
Breastfeeding Attitudes and Knowledge in Bachelor of Science in Nursing Candidates

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ABSTRACT

Breastfeeding is an important health topic worldwide, although lack of breastfeeding knowledge is noted among health-care professionals. The purpose of this study was to explore the relationship between breastfeeding knowledge and attitudes in undergraduate nursing students at the beginning and end of their clinical education. An electronic survey, based on the Iowa Infant Feeding Attitude Scale and the Breastfeeding Knowledge Questionnaire, was administered. Attitude scores did not differ significantly between groups. Total knowledge scores between groups differed modestly ($p = .006$). Correlations between total knowledge and total attitude scores were found ($r[89] = .482, p < .000$). Respondents reported that nursing education effectively teaches breastfeeding and that breastfeeding advocacy through patient education is a crucial nursing role.

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Despite the recommendations of *Healthy People 2010*, breastfeeding rates in the United States are lower than those of many other countries (Jepson-Sullivan, Metos, Smith, & Jordan, 2011; U.S. Department of Health and Human Services [USDHHS], 2010; USDHHS, 2011). In 2011, the United States Surgeon General issued a call to action to support breastfeeding. The USDHHS (2011) further identified the roles of health-care professions for improving the nation's breastfeeding rate. Taveras et al. (2004) found that new mothers frequently indicated that the support from health-care professionals was a very important form of breastfeeding assistance.

Simmons (2002) illustrated the difficulties that many new breastfeeding families experienced,

including receiving advice from nurses that was either erroneous or inconsistent. Participants found this advice distressing, unsatisfying, and difficult to understand (Simmons, 2002). Also, the breastfeeding families reported that when this information was given in a forceful manner, they were discouraged and felt a lack of self-confidence (Simmons, 2002). When families feel unable and unprepared to breastfeed, success rates will go down. It is consequently extremely important that health-care professionals, particularly nurses, who spend the most time with patients, provide honest and accurate information.

The Surgeon General (USDHHS, 2011) has identified a deficit in breastfeeding education in nursing and physician education programs. Spear (2006) reports that the significant majority of baccalaureate

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nursing students were unaware that breastfeeding is the preferred method of feeding infants younger than 1 year of age and that nearly half of the same students were against public breastfeeding. Thus, the students studied clearly lacked an understanding of some basic facts about breastfeeding—facts that they need to know before interacting with a pregnant or new mother. Analysis of six different nursing textbooks published in the last 15 years found that the textbooks used by nursing students contain inaccurate information (Philipp, McMahon, Davies, Santos, & Jean-Marie, 2007). In fact, the textbooks studied averaged breastfeeding content that was only 59% accurate, and no textbook contained more than 75% accurate breastfeeding-related content (Philipp et al., 2007).

Knowledge is not the only component of nurse preparedness needed if nurses are to assist breastfeeding families; this knowledge must be combined with positive attitudes toward breastfeeding, and a level of comfort with assisting women to breastfeed, in order for nurses to effectively advocate breastfeeding for their patients. Riley (2007) used the Iowa Infant Feeding Attitude Scale (IIFAS) to examine the difference between junior and senior nursing students' attitudes about breastfeeding, at a school in which the maternal-child health course was taught at the senior level. Important improvement in the IIFAS scores from junior to senior students was interpreted by the researcher to mean that the knowledge from the maternal-child health course improved student attitudes toward breastfeeding (Riley, 2007).

Ahmed and El Guindy (2011) examined the interplay of knowledge and attitudes in Egyptian baccalaureate nursing students using a Western nursing curriculum. They administered the IIFAS scale and an adapted version of the Breastfeeding Knowledge Questionnaire developed by Brodribb, Fallon, Jackson, and Hegney (2008) to study general practitioners' breastfeeding knowledge (Ahmed &

El Guindy, 2011). The researchers reported an average attitude score of 3.13 out of 5—a surprisingly neutral score for students from the Egyptian culture, which popularly supports breastfeeding. Their study found a significant positive relationship between nursing students' knowledge and attitude. This relationship indicates that higher knowledge scores are associated with a more positive attitude, although directionality could not be determined by this study.

Studies have also shown that background is an important factor in nurses' attitudes toward breastfeeding. Cricco-Lizza (2006) found that nursing students with more breastfeeding-related experiences correlate with stronger positive attitudes (Cricco-Lizza, 2006). Furthermore, Hellings and Howe (2004) found that pediatric nurse practitioners reported their personal experiences as their most important educational experiences related to breastfeeding. Consequently, clinical breastfeeding practice among nurses seems to be a product of knowledge, attitudes, and personal experiences rather than a single variable.

The research objective was to further the body of knowledge concerning the relationship between breastfeeding knowledge and attitudes, particularly in novice nurses. Each of these factors has been studied in isolation, but limited research has been done investigating the interaction of breastfeeding knowledge and attitudes. To investigate the possibility of this interaction, the researcher partially replicated studies by Riley (2007) and Ahmed and El Guindy (2011) with an American baccalaureate nursing student population. In addition, the research incorporated qualitative open-ended questions to further explore students' attitudes toward breastfeeding. Open-ended questions allowed students to explain and explore their personal beliefs about and background with breastfeeding; these items were analyzed thematically for detail about student attitudes.

METHODS

A mixed methods design capturing descriptive quantitative data and qualitative responses was employed. Evaluation of knowledge and attitudes took place with two levels of nursing students—one group in their first semester of clinical nursing education (sophomores) and one group in their last semester of nursing education (seniors)—at a mid-sized college of nursing at a mid-Atlantic religiously affiliated university. The current curriculum at this

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college of nursing addresses breastfeeding during the maternal–child course, which is taken between these two periods of time. Sampling students at the beginning of their clinical education and at the end of their clinical education acknowledges that some experience with breastfeeding and breastfeeding education might occur outside of the classroom during summer employment, service missions, or other experiences.

Data collection took place with two separate cohorts of students. The first cohort ($n = 48$) was from the university's accelerated second degree program, and the second cohort ($n = 41$) was from the university's traditional baccalaureate program. Data collection occurred between June 2012 and April 2013.

Ethical Considerations

This study was approved by the university's institutional review board, including permission to access the e-mail list for the group of students. The students were assured that participation was voluntary and anonymous and that participation or the decision not to participate in the study would not affect their status or academic grades.

Study Tools

This study was introduced to the nursing students by the researchers. Potential participants were able to ask questions of the researchers in person and via e-mail. An e-mail was sent to potential participants with a unique link to the electronic survey. Identification numbers were assigned via the electronic survey, permitting analysis of the entirety of an individual student's responses while maintaining anonymity. Demographic information was collected in addition to the survey questions. The attitude portion of this survey was based on the 17 items taken from the II-FAS (Ahmed & El Guindy, 2011; de la Mora, Russell, Dungy, Losch, & Dusdieker, 1999; Riley, 2007). Three additional questions used by Ahmed and El Guindy (2011) were also asked of the participants. The Cronbach's alpha for this study was calculated for the original 17 items ($r = .74$) and with the additional 3 items ($r = .80$). The attitudes survey was scored by assigning points on a 5-point Likert scale to allow numerical analysis, with lower scores indicating negative attitudes and higher scores indicating more positive attitudes about breastfeeding.

The knowledge questions consisted of 22 items from Brodribb et al.'s (2008) Breastfeeding

Knowledge Questionnaire. The Cronbach's alpha for this study was calculated ($r = .60$), slightly lower than the reliability reported by Brodribb et al. in 2008. Five additional open-ended questions were included at the end of the survey. In addition to the e-mail of solicitation, potential participants received two e-mail reminders over the next month to encourage participation. For the knowledge survey, each correct answer was assigned 1 point so that a numeric score was provided for each item. Total knowledge scores were calculated along with scores on each of the three knowledge subscales: breastfeeding benefits, physiology of lactation, and breastfeeding management. Statistical analysis was performed using Statistical Package for the Social Sciences (SPSS) software. Analysis of variance (ANOVA) was used to compare groups' total attitude scores. ANOVA was also used to compare the groups' total knowledge and each of the total knowledge subscale scores. Pearson correlations were performed to identify relationships between the scores. Open-ended questions were included in the survey to further explore the students' attitudes toward breastfeeding. A phenomenological perspective was used to immerse, analyze, and describe these responses (Creswell, 2012). The content of responses was organized by keywords and analyzed thematically until concept saturation was achieved. Keywords and themes were verified by a faculty mentor who independently analyzed the responses.

RESULTS

Sample

The survey was sent to 199 students in the first cohort and 187 students in the second. There were 89 surveys fully completed, for a response rate of 23.1%. One participant was excluded because of self-identification as a certified lactation consultant. Demographic characteristics are presented in Table 1.

Data

Attitude scores for both groups were remarkably similar. See Table 2 for scores. The total knowledge scores for the incoming and graduating nursing students differed significantly ($p = .006$). The knowledge subscales related to benefits and physiology were not significantly different; however, the management subscale scores (incoming student mean 5.43, graduating student mean 6.77, $p = .003$) were significantly different. Moderately positive correlations between total knowledge and total attitude

TABLE 1
Demographic Characteristics

| | Sophomore | Senior | Total |
|------------------------------|------------|------------|------------|
| Group | 40 | 49 | 89 |
| Gender | | | |
| Female | 38 | 44 | 82 |
| Male | 2 | 5 | 7 |
| Age median (range; years) | 20 (19–43) | 23 (21–45) | 22 (19–45) |
| Ethnicity | | | |
| White | 32 | 47 | 79 |
| Black/African American | 3 | 2 | 5 |
| Asian | 4 | 0 | 4 |
| Other | 1 | 0 | 1 |
| Self-identified as parent | 3 | 6 | 9 |

scores, regardless of group, were significant, $r(89) = .482, p < .000$.

Analysis using a phenomenological perspective of the open-ended responses in the two cohorts of students identified some themes (Creswell, 2012). The sophomore students, almost without exception, stated that they felt unprepared to educate families about the benefits or mechanics of breastfeeding as well as felt uncomfortable assisting a woman with breastfeeding. These students also frequently stated that they believed they would be prepared to do these things after completion of their nursing education. The following quotation was a typical student response: “There are gaps in my knowledge about breastfeeding, but hopefully as I continue the nursing program, I will become educated about the process.”

The senior students generally felt capable and comfortable assisting families with breastfeeding, although a substantial number reported wanting to have more information or clinical experience before they believed that they would be truly helpful to families. Senior

students responded with comments such as “I am very confident. I have already had my OB rotation and believe that I did a good job,” and “I feel that I’m educated, but I could use a review on the information and I can always learn more.” When asked about what best prepared them, students cited clinical or personal experience, and many wished that they had been able to spend more time with or to learn from a lactation consultant.

Interesting themes were identified in relation to a question that asked, “Is breastfeeding advocacy the role of a nurse? Why or why not?” Student responses fell into one of two categories: Advocacy equates to education, or advocacy does not equate to education. For example, one respondent wrote, “Yes because it’s the nurse’s job to educate our patients,” whereas another said, “No. The nurse should only provide education about both means of feeding, and let the mother make her choice.”

Nearly all respondents stated that they believed it is the role of the nurse to educate patients about infant nutrition but that the nurse should not give his or her opinion or make statements about the “best” choice to patients. One student summed up many other comments in the following response: “Yes. Studies certainly document the benefits of breastfeeding. However, I firmly believe once parents have been educated on these benefits, it is *their* decision, and it is as much the nurse’s duty to support that autonomous decision as we would a patient’s choice for any other similar care option.”

DISCUSSION

The data supported the hypothesis that knowledge level and attitudes about breastfeeding are related, which is consistent with findings of Ahmed and El Guindy (2011). Despite recent media and professional programs aimed at increasing breastfeeding support in the United States, the mean attitude scores in this study are lower than those of the Egyptian cohort (3.13). The researcher also hypothesized that

TABLE 2
Total Attitude and Total Knowledge With Subscales

| | Possible Score Range | Sophomore Mean (SD) | Senior Mean (SD) | <i>p</i> Values |
|---------------------|-------------------------|------------------------|---------------------|-----------------|
| Total attitude | 1–5 | 2.61 (± 0.45) | 2.72 (± 0.41) | — |
| Total knowledge | 0–22 | 13.38 (± 2.74) | 14.98 (± 2.60) | .006 |
| Benefits subscale | 0–4 | 3.30 (± 0.88) | 3.40 (± 0.86) | — |
| Physiology subscale | 0–6 | 4.65 (± 1.00) | 4.80 (± 0.84) | — |
| Management subscale | 0–12 | 5.42 (± 2.12) | 6.78 (± 1.97) | .003 |

both knowledge and attitude scores would increase with educational progression; however, only knowledge-item scores increased at a significant level, and within the knowledge items, only the breastfeeding management category increased significantly. The correlation between positive attitudes and knowledge was not unexpected because those students with positive attitudes are likely to have better overall knowledge of breastfeeding. Causation and timing, however, cannot be determined; that is, whether or not the student developed a positive attitude before or after increasing his or her knowledge. Combined with the strong relationship between knowledge and attitudes, the small increase in knowledge-item scores between the incoming and graduating students suggests that a comprehensive breastfeeding education program should address both knowledge and attitudes in the nursing education curriculum.

In the free-response questions, senior students revealed a belief that they are much more educated about breastfeeding following their nursing education, and sophomore students a belief that they would learn about breastfeeding during their course work. In contrast, the survey responses showed that attitudes and knowledge scores did not differ greatly between the two cohorts of students. The incongruence between nursing students' perceptions of their knowledge level in the free-response questions and their actual scores on the knowledge test raises concerns about the efficacy of breastfeeding education and is worth further investigation. However, the increase in confidence seen in senior students is valuable because students' confidence in their abilities is important for them to give competent care (Johansson, Oléni, & Fridlund, 2002).

The question of advocacy for breastfeeding and education of mothers about breastfeeding is an interesting one because almost all students commented that they believed strongly that education is an important role of the nurse, but there were divergent opinions, not only as to the role but also about the best definition of advocacy. The researcher intended to equate "advocacy" with "active recommendation"; thus, breastfeeding advocacy from the standpoint of a nurse would mean recommending breastfeeding as the healthiest infant-feeding method for the mother and baby dyad. Many respondents did not seem to share this definition of the word because most responses made sense only when interpreted with the definition of advocacy as "patient education." Those respondents that seemed

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to use an alternate, less positive definition of advocacy indicated that the respondents viewed breastfeeding advocacy as telling patients how to make the "right" choice or by providing biased teaching. Concerns were also raised about the impact advocacy might have on women who choose not to or who cannot breastfeed, suggesting that students are hesitant to come out too strongly in favor of any feeding method, despite their personal beliefs. Patient care was their foremost concern, but the responses indicated that the nursing students viewed breastfeeding as an individual parenting choice.

Implications for Practice

Lactation consultants and others supporting new nurses in their role transition should understand that further education is required. Particularly important considerations for continuing education for staff nurses include cultural norms related to breastfeeding, in addition to more traditional items such as the treatment methods for mastitis, to fully prepare nursing students to provide care for new mothers. Two studies on the efficacy of comprehensive breastfeeding education programs provided to medical students in their residencies included cultural competency and breastfeeding advocacy components in their educational interventions (Feldman-Winter et al., 2010; Ogburn, Espey, Lee-man, & Alvarez, 2005). In both studies, the students who received the intervention had higher knowledge and confidence scores after they completed a program on breastfeeding, demonstrating the use of multifaceted breastfeeding education as well as its relevance within the clinical setting (Feldman-Winter et al., 2010; Ogburn et al., 2005). Continuing education for staff is thus both necessary and feasible and can be achieved by International Board Certified Lactation Consultants (IBCLCs), staff educators, or outside parties.

Limitations

Self-selection bias may have resulted in an oversampling of students with specific interest in breastfeeding. Although personal experience with breastfeeding was asked about in the demographic questions, it did not appear to significantly influence

the students' responses. Inherent in a survey of this nature, the individual student's clinical skill level and competency for assisting a breastfeeding mother were not assessed. The primary intent of the current work was not to evaluate the curriculum per se; however, knowledge acquisition is dependent on educational methods and student engagement.

Since this study took place at only one university, it may not be generalizable to or representative of all nursing students. The two cohorts of students (traditional 4-year students and second-degree students) were intended to be analyzed separately; however, because of the relatively small final sample, the cohorts were combined. This sampling method may be viewed as a limitation because it was not the original intent. Conversely, combining the samples may increase the generalizability of the findings, in that the two cohorts represent two groups, partaking in the same curriculum. These findings are consistent with those of Ahmed and El Guindy (2011) and contribute to overall knowledge about student beliefs and attitudes.

Implications for Further Research

Based on the variety of interpretations of the term *advocacy*, the authors recommend the inclusion of operational definitions for key terms used in the free-response questions or the use of focus groups or interviews to obtain more detailed responses. This project also adds to discussion of the efficacy of the education of novice nurses related to knowledge and attitudes about breastfeeding. The researcher further recommends that studies be conducted to evaluate the efficacy of specific curricula or educational implementations, especially as related to long-term retention of breastfeeding knowledge.

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