know". Total knowledge score = 20. Knowledge levels were categorized as: Good ($\geq 75\%$, score ≥ 15); Average (50–74%, score 10–14) & Poor ($< 50\%$, score < 10).
- Initiation of breastfeeding within 1 hour of delivery.
 - Exclusive breastfeeding duration.

- Proper latching techniques.
- Benefits of colostrum.
- Common breastfeeding problems and management.

3.4 Educational Role Perception Scale

10 Declarative sentences concerning the students' understanding of their role in the education of postnatal mothers (for instance, "I have the ability to give advice to the mothers about breast feeding methods"). Responses were rated on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). Higher scores indicated stronger role perception.

3.5 Data Collection Procedure

Permission was obtained from the Dean of Farasan University College. After informed consent, questionnaires were distributed during class hours. Students were given 30 minutes to complete them under supervision.

3.6 Data Analysis

Data were analyzed using SPSS v26. The socio-demographics, knowledge, and role perception scores have been summarized using descriptive statistics (frequency, percentage, mean, and SD). Inferential statistics included:

- A chi-square test will be applied to investigate the relationships of the categorical demographic factors (year of study, GPA) and the level of knowledge.
- An independent t-test will be used to analyze the mean knowledge scores between the different subpopulations.
- Pearson correlation to examine the relationship between knowledge and role perception.

3.7 Ethical Considerations

- Approval was obtained from the Dean of the Nursing department, University College of Farasan, Jazan University.
- Informed consent was secured from participants.
- Confidentiality and anonymity of students were maintained.
- Participation was voluntary, with the right to withdraw at any time.

4. RESULTS AND DISCUSSION

4.1 Participants' Characteristics

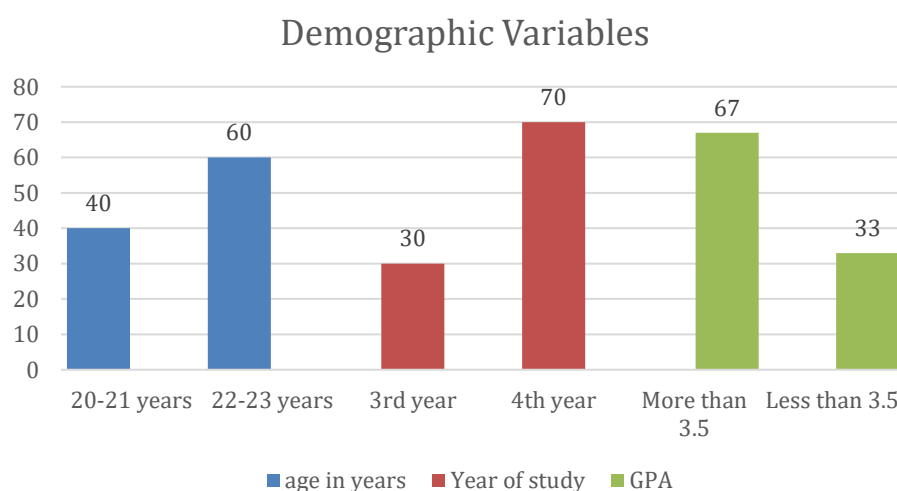


Figure 2. Distribution of Nursing Students' According to their Demographic Variables

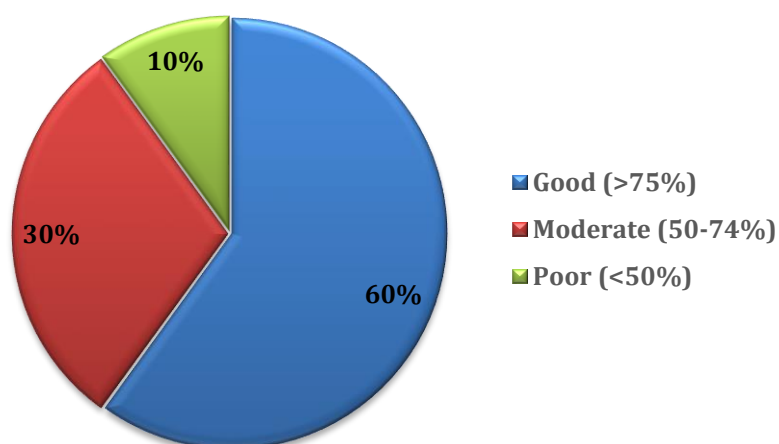
Table 1. Participants' Characteristics

Variable	Category	Frequency	Percentage (%)
Age (years)	20-21	12	40
	22-23	18	60
Year of Study	3rd year	9	30
	4th year	21	70
GPA	≥3.5	20	67
	<3.5	10	33

As shown in [Table 1](#) and [Figure 2](#) the demographic characteristics of the 30 nursing students who participated in the study are presented below. The majority of the students were aged between 22-23 years (60%), while the remaining 40% were aged 20-21 years. In terms of the students' academic year, the majority, 21 out of the total sample, which is equivalent to 70% were 4th year students and 9, that is 30%, were 3rd year students. The majority of students (67%) reported a Grade Point Average (GPA) of ≥3.5, while 33% were below that. These demographic features point out that the sample comprised mostly of the last-year students with high academic performance, which might be a factor in their knowledge and confidence regarding breastfeeding education.

4.2 Level of Knowledge and Perception on Breastfeeding

Level of Knowledge

**Figure 3.** Distribution of Nursing Students' Knowledge Levels Regarding Breastfeeding Practices**Table 2.** Knowledge Levels and Role Perception on Breastfeeding

Variable	Category	Frequency	Percentage (%)
Knowledge Level	Good (≥75%)	18	60
	Moderate (50-74%)	9	30
	Poor (<50%)	3	10
Role Perception	Confident in educating mothers	22	73
	Need more training	8	27

As shown in [Table 2](#) and [Figure 3](#) the assessment of nursing students' breastfeeding knowledge and their perceived educational role revealed important insights. The results show that 60% of students

demonstrated a good level of knowledge (score $\geq 75\%$), 30% had a moderate level (50–74%), and 10% scored poorly ($< 50\%$). The data indicates that their readiness to teach mothers after childbirth was not the same. The students mostly (73%) accepted the role of breast-feeding educators as a confident one, while a quarter of them (27%) chose the option that they need more training. The findings imply that majority of nursing students are well informed and self-assured but a significant part will still need to be supported and trained if they are to play the role of breastfeeding educators.

4.3 Inferential Analysis of Academic Variables, Knowledge and Role Perception

Table 3. Inferential Analysis of Associations between Demographic/Academic Variables, Knowledge and Role Perception

Test	Variable	Statistic	P-value	Interpretation
Chi-square	Year of Study vs Knowledge Level	$\chi^2 = 5.21$	0.023*	Significant association
Independent t-test	GPA vs Knowledge Score	t = 2.45	0.02*	Students with higher GPA had higher knowledge scores
Pearson correlation	Knowledge vs Role Perception	r = 0.52	0.004*	Positive moderate correlation

Table 3, scrutinized the relations between demographic and academic variables and students' knowledge and role perception. The chi-square test uncovered a noteworthy link between the study year and knowledge level ($\chi^2 = 5.21$, $p = 0.023$) which denoted that students in their fourth year were more probably having the highest degree of knowledge about breastfeeding than third-year students. Results from the independent t-test clarified that students with a GPA above or equal to 3.5 had a mean score in knowledge (Mean \pm SD = 16.2 ± 1.4) that was significantly higher than that of the students with a GPA less than 3.5 (14.8 ± 1.6 ; $t = 2.45$, $p = 0.02$). The Pearson correlation analysis pointed out a moderate positive relationship between knowledge and role perception ($r = 0.52$, $p = 0.004$), thus inferring that those students who scored higher in knowledge were more sure of their position as breastfeeding educators.

4.4 Knowledge Scores by Year of Study

Table 4. Knowledge Scores by Year of Study

Year of Study	Mean Knowledge Score \pm SD	T-value (p)
3rd year	14.9 ± 1.5	2.12 (0.04)*
4th year	16.0 ± 1.5	

As shown in **Table 4** a comparison of mean breastfeeding knowledge scores between 3rd and 4th year students was conducted. The average knowledge score for the third-year students was 14.9 ± 1.5 , whereas the fourth-year students scored even higher with an average of 16.0 ± 1.5 . The independent t-test confirmed the statistical significance of this difference ($t = 2.12$, $p = 0.04$), which means that the more knowledgeable students were the seniors. This result is in line with the hypothesis because the students in the higher years are more clinically and educationally exposed, thus their understanding and their faith in giving breastfeeding education to mothers after birth already has been improved.

The demographic profile of the participant population revealed a predominance of senior nursing trainees, with seventy percent enrolled in the fourth year of study and sixty-seven percent demonstrating a cumulative GPA above 3.5 [22], [2]. The distribution given here matches earlier studies that showed nursing students' proficiency of breastfeeding to be positively influenced by advanced studies and higher frequency of clinical exposure [3], [14]. The ability to critique and understand theoretically has been associated with higher academic achievements and this might be one of the explanations for the superior competency of the stronger students [17].

In addition, the results revealed that 60% of the participants scored high in lactation competency ($> 75\%$), 30% were rated as having moderately competent skills (50–74%), and only 10% of the participants were classified as being poorly competent ($< 50\%$) [12], [5]. This distribution of competency

levels is in agreement with previous research which pointed out that nursing students basically have the common breastfeeding knowledge but the level and application of this knowledge vary greatly among the students [6], [17]. The dominance of the moderate-to-high competency level indicates that the nursing education program has been able to impart accurately and sufficiently the basic lactation concepts, but at the same time, it also shows that the nursing education program needs to develop the advanced skills further [3], [17].

Regarding self-perceived confidence, seventy-three percent of participants reported confidence in educating mothers about breastfeeding, whereas twenty-seven percent expressed the need for additional preparation [4], [8]. Previous studies have also reported similar results, in which nursing students indicated that they could give breastfeeding education with confidence even though they had very little hands-on training in the hospital [8], [9]. Such a gap between confidence based primarily on theory and actual clinical skills demonstrates that there is a great need for more supervised clinical practices to support learning through experience [9], [10].

Statistical analysis using the chi-square test revealed a significant association between academic year and lactation competency level ($\chi^2 = 5.21$, $p = 0.023$), indicating that fourth-year trainees possessed significantly higher competency compared to third-year trainees [1], [14]. Studies that are similar have shown that senior nursing students, who are educated more and have more clinical rotations, always have better breastfeeding knowledge and clinical readiness than junior students, so it is very likely that this fast multifactorial educational exposure was the main reason for in that order of things [3], [11]. Also, the results from an independent sample t-test analysis revealed that the trainees with a GPA of 3.5 or higher, on average, had a significantly higher competency score (16.2 ± 1.4) compared to the trainees with lower GPAs (14.8 ± 1.6 ; $t = 2.45$, $p = 0.02$), thus confirming the association between academic performance and lactation competency as a positive one [5], [11]. It is quite possible that top-notch students might utilize the most effective learning techniques and the largest interaction with the evidence-based materials [23]. Correlation analysis demonstrated a moderate positive relationship between lactation competency and professional role perception ($r = 0.52$, $p = 0.004$), indicating that trainees with higher competency levels also reported stronger confidence in their role as breastfeeding educators [8], [12]. This finding is supported by prior research showing that healthcare providers' self-efficacy in breastfeeding support is closely linked to their knowledge and clinical competence [24], [12].

In addition, those trainees who had worked in obstetrics, gynecology, or neonatal care units showed much higher breast-feeding competency than the ones who had not experienced these areas [24], [10]. This brought out the fact that structured clinical experiences should be an integral part of nursing education [10], [23]. Furthermore, it was also confirmed that specific educational interventions related to the topics of breastfeeding and lactation support bring about not only an increase in knowledge and confidence but also in the practical skills of nursing trainees [24], [25]. To overcome the competency gaps that have been pointed out, the nursing curricula are to be enriched with detailed lactation education including not only training but also various clinical exposure as future nurses will be ...prepared for maternal and child health practice [26], [27].

5. CONCLUSION

The current study determined the awareness and the educational function of 30 nursing students specializing in obstetrics and gynecology at Farasan University College concerning breastfeeding practices of postpartum mothers. The results indicated that the students largely exhibited good knowledge, whereas a few showed moderate or poor knowledge. Chi-square analysis confirmed a significant association between year of study and knowledge level, while independent t-test results showed that students with higher GPA had significantly better knowledge scores. Pearson correlation further indicated that greater knowledge was moderately associated with stronger role perception in educating postnatal mothers. The study overall came to the conclusion that nursing students have a supportive level of knowledge and a favorable attitude towards their educational role in breastfeeding promotion. On the other hand, there are

still some differences with regard to knowledge and confidence, which are mainly among those with lower GPA or limited clinical exposure.

5.1 Implications for Nursing Education and Practice

- Nursing education should integrate structured breastfeeding counseling into the curriculum.
- Simulation and clinical exposure can improve students' confidence and skills.
- Well-trained nursing students can enhance maternal and child health outcomes through effective education.

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Authors Contributions Statement

Name of Author	C	M	So	Va	Fo	I	R	D	O	E	Vi	Su	P	Fu
Santhi Muttipoll Dharmarajlu	✓	✓	✓	✓	✓	✓		✓	✓	✓			✓	
Lamees Faqihi		✓				✓		✓	✓	✓	✓	✓		
Amal Ahmed Jabri	✓		✓	✓		✓			✓		✓		✓	
Huda Mohsen Ahmed Hobani					✓		✓			✓		✓		✓

C : Conceptualization

M : Methodology

So : Software

Va : Validation

Fo : Formal analysis

I : Investigation

R : Resources

D : Data Curation

O : Writing - Original Draft

E : Writing - Review & Editing

Vi : Visualization

Su : Supervision

P : Project administration

Fu : Funding acquisition

Conflict of Interest Statement

Authors state no conflict of interest.

Informed Consent

Informed consent was obtained from all participants before commencement of the study

Ethical Approval

The study received official ethical approval from Jazan University's Scientific Research Ethics Committee, as well as authorization from the Dean of Farasan University College. Each participant gave his or her agreement towards contributing to the study

Data Availability

The data that support the findings of this study are available from the corresponding author, [Santhi Muttipoll Dharmarajlu], upon reasonable request.

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