



RESEARCH ARTICLE

Virtual Lactation Counseling Simulation Sessions for Diverse Lactation Minor Students: Using Grounded Theory to Classify Students' Debriefing Questions

Sherri Garber Mendelson, PhD, RNC, CNS, IBCLC, FAWHONN¹; Merav Efrat, Ed.D, MPH, CLC, IBCLC²; Myriam Forster, PhD, MPH³; Cathy Kitinoja, BA-Soc⁴

¹ Lactation Trainer, Department of Health Sciences, California State University Northridge, 25616 Cielo Court Valencia, CA 91355

² Professor Department of Health Sciences, California State University Northridge, 18111 Nordhoff St. Northridge, CA 91330

³ Associate Professor, Department of Health Sciences, California State University Northridge, 18111 Nordhoff St. Northridge, CA 91330

⁴ Human Lactation Administrative Assistant, Department of Health Sciences, California State University Northridge, 18111 Nordhoff St. Northridge, CA 91330



PUBLISHED
31 July 2025

CITATION
Mendelson, SG., Efrat, M., et al., 2025. Virtual Lactation Counseling Simulation Sessions for Diverse Lactation Minor Students: Using Grounded Theory to Classify Students' Debriefing Questions. *Medical Research Archives*, [online] 13(7).

<https://doi.org/10.18103/mra.v13i7.6732>

COPYRIGHT
© 2025 European Society of Medicine. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

DOI
<https://doi.org/10.18103/mra.v13i7.6732>

ISSN
2375-1924

ABSTRACT

Introduction: This study explored the value of simulations to improve programs that train and prepare lactation counselors from diverse communities. Breastfeeding rates are lower than desired. Increasing diverse rural lactation counselors is critical. Classification of student input will help strengthen future telehealth lactation counseling simulations for students' understanding, and communication.

Methods: Multiple one-hour small virtual lactation counseling simulation sessions with diverse students included five patient questions and consultations by an International Board Certified Lactation Consultant (IBCLC) with debriefs. Qualitative design with Grounded Theory based on National League of Nursing (NLN) Jeffries Simulation Theory and Lewin's Change Theory was used.

Results: Guiding students to communicate with new parents, demonstrating how to support parents' autonomy, providing clear definitions of terms and intent, and understanding physiologic outcomes are critical elements of training students for future lactation practice.

Discussion: Not only were there students from diverse cultures, but also students within a wide age range, and wide life-experience range. Having small groups of students on the virtual simulation sessions allowed each student to be called on after each question to maximize their participation and answer or clarify any questions. It appears that as students became more familiar with the course content and with the simulation methodology, they were more comfortable participating in the session debriefs. Students often seemed surprised by the questions and the answers.

Conclusions: Results suggest virtual lactation counseling simulations as an addition to class instruction are a successful format for training students with the knowledge and skills needed to work as lactation counselors.

Abbreviations:

- CLC** :Certified Lactation Counselor
IBCLC :International Board-Certified Lactation Consultant
U.S. :United States
NLN :National League of Nursing

Background:

This study explores utilization and acceptability of virtual telehealth simulation sessions with student-instructor debriefing as a component of Certified Lactation Counselor (CLC) college courses to develop student's lactation counseling and communication skills. The current program seeks to increase the number of diverse CLCs in the community among participating students of diverse ethnic backgrounds through lactation counseling courses that include lactation counseling simulation groups by an International Board-Certified Lactation Consultant (IBCLC). This manuscript describes how students reacted to lactation counseling simulations, responded to questions and their perceptions of the program to inform future lactation counseling simulations and develop best practices that will enhance students' understanding and strengthen core capacities of the future lactation counselor workforce.

The need for CLCs is critical as evidence has demonstrated that breastfeeding has numerous positive health benefits for both mother and baby.¹⁻⁶ Healthy People 2030 has set national objectives to increase the proportion of infants in the United States who are exclusively breastfed through six months of age and who continue to be breastfed through twelve months of age.⁷ Given that exclusive breastfeeding from birth through the postpartum hospital stay is more likely to result in breastfeeding continuation after discharge,⁸ breastfeeding assistance during the immediate hospital stay and after discharge is imperative to promote the Healthy People 2030 aim of increasing the number of infants exclusively breastfed for the first six months of life.⁸⁻¹¹ Breastfeeding initiation and exclusive breastmilk feeding for six months with continued breastmilk feeding up to and beyond two years of age is the current recommendation by the World Health Organization, the Center for Disease Control, the National Institute of Child Health and Human Development and the American Academy of Pediatrics, for maximum health benefits to newborns.^{7,12,13,14}

Strategies and interventions to help mothers start and maintain breastfeeding need to incorporate factors that have been shown to have positive results.¹⁵ For example, Churco, et al. examined the implementation of an inpatient, IBCLC certified breastfeeding support program that increased patient support and decreased sore and cracked nipples but was not able to improve exclusive breastfeeding rates at two weeks post birth.¹⁶ A study in Denmark assessed the effect of increased lactation counseling support for 2,065 mothers and found that in the intervention group fewer infants were readmitted to the hospital at 1 week in the intervention group and at 6 months following birth compared to the comparison group with support as usual. They also found that compared to the control group, significantly more infants in the intervention groups were exclusively breastfed, that

mothers were breastfeeding more frequently and spent more hours skin to skin with their infants and that infants were less often treated for jaundice.¹⁷ McFadden, et al. found in a systematic review of randomized control trials that breastfeeding counseling is effective at increasing any and exclusive breastfeeding rates.¹¹ Use of telehealth to deliver breastfeeding counseling was explored as a potential benefit by Usher-Pines, et al.¹⁸ Otiv, et al. found that increasing lactation counseling during the post-birth hospital stay significantly decreased the incidence of sore nipples, and engorgement as well as significantly increasing the rate of exclusive breastfeeding at hospital discharge.¹⁹ Orchard & Nicholls explored the impact of social media on breastfeeding and found mixed results and indicated the content and viewpoint of the social media site may be an important determinant.²⁰ To maximize parents' understanding and implement programs that foster effective measures to improve the prevalence and length of breastfeeding among mothers, the United States (U.S.) needs to increase the availability of certified lactation counselors. Many factors are linked with optimal breastfeeding rates, including support from lactation counselors.²¹

Currently the U.S. is experiencing an acute shortage of lactation professionals.²²⁻²³ Research documents a need for approximately 8.6 lactation professionals per 1,000 live births in the U. S.²⁴ however, according to the Center for Disease Control's Breastfeeding Report Card, the ratio of lactation counselors in California per 1,000 live births is merely 2.1, less than half the national average of 4.57,²² and far below the targeted ratio. One surrounding rural county demonstrated a shortage of lactation professionals that has resulted in significant disparities in breastfeeding rates among under-represented minorities.^{25(p84)} Aside from the severe shortage of lactation professionals in the nation, there is a growing need for lactation professionals in rural communities with access to timely and qualified lactation support is severely lacking in these areas.²⁶⁻²⁷ For example, the shortage of lactation professionals in one local rural community has resulted in significant disparities in breastfeeding rates among under-represented minorities.^{25(p84)}

One important way to increase breastfeeding rates is to provide appropriate training for lactation counselors. The clinical aspects of this training have typically been implemented in-person during hospital lactation visits, parent lactation classes and post-discharge lactation visits with individual students mentored by a certified lactation consultant. To increase access to training, this project provided lectures that can be delivered in classrooms or on-line. Telehealth training modalities, demonstrated to be effective for education, and health visits,²⁸⁻²⁹ are one method to implement education to a broad audience regardless of their proximity to a health clinic or hospital.

With multiple telehealth trainings demonstrating positive benefits, including lactation education and counseling, the current results can inform efforts to increase the understanding of future CLCs regarding questions mothers have about breastfeeding prior to giving birth and in the week after giving birth, as well as addressing

any concerns that CLCs have about their experiential learning. Ultimately, this program seeks to determine if a lactation course that includes lactation telehealth simulations will increase the number of diverse CLCs in the community and increase the diversity of participating students to meet the needs of a diverse birthing population. Given the steady rise in breastfeeding initiation rates, the demand for lactation professionals is only expected to increase. As more mothers choose to attempt breastfeeding, and breastfeed their infants longer, they will need the education and support that lactation professionals of diverse backgrounds can provide. Rhodes, et al utilized the results from previous lactation studies on health equity in their study implementing a peer counselor program for lactation help delivered to diverse groups.³⁰

In addition to increasing the number of available lactation counselors in the U.S., there is a growing need to diversify the lactation workforce, highlighted by a recent report from the Academy of Lactation Policy and Practice that found minorities were severely underrepresented in the lactation profession.³¹ For example, while 18% of the U.S population identify as Latino/a, merely 8% of U.S. lactation professionals identify as Latino/a.³¹

The need for increased diversity in the nutrition science student body at the two-year and four-year college programs involved in this study as Latino/a are also underrepresented in the nutrition science programs at these Hispanic serving institutions. While Latino/a make up 74% of students at the large urban area school district (the main school district feeder to the four-year University), only 51% of the undergraduate student population in the nutrition program at the four-year University is Latino/a. Similar disparity exists at the two-year college, with Latino/a making up only 62% of students majoring in nutrition. Retention, transfer, and graduation rates of Latino/a students majoring in nutrition is also low at both institutions. At the two-year College, the fall-to-fall persistence rate of Latino/a nutrition students is 60.5%. Furthermore, while 47% of students entering the two-year College identify transfer to a 4-year university as their main goal, only 19% of students successfully transfer within eight years.³² As a result, only sixteen Latino/a nutrition students transferred from the two-year College to the four-year program in fall 2019. Once at the four-year University, undergraduate Latino/a nutrition students experience difficulties in graduating. In 2018-19, the one-year retention rate of Latino/a nutrition students was only 75% and the six-year graduation rate of Latino/a nutrition students was merely 35%.

This project provided a pathway to increase the number of qualified diverse nutrition students trained and credentialed in the lactation field as CLCs.

By educating an increased number of diverse nutrition graduates trained as lactation counselors, the University intends to help address this acute shortage of lactation professionals. In this project, the diverse nutrition students would be positioned, upon graduation, to provide families needed support to provide their infants with optimal nutrition via breastmilk. This study supports the

University's leadership in providing lactation education for underserved populations looking to become CLCs.

The experiential learning curriculum component of this project was designed to enable students to demonstrate proficiency in the skills and competencies required to sit for the certified lactation counselor exam. Importantly, the experiential learning component was offered in a fully virtual environment, thereby allowing students to shadow and receive mentorship from a lactation professional as they develop vital leadership and lactation counselor skills and competencies from a remote location, offering students a cost-effective and time-efficient option to complete a minor in human lactation, while simultaneously completing their bachelor's degree in nutrition.

This project developed hands-on experiential learning opportunities for students that extended beyond the classroom and provided students with a context in which to solve complex problems in a real-world setting guided by change and simulation theoretical frameworks.³³

Telehealth is a service delivery model for provision of health care services, health information and health education remotely. Telehealth is an innovative way to extend health care across populations to improve access to high-quality and efficient health care with a focus on empowering patients to manage their own illness.³⁴ Telehealth provides access to health assessment, diagnosis, interventions, consultation, supervision and information across a distance.³⁴

A Pilot Study of Home-Based Videoconferencing for Breastfeeding Support was done by Rojjanasrirat, W; et al.³⁵ Methods included 4 videoconferencing sessions for lactation support with 10 new mothers over age eighteen, speaking English, using high speed internet. Success of the program was measured by comparing LATCH score, composed of assessment of **L**atch, **A**udible swallowing, **T**ype of nipple, **C**omfort and **H**old, for assessment with in-person validation during two sessions. Use of a doll by the IBCLC to demonstrate latch and positioning was included. Outcomes of LATCH score agreement during the 1st visit were 40-100% and 80-100% in the 2nd visit. All patients strongly indicated they were comfortable talking about breastfeeding needs via videoconferencing although four out of ten participants could not use their existing computers, and two telehealth visits had to be rescheduled due to poor quality of pictures and sound.

Studies on telehealth for lactation have largely been focused on the post discharge needs of breastfeeding couplets. One suggestion to maximize benefits of lactation assistance is for a hands-off approach thus allowing the mother to independently learn to position and help her baby to latch, leading to improved breastfeeding self-efficacy following the consultation.³⁶ Lactation telehealth may be a vehicle to promote this hands-off approach. The LACTOR study by Ahmed, A., et al.³⁷ explored the development and assessment of an interactive web-based breastfeeding monitoring system. Although integrating telehealth in lactation education is still in the early phases, some data support overall outcomes for patient breastfeeding success, improved mother/baby health, cost effectiveness, patient

satisfaction and provider satisfaction, and use in education simulations for lactation students.³⁸

Change theories are beneficial for planning interventions, monitoring and evaluating, engaging stakeholders, and for anticipation of how a process will function within evidence-based policy and practice.³⁹ The utilization of Lewin's Change Theory is especially helpful when implementing a new program. Lewin recognized the importance of planning ahead when new ideas are introduced, rather than waiting for unintentional or accidental processes to occur.⁴⁰

Lewin's Change Theory describes three levels of change: unfreezing, changing, and refreezing. To get buy-in from the staff, the benefits of the change must be made clear; this is the unfreezing stage. Once the need for the change is identified, the staff will undergo the change stage. During this stage the staff realize "life will not be the same."⁴⁰ This stage may involve pilot runs in which the staff are provided with additional training and resources to implement the change. The final stage, refreezing, is the point at which reinforcements for the new procedures will increase the likelihood of sustaining them.⁴¹ It is helpful if leaders reinforce the new processes and reward adopters of the new processes;⁴⁰ for those who develop new programs, it is important to retain support by stakeholders and champions of the cause in advance of the rollout to increase the likelihood of practice uptake and sustainability.⁴¹ Overall, literature identifies leadership, effective communication and teamwork as the most critical elements for change to be accepted and adopted.⁴²

Using Lewin's Change Theory to develop a telehealth program of simulations for students will provide a template to plan, implement and evaluate the plan to change. This theory can map out the paths of each actor in the process to achieve the desired outcome.³⁹ The hospitals who implemented Lewin's Change Theory practices had a higher rate of buy-in from staff. When hospitals capitalized on the refreezing stage by providing additional Information Technology experts to be available to help staff in real time it was a much smoother and successful transition to telehealth services. Avenues such as funding to provide additional information technology nurses and staff will create

reinforcements for the new process, which will increase the likelihood of success.⁴¹

The National League of Nursing (NLN) Jefferies Simulation Theory is also incorporated into the current study as it is referenced to establish, evaluate, and/or modify simulated participant education programs by inclusion of a simulation experience with dynamic interaction between facilitators and participants via pre-briefing, simulation progression, cues, and debriefing.⁴³

This study offers experiential learning in human lactation for diverse minors in human lactation students through an innovative virtual mechanism. It provides lactation counseling prenatal and postnatal simulation sessions with student and instructor debriefs for experiential learning for CLC students from rural areas. Utilization and acceptability of virtual telehealth simulation counseling sessions with student-instructor debriefing to develop student's lactation counseling and communication skills. Thematic analysis using grounded theory will help determine gaps in the simulation to clarify and expand upon for future learning experiences by generating new theories directly from the data, which can be useful for developing new frameworks or models.⁴⁴⁻⁴⁵ Grounded theory is adaptable to qualitative data and allows theory generation that is grounded in real-world data that will be relevant to ongoing education development of CLCs.

The study hypothesized that the simulation sessions would increase understanding that CLC students have during their experiential learning regarding breastfeeding questions that the mother might ask and how those questions might be answered by an IBCLC for strengthening future areas to concentrate on in the experiential learning.

Methods:

DESIGN:

This was a quasi-experimental experiential virtual learning intervention within a lactation counselor training program targeted towards a diverse population. The sample consisted of students taking either one or both of two lactation minor courses (see Table 1).

Table 1: Sample Data of Students Enrolled in one or Both Lactation Minor Courses

Gender (N=550)		
Female	507	92%
Male	42	8%
Not given		0%
Ethnicity (N=550)		
Hispanic/Latino	386	70.18%
White	69	12.55%
Asian	42	7.64%
Black/African American	31	5.64%
Not Specified	13	2.36%
Two or More Ethnicities/Race	8	1.45%
American Indian/Alaska Native	1	0.18%

SETTING AND RELEVANT CONTEXT:

Following Institutional Review Board (IRB) approval from the University (11-17-2023), an IBCLC presented 107 one-hour, virtual simulated prenatal and first week at home postnatal simulation breastfeeding consultations with small groups of 4-6 CLC students as part of each lactation minor class. The socio-cultural context of the study was to include diverse students to increase the availability of CLCs and in turn increase breastfeeding rates among these groups. The study places value on increasing well-trained CLCs in these economically underserved areas with the understanding that increased breastfeeding rates also improve health which has important economic implications.

SAMPLE:

The target population for this study was college students from diverse backgrounds. The sample were college students pursuing a minor in lactation from a specific 2-year college, or a specific 4-year university. The inclusion

criteria were students enrolled in at least one of two lactation education courses. Exclusion criteria were students not enrolled in either of the two lactation courses or not enrolled as students in participating academic locations. Students with vision or hearing disability were not excluded as the virtual simulation sessions could include verbal discussions (visual disabilities) and verbal text inclusion (hearing disabilities).

Students were recruited to register for the courses that included the study virtual simulation sessions in the same way that all courses were advertised on the school websites.

During the three-year program there were 71 prenatal simulation sessions with a total of 388 student attendees, and 36 postnatal sessions with a total of 162 student attendees. Therefore, there were 107 total simulation sessions offered with 550 student attendees.

Table 2: Number of Prenatal and Postnatal Observation Sessions and Student Attendees

Prenatal observation sessions - HSCI 434	# of sessions offered	# students attended
Year 1 - Spring 22/Summer 22	17	94
Year 2 - Fall 22/Spring 23/Summer 23	31	168
Year 3 - Fall 23/Spring 24	23	126
Total Prenatal sessions/students	71	388
Postnatal telehealth simulation sessions - HSCI 446	# of sessions offered	# students attended
Year 1 - Spring 22 only	10	45
Year 2 - Spring 23 only	12	57
Year 3 - Spring 24 only	14	60
Total Postnatal sessions/students	36	162
Total All sessions/students	107 sessions offered	550 total students

The sample size for this study, N=550, is adequate to avoid the effect of attrition in limiting validity of the findings.

DATA COLLECTION:

Data collection, through recordings of each lactation simulation session began during Fall Semester, 2023 and continued through Spring Semester, 2024. All participating students were asked to sign a consent to allow videotaping of the sessions they would be attending. Students could opt out of being visually present during the videotaping. A University Zoom platform was used and recordings were saved on the platform and then transcripts of the simulations were kept on a password protected computer. The transcripts will

be destroyed twelve months after the final simulation session.

The IBCLC assumed the role of lactation counselor and of the expectant or breastfeeding parent. Five cases were included in each session with a debrief between the IBCLC and the students after each question (questions are listed in Table 3).

The lactation counseling simulation sessions were based on the NLN-Jeffries Simulation Theoretical Framework,^{43,46} which considers participants in the simulation. In this study the participants were the students, the IBCLC that led the simulations, and the patients whose questions and responses the IBCLC was simulating.

TABLE 3. Lactation Simulation Questions Asked by the IBCLC Leading the Simulations

Lactation Simulation Questions
Prenatal:
1. I plan to exclusively breastfeed. How can I be sure to make enough milk for my baby?
2. With my last baby I had very sore nipples for a month. How can I avoid that this time?
3. I plan to do both breast and bottle-feeding. How is the best way to handle that?
4. With my last baby I could not get the baby to latch for the first feeding and the baby was formula-fed in the nursery and then kept formula feeding. How can I avoid that?
5. My mother-in-law is encouraging me to formula-feed. She says it is fine and healthy and then she will be able to help me. What should I say to her?
Postpartum:
1. My nipples are sore. What am I doing wrong?

2. My baby is one week old, and he is up eating every hour. Why don't I have enough milk?
3. My baby sleeps a lot during the day and my breasts get so full that they leak.
4. My baby is jaundiced, and my pediatrician says I must supplement with formula. Do I have to do this?
My baby is 5 days old and has not gotten back to birth weight. Is this normal? Is there anything I should be doing?

Reflexivity is an important aspect of qualitative research. According to Lazard and McCoy the reflective process is based on the question, "what is the research process, and how am I influencing it?"⁴⁷ Reflexivity requires the qualitative researcher to actively consider any personal bias that might affect the study outcomes at each stage of the study process and is a critical aspect of successful and meaningful qualitative research.⁴⁸ As all simulation sessions were recorded, essential data was not left out. As the IBCLC who conducted the simulation sessions could have influenced the student responses, she intentionally left the debrief time open after each question, calling on each student in turn and asking if they had any questions or thoughts about the consultation. During data analysis the IBCLC was aware of the important role of reflexivity and explored personal bias in the thematic derivations of the student debrief comments and questions.

DATA ANALYSIS:

The demographic characteristics of the study sample were analyzed using descriptive statistics. Qualitative analysis using Grounded Theory methodology⁴⁹ was used to summarize the contents of session recording transcripts into thematic groups and sub-groups by the first author.

Table 4: Simulation Debrief Theme Analysis Using Grounded Theory

Step 1	Data Planning
Step 2	Data Collection
Step 3	Data Analysis
Sub-Stage 1	Open Coding
Sub-Stage 2	Axial Coding
Sub-Stage 3	Selective Coding

Results:

Students attended at least one session. Those registered for both courses took both a prenatal and postnatal lactation counseling simulation session. Each session was one hour long via Zoom and included five questions that might be asked prenatally or postnatally prior to or immediately post breastfeeding (See Table 2). Aspects that were always included were assessment of the plan for feeding the baby and the concept that the lactation consultant is there to help the mother meet her feeding goals and provide education as needed. As part of this, the lactation counseling simulations provided encouragement for the mother to advocate for herself and her baby to meet her feeding plans. This included appropriate wording from the CLC to the mother, for example: how do you plan to feed your baby, as

Grounded theory is a systematic qualitative methodology, developed by Glaser and Strauss,⁴⁴⁻⁴⁵ that collects empirical data to create a theory that is grounded within the results.⁴⁹ This was completed systematically through four steps (see Table 3). Step one was data planning. This involved determination of the simulation questions and answers. Step two was data collection through simulation session recording. Step three was data analysis. Analysis consisted of three sub-stages. The first was open coding with reading through the recorded transcripts multiple times and breaking down the qualitative data into excerpts with summaries of concepts or themes. The next sub-stage of analysis, axial coding, consisted of reading through the data to make defined summaries to develop emerging theories. Finally, the third sub-stage was selective coding using the summaries of the previous stages to identify strong core concepts. Trustworthiness of the data analysis was increased by the large number of both prenatal and postnatal simulation sessions. To determine student satisfaction with the experiential learning provided through the lactation simulation sessions, descriptive quantitative analysis was used.

opposed to how do you plan to breastfeed. We attempted to provide a positive approach with support for self-advocacy within aspects of family involvement and what that might look like.

Students with prior breastfeeding experience seem to ask the most questions. Comments concerned the concept of patient autonomy and included: "I wish someone had asked me what my plan for feeding my baby was. Another frequent comment was that laying out options for the mother to determine what would work for her gives her a say in the process. All student participants that responded to the concluding survey agreed or strongly agreed that simulations were extremely helpful in enhancing their lactation learning.'

Table 5: Themes Derived from Student Questions During Lactation Simulation Sessions

Themes Derived
Asking: what is the plan for feeding the baby
Helping breastfeeding parents build self confidence
Helping breastfeeding parents maximize milk production through early skin-to-skin contact and initiation of breastfeeding
Helping the family understand incorrect concerns about the baby not getting enough to eat (infant behaviors and cues)
Promoting parent autonomy

Themes Derived
Physiology of breastmilk production
Terminology
Assessing feeding adequacy
Relating teaching information to their own experiences-personal or family/friends
Breastfeeding problems and solutions

Discussion:

Not only were there students from diverse cultures, but also students within a wide age range, and wide life-experience range. Having small groups of students on the virtual lactation counseling simulation sessions allowed each student to be called on after each question to maximize their participation and answer or clarify any questions. Early sessions at the beginning of the class tended to have fewer questions or comments suggesting that as students became more familiar with the course content and with the simulation methodology, they were more comfortable participating in the session debriefs. Students often seemed surprised by the questions and the answers. One comment made on multiple sessions (both prenatal and postnatal) was, "I wish I had known that when I had my baby."

Limitations:

The results of this study are limited by participants from a single geographic area. An additional limitation is that students within this study had access to adequate internet access and conductivity which might not be available in all geographic areas.

Conclusions

Future programs for students pursuing a minor in lactation should consider using virtual lactation counseling simulations. Results suggest virtual lactation counseling simulations as an addition to classroom instruction are a successful format for training future CLCs from diverse

backgrounds. Guiding students to communicate with new parents in non-judgmental ways, demonstrating how to support parents' autonomy, providing clear definitions of terms and intent, and understanding physiological outcomes is a critical element of training students for future lactation practice to meet future needs, particularly among diverse families.

Learning about lactation issues and what might be happening for the nursing parent and baby, as well as potential solution pathways and how to communicate with the lactating parent and other family members, places the student participants in a position to become effective CLCs. Equally important is that the lactation counseling simulations will bolster their ability to support family, friends and community members in their breastfeeding journey, ideally within their own diverse populations. Consideration should be given to the debriefing portion of the lactation counseling simulation session asking for input from those that have experience with breastfeeding and those that do not. Additionally, during the debrief, the themes can be introduced to lead the students to ask questions and provide comments to maximize participation and increase learning regarding lactation issues.

Acknowledgement

This work is supported by Pipeline for Diverse Nutrition Students to Become Certified Lactation Counselors Award No. 2021-70003-35730 from the USDA National Institute of Food and Agriculture.

References

- Wood HL, Acherjee A, Pearce H, et al. Breastfeeding promotes early neonatal regulatory T cell expansion and immune tolerance of non-inherited maternal antigens. *Allergy*, 2021; 76(8), 2447-2460. doi.org/10.1111/all.14736.
- Moon JH, Hyengseok K, Kim H, et al. Lactation improves pancreatic β cell mass and function through serotonin production. *Science Translational Medicine*. 2020; 12(541). <https://doi.org/10.7748/nm2013.04.20.1.32.e10133>.
- Binns C, Lee M, Low WY. The long-term public health benefits of breastfeeding. *Asia Pac J Public Health*. 2016; 28: 7-14. doi:10.1177/1010539515624964. www.sciencedaily.com/releases/2022/01/220111091356.htm.
- Fox M, Siddarth P, Oughli HA. Women who breastfeed exhibit cognitive benefits after age 50. *Evolution, Medicine, and Public Health*. 2021; 9(1): 322-331. <https://doi.org/10.1093/emph/eoab02731>.
- Lopez DA, Foxe JJ, Mao Y, et al. Breastfeeding duration is associated with domain-specific improvements in cognitive performance in 9–10-year-old children. *Frontiers in Public Health*. 2021;9. <https://www.frontiersin.org/journals/public-health/articles/10.3389/fpubh.2021.657422>. Doi:10.3389/fpubh.2021.657422.
- American Heart Association. Breastfeeding reduces mothers' cardiovascular disease risk. *ScienceDaily*. Science Daily, 11 January 2022
- Raju TNK. Achieving healthy people 2030 breastfeeding targets in the United States: challenges and opportunities [published correction appears in *J Perinatol*. (2023) 43(1),131-132. doi: 10.1038/s41372-022-01561-9]. *J Perinatol*, 2023;43(1):74-80. doi:10.1038/s41372-022-01535-x. <https://doi.org/10.1186/s12939-021-01408-3>.
- Meedya S, Fahy K, Kable A. Factors that positively influence breastfeeding duration to 6 months: a literature review. *Women Birth*, 2010;23(4):135-145. doi:10.1016/j.wombi.2010.02.002
- Schlesinger E, Hatiel K, Hod N, et al. Longer skin-to-skin contact after birth enhances breastfeeding quality and duration: A cohort study. *Acta Paediatr*. 2024;113(12):2637-2642. doi:10.1111/apa.17388.
- D'Hollander CJ, McCredie VA, Uleryk EM, et al. Breastfeeding support provided by lactation consultants in high-income countries for improved breastfeeding rates, self-efficacy, and infant growth: a systematic review and meta-analysis protocol. *Syst Rev*. 2023;12(1):75. doi:10.1186/s13643-023-02239.
- McFadden A, Siebelt L, Marshall JL, et al. Counselling interventions to enable women to initiate and continue breastfeeding: a systematic review and meta-analysis. *Int Breastfeed J*. 2019;14:42 <https://doi.org/10.1186/s13006-019-0235-9>.
- Center For Disease Control. <https://www.cdc.gov/.../recommendations-benefits.html>. (2023). Accessed 6 Dec 2024.
- World Health Organization. <https://www.who.int/news-room/factsheets/detail/infant-and-young-child-feeding>. (2024). Accessed 5 Dec 2024.
- National Institute of Child Health and Development www.nichd.nih.gov/health/topics/factsheets/breastfeeding. 2019). Accessed 10 Dec 2024.
- Cleminson J, Oddie S, Renfrew MJ, et al. Being baby friendly: evidence-based breastfeeding support. *Arch Dis Child Fetal Neonatal Ed*. 2015;100(2):F173-F178. doi:10.1136/archdischild-2013-304873.
- Chiurco A, Montico M, Brovedani P, et al. An IBCLC in the maternity ward of a mother and child hospital: A pre- and post-intervention study. *International Journal of Environmental Research and Public Health*. 2015;12(8): 9938–9951. <https://doi.org/10.3390/ijerph120809938>
- Nilsson L, Hofflander M. What if it was like a departure lounge at an airport? - ehealth for healthcare staff in a Swedish healthcare organization, a participatory design study. *Studies in health technology and informatics*. 2016;225:923–924.
- Uscher-Pines L, Mehrotra A, Bogen D L. The emergence and promise of telelactation. *American Journal of Obstetrics and Gynecology*, 2017;217(2):76–178.e1. <https://doi.org/10.1016/j.ajog.2017.04.043>
- Otiv A, Bhat M, Koli C. et al. Impact of early postnatal support by lactation consultant on breastfeeding outcomes in urban population: A prospective observational study. *The Journal of Clinical and Scientific Research*. 2024;13(2):107-111. Doi:10.4103/jcsr.jcsr_89_23
- Orchard LJ, Nicholls W. A systematic review exploring the impact of social media on breastfeeding practices. *Curr Psychol* 2022;41::6107–6123. <https://doi.org/10.1007/s12144-020-01064-w>
- Patel S, Patel S. The effectiveness of lactation consultants and lactation counselors on breastfeeding outcomes. *Journal of Human Lactation*. 2015;32(3):530-41. Doi:10.1177/0890334415618668.
- Centers for Disease Control and Prevention, The Breastfeeding Report Card 2016. <https://www.cdc.gov/breastfeeding/data/reportcard.htm>. (2016). Accessed 5 Dec 2024.
- Majob CG. The lactation equity action committee: A brief history of ILCA's role, *The International Consultant Association*. 2014. Available at <http://www.ilca.org/main/about/values-vision-mission/equity/new-item/equityinitiative>.
- Flood JL. Breastfeeding supports and services in rural Hawaii: Perspectives of community healthcare workers. *Nursing Research & Practices*. 2017;1-14. doi:10.1155/2017/6041462.
- Mannel R, Mannel RS. Staffing for hospital lactation programs: recommendations from a tertiary care teaching hospital. *Journal of Human Lactation*. 2006;22:409:417.
- Ventura County Community Health Needs Assessment Collaborative ("VCCHNAC"), Ventura County Community Health Needs Assessment, available at <https://www.dignityhealth.org/-/media/cm/media/documents/CHNA/CHNA-St->

- [Johns- Pleasant-Valley.ashx?la=en](#). (2019). Accessed 25 Nov 2024.
27. Flower KB, Willoughby M, Cadigan RJ. et al. Understanding breastfeeding initiation and continuation in rural communities: a combined qualitative/quantitative approach. *Matern Child Health J.* 2008;12(3):402-414. doi:10.1007/s10995-007-0248-6
 28. MacNeill V, Sanders C, Fitzpatrick R, et al. Experiences of front-line health professionals in the delivery of telehealth: a qualitative study. *The British Journal of General Practice: The Journal of the Royal College of General Practitioners*, 2014;64(624): e401–e407. <https://doi.org/10.3399/bjgp14X680485>.
 29. Chamberlain K, Westmoreland Miller C. Virtual lactation education in a pandemic. *Journal of Human Lactation*, 2022;8(4):603–608. doi:10.1177/08903344221082029.
 30. Rhodes EC, Damio G, LaPlant HW, et al. Promoting equity in breastfeeding through peer counseling: the US Breastfeeding Heritage and Pride program. *Int J Equity Health.* 2021;20(128). doi: <https://doi.org/10.1186/s12939-021-01408-3>.
 31. The Academy of Lactation Policy and Practice Demographic Report of Current CLCs available at https://www.alpp.org/pdf/CLC_demographics.pdf. (2019). Accessed 10 Dec 2024.
 32. United States Department of Education, College Scoreboard available at <https://collegescorecard.ed.gov/>. (2020). Accessed 15 Dec 2024.
 33. Lavoie P, Pepin J, Cossette S. Development of a post-simulation debriefing intervention to prepare nurses and nursing students to care for deteriorating patients. *Nurse Education in Practice.* 2015;15(3):181-191. <https://doi.org/10.1016/j.nepr.2015.01.006>.
 34. Kvedar J, Coye MJ, Everett W. Connected health: a review of technologies and strategies to improve patient care with telemedicine and telehealth. *Health Affairs (Project Hope).* 2014;33(2):194–199. <https://doi.org/10.1377/hlthaff.2013.0992>.
 35. Rojjanasirrat W, Nelson E, Wambach, KA. A pilot study of home-based videoconferencing for breastfeeding support. *Journal of Human Lactation* 2012;28(4):464–467. Doi:10.1177/0890334412449071.
 36. Thomas J. Policy and public health recommendations to promote the initiation and duration of breastfeeding in developed country settings. *Public Health Nutrition.* 2010;13:137-44. <https://www.usda.gov/sites/default/files/documents/rural-prosperity-report.pdf>.
 37. Ahmad A, Ouzzani M. Development and assessment of an interactive web-based breastfeeding monitoring system (LACTOR). *Maternal Child Health J.* 2013;17: 809–815. DOI 10.1007/s10995-012-1074-z.
 38. Felix HM, Simon LV. Conceptual frameworks in medical simulation. StatPearls [Internet]. StatPearls Publishing; 2022. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK547741/>
 39. Lalli M, Ruysen H, Blencowe H. et al. Saving lives at birth; development of a retrospective theory of change, impact framework and prioritised metrics. *Globalization and Health.* 2018;14(1):13. ISSN 1744-8603 doi: <https://doi.org/10.1186/s12992-018-0327-z>
 40. Stichler J. Leading change one of a leader's most important roles. *Nursing for Women's Health.* 2011;15(2):166-170. <https://doi.org/10.1111/j.1751-486X.2011.01625.x>
 41. Manchester J, Gray-Miceli DL, Metcalf JA, et al. Facilitating Lewin's change model with collaborative evaluation in promoting evidence-based practices of health professionals. *Evaluation and Program Planning,* 2014;47: 82-90. <https://doi.org/10.1016/j.evalprogplan.2014.08.007.2014>.
 42. Mitchell G. Selecting the best theory to implement planned change. *Nursing Management.* 2013;20(1): 32–37.
 43. Cowperthwait A. Jeffries NLN/simulation framework for simulated participant methodology. *Clinical Simulation in Nursing,* 2021;42:12-21.
 44. Glaser BG, Strauss AL. *Awareness of dying.* 1965. Aldine Publishing.
 45. Glaser BG, Strauss AL. *The discovery of grounded theory: Strategies for qualitative research.* 1967. Aldine de Gruyter.
 46. Groom JA, Henderson D, Sittner BJ. NLN/Jeffries simulation framework state of the science project: Simulation design characteristics. *Clinical Simulation in Nursing,* 2014;10(7):337-344, <https://doi.org/10.1016/j.ecns.2013.02.004>.
 47. Lazard L, McAvoy J. Doing reflexivity in psychological research: What's the point? What's the practice? *Qualitative Research in Psychology.* 2020;17(2):159–177. <https://doi.org/10.1080/14780887.2017.1400144>.
 48. Olukotun O, Mkandawire E, Antilla J. et al. An analysis of reflections on researcher positionality. *The Qualitative Report.* 2021;26(5):1411-1427.17.
 49. Cummings S, Bridgman T, Brown, KG. Unfreezing change as three steps: Rethinking Kurt Lewin's legacy for change management. *Human Relations,* 2016;69(1):33-60. <https://doi.org/10.1177/0018726715577707>.