



Experiences of lactating nursing students: a qualitative study among nursing training institutions in the North East Region, Ghana

Abdulummin Amankwa¹, Mubarick Nungbaso Asumah^{2*}, Hassan Yakubu², Abdulmalik Abdulai², Mohammed Issah³, Abdulai Abubakari⁴

¹ College of Nursing and Allied Health Sciences, Nalerigu, Ghana.

² Ministry of Health, Nurses and Midwives Training College, Tamale, Ghana.

³ Health Science Education Department, University for Development Studies, Tamale, Ghana.

⁴ Department of Global and International Health, University for Development Studies, Tamale, Northern Region, Ghana.

*Correspondence: nungbaso.asumah@uds.edu.gh

Abstract

Background: The ideal nourishment for infants is breastmilk, which is necessary for their growth and development. However, nursing programs are time-consuming and demanding. The study aimed to assess the experiences of lactating nursing students in Health Training Institutions in the North East Region of Ghana.

Methods: An exploratory cross-sectional design with a qualitative approach was used to investigate lactating nursing students' experiences in practicing breastfeeding on campus. A saturation threshold was realized after conducting 10 interviews using a purposeful sampling method. Thematic content analysis was employed to analyze the data.

Results: Three themes emerged; experiences of lactating nursing students towards breastfeeding, intention of lactating nursing students towards breastfeeding, and feeding methods employed by lactating nursing students. All participants would like to breastfeed their children. The study showed that there was a lack of social support and the nature of the college learning environment does not also support lactating students. To make up for lectures and studies, some lactating mothers employ the services of relatives or nannies when they have to attend lectures. This according to the participants increases their cost of living. Some lactating mothers expressed breastmilk into feeding bottles whilst others introduced complementary feeding to their babies younger than recommended. Furthermore, almost all participants lamented that clinical practicum placement far from their homes leads to ineffective breastfeeding.

Conclusion: The study showed that almost all lactating mothers had intentions of breastfeeding their babies. However, lack of support from the school and lecturers, stress emanating from the coursework, and the increased cost associated with keeping nannies have been identified as barriers to the effective breastfeeding of babies. The study recommends that a breastfeeding support policy or framework that outlines student rights, as well as lecturers, colleges, and universities' obligations to promote breastfeeding among lactating nursing mothers, should be formulated.

Keywords: breastfeeding experiences, lactating mothers, nursing students, qualitative study, social support, educational barriers, infant nutrition, northeast region Ghana



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Evidence in Context

- Investigates breastfeeding experiences among lactating nursing students, highlighting significant support challenges.
- All participants intended to breastfeed, facing high costs and privacy issues.
- Stress from coursework and responsibilities hindered effective breastfeeding.
- Urges institutions to develop policies supporting breastfeeding.
- Recommends creating lactation-friendly environments to aid lactating students.

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Introduction

The most fragile and critical period for the survival of the neonate and the mother is after birth [1, 2]. The health status of the newborn depends on the variations of the momentous developmental changes that occur immediately after birth. Breastmilk is essential for the growth and development of the newborn and serves as the best source of food for infants, yet adequate quality breastfeeding practices are neglected which can lead to morbidity and mortality of newborns [2]. Nonetheless, the laborious demands of breastfeeding, combined with academic responsibilities, may have significant repercussions on the baby's breastfeeding experience. This challenge often hinders numerous student mothers from sustaining breastfeeding practices during academic sessions, despite the recognized rights of children to receive such care [3,4].

Breastmilk is an important source of nutrition which is made up of antibodies that protect the newborn from infections, it decreases infant obesity, heart diseases, and diabetes later in life and is also associated with higher rates of intelligence tests [5-7]. It is also important for the mother to reduce the rate of ovarian cancer, postmenopausal breast cancer, diabetes type 2, and obesity [8]. Studies conducted in the USA, Canada, and Australia suggested that lactating students are challenged with expressing their breast milk to feed their babies when they are in school [9-11]. This hinders the process of breastmilk expression making some of these lactating mothers relinquish the expression of milk. Also, lactating mothers found in nursing schools and universities indicated that their privacies are invaded when expressing their breasts because they cannot access spaces meant for lactation when they are in school and as such they resort to using washrooms as convenient places [9, 10, 12]

Moreover, obstacles such as insufficient break intervals for nursing mothers to pump milk for their infants, a lack of facilities for storing expressed milk, limited spaces for lactation, and the intricate work environment, especially challenging for medical school students taking breaks is problematic, were identified as hindrances to the expression of milk or breastfeeding [11,13,14]. Nursing programs are time-consuming and demanding even for students who are not breastfeeding. In this context, lactating students will concurrently want to maintain breastfeeding and at the same time achieve their academic aims which is likely to be a challenge to them [15].

Various studies have shown that the majority of medical schools (i.e. universities or colleges) have no documented policies on breastfeeding for lactating students [11]. However, a study conducted by Albrecht et al [3] suggested that public universities should provide policies on lactation, advocate for the rights of lactating students to have adequate spaces for lactation and long periods of break in between academic hours, and also educate and sensitizing faculty leaders and members on the need for lactating students to breastfeed their babies while they are on campus. Some lactating students see motherhood to be a challenge to successful completion of their programs and they tend to withdraw from their respective programs at higher rates compared to those without children.

Ideally, breastfeeding is initiated immediately within 30 minutes to an hour after birth and continues until about 2 years of age. The World Health Organization recommends Exclusive Breastfeeding (EBF) for the period of 6 months for term babies. Yet, there seems to be inconsistency in breastfeeding neonates among lactating nursing students in various health training institutions. For instance, a study among three Ghanaian public universities indicated there are no frameworks supporting breastfeeding on campus for both staff and students [16].

This significantly denies these infants their fundamental human rights and hampers their overall growth and development. Additionally, there is limited literature addressing the experiences of lactating nursing students with breastfeeding, particularly within the context of Ghana. A comprehensive literature review reveals a lack of substantial knowledge on this topic, emphasizing the necessity for further research, particularly within the specific study context.

Observationally, it is noted that numerous lactating nursing students frequently have to leave lectures to tend to their crying infants. This practice may disrupt their studies, potentially leading to subpar academic performances. The pursuit of Sustainable Development Goal (SDG) 5, which advocates for gender equality, is compromised in this scenario, disadvantaging females who give birth while in school. This situation also poses a threat to SDG 4, concerning education for all, unless appropriate measures are implemented.

Furthermore, these infants are cared for by informal caregivers in unhygienic environments around the college campus. The practice of feeding babies in unsanitary spaces, coupled with the early initiation of complementary feeds, could elevate child morbidity and mortality rates, thereby impeding Ghana's progress towards achieving SDG 3, focusing on the health and general well-being of all individuals, including infants.

Against this backdrop, this study aims to explore and describe the experiences of lactating nursing students in a Health Training Institution in the North East Region, Ghana. The findings of this study are anticipated to inform policy decisions, contribute to existing scholarly work on this subject, and play a role in realizing SDGs 3, 4, and 5.

Literature Review

The literature has shown interest in the intention of nursing students who are nursing to breastfeed. The connection between nursing students' intentions, attitudes, and knowledge regarding breastfeeding has been the subject of numerous research [17–21]. For instance, a study carried out in Nigeria discovered that although nursing students showed sufficient breastfeeding knowledge, their attitudes and intentions were insufficient [22]. Another study found that nursing students preferred breastfeeding to formula-feeding infants [23], while there were also reports of ignorance and other myths about breastfeeding. Furthermore, a study conducted in Southwest Nigeria discovered that female students at tertiary institutions had a low intention to breastfeed, indicating a need to raise awareness of breastfeeding and its advantages [21]. These results highlight how critical it is to address attitudes, misconceptions, and knowledge gaps to support nursing students' good intentions and excellent breastfeeding outcomes.

A qualitative study conducted in 2021 on baccalaureate nursing students' breastfeeding experiences brought to light the particular difficulties faced by students who are nursing while going back to school. The survey highlighted the paucity of research on nursing among college students [10]. The perspectives of nursing students on successful breastfeeding promotion in Sweden were the subject of another study conducted in 2014, which highlighted the significance of nursing students' continuous knowledge and competency development in this regard [20].

Notable misunderstandings are found in the literature review on breastfeeding knowledge and attitudes among health professional students, all of which point to possible gaps in knowledge and attitudes within this population. These results highlight the necessity of focused educational campaigns aimed at dispelling these myths.

First off, a sizable portion of participants in a survey conducted among Kuwaiti female university students felt that in some situations, mothers should temporarily cease breastfeeding. Particularly, 66% believed that breastfeeding should end when a child has a fever, 60% when a skin illness occurs, and 55% when mastitis occurs [24]. These figures highlight the need to provide more information about how common health concerns and breastfeeding can coexist. Concurrently, a study centered on nursing students revealed a general unfamiliarity and a range of false beliefs about nursing [25]. Similarly, the comprehensive review underscored the deficiency of health professional students' experiences, attitudes, or knowledge on breastfeeding [26]. All of these results emphasize how urgently comprehensive educational interventions are needed to clear up misconceptions and improve comprehension in general.

Moreover, the impact of individual breastfeeding experiences on the attitudes and understanding of nursing students [27]. To create instructional tactics that are effective and resonate with the unique experiences of health professional students, it becomes imperative to address these personal elements. A crucial misunderstanding that may affect breastfeeding assistance is the notion held by certain medical practitioners that formula is interchangeable with breast milk [28]. Targeted efforts are needed to dispel this myth and highlight the special advantages of nursing for both mothers and babies.

Research on breastfeeding instruction for nursing students has become increasingly important, highlighting serious deficiencies in basic curricula [29, 30]. A systematic review carried out in 2018 identified a persistent problem whereby foundational nursing programs frequently fall short of offering adequate instruction on breastfeeding [26]. This shortcoming led to the investigation of specialized programs as a substitute strategy, which includes clinical rotations, didactic lectures,

And simulation to improve nursing students' comprehension of breastfeeding [31]. A study conducted in Sweden in 2014 examined nursing students' views on effective breastfeeding promotion, highlighting the continued necessity for medical professionals—especially nursing students—to continuously improve their understanding and competence in this vital area of patient care [32].

An additional aspect of the study comprised an integrated review of the literature contrasting graduate and undergraduate nursing students' assessments of their knowledge and attitudes with a particular emphasis on breastfeeding [20]. The purpose of this investigation was to identify the variables that affect nursing students' understanding of breastfeeding at various educational levels.

These studies demonstrate the overall significance of breastfeeding education for nursing students when taken as a whole. They draw attention to the shortcomings of fundamental programs, stress the importance of lifelong learning, and push for the addition of specialist courses and instructional interventions to nursing curricula. This corpus of evidence bolsters the idea that these kinds of interventions are critical to providing nursing students with the tools they need to actively encourage and facilitate successful breastfeeding.

Methods

Study Setting

The research was carried out at the College of Nursing and Midwifery in Nalerigu, which serves as the administrative center of the North East Region in Ghana. This institution is a prominent health training facility in Ghana, providing education for nursing and allied health professionals, including programs such as Registered General Nursing (diploma), Registered Nurse Assistant Clinical (certificate), Registered Midwifery (both generic and Post-NAC/NAP), Disease Control, Dietetics, Nutrition, Health Information, Health Promotion, and Medical Laboratory Science. Notably, it stands as the largest health training institution in the country, hosting a student population ranging from 6000 to 7000, predominantly composed of females. An estimated 50 to 100 students at the college are mothers with infants.

Study design

The research design employed in this study was a cross-sectional study design with a qualitative approach [33]. In-depth interviews were conducted among 10 lactating nursing students on their experiences practicing breastfeeding while undergoing training.

Target population

The study was conducted among students undergoing various professional trainings at the College of Nursing and Allied Health Sciences, Nalerigu. The study population consisted of lactating Nursing students.

Inclusion criteria

Lactating nursing students who were registered students of the college with babies from 0-month to 1 year and are willing to participate in the study.

Sample size and Sampling techniques

Participants were recruited purposively. We employed purposive sampling to pinpoint cases or individuals most apt for providing insights into addressing our research question. In all, ten (10) participants were recruited into this study. This sample size was arrived at after the saturation point was reached as further interviews did not result in any new themes or information. Upon interviewing the 9th and 10th participants, it became evident that there was a redundancy in the gathered information, with minimal additional insights. Consequently, the authors chose to proceed with further interviews. Subsequently, during interviews with the 11th, 12th, and 13th participants, it was observed that the information provided overlapped with that collected from earlier participants. Therefore, the views of these three participants were excluded as their responses had already been captured by earlier respondents.

Data collection procedure

The data collection instrument utilized was a semi-structured interview guide developed by the researchers on the study's objectives upon the review of previous literature [3,14,15,34]. The guide comprised four sections: Section A encompassed queries on participants' socio-demographic details. Sections B, C, and D featured guiding questions related to the experiences of breastfeeding among lactating mothers in school, factors influencing breastfeeding, and suggestions for addressing the identified issues, respectively. The interviews were conducted one-on-one using this guide to streamline the process.

Several key questions, along with their corresponding probes, were posed. For instance, inquiries about demographic characteristics such as age, religion, class level, marital status, and the child's age were explored. Participants were asked to articulate their emotions regarding feeding their baby while on campus. Probes included scenarios like managing the dual roles of a student and a lactating mother and envisioning an ideal environment for feeding an infant on campus. Other areas of discussion involved the perceived factors influencing breastfeeding on campus, changes in feeding methods, and recommendations for the Ministry of Health to facilitate the role of lactating mothers on campus. Probes were systematically incorporated to extract additional information during the interview process.

The principal investigators (AA1 & MNA) and one research assistant (a female) with a Bachelor of Science in Midwifery conducted the interviews. The research assistant has prior experience in qualitative research with two years' experience in interviewing participants to solicit responses. Despite the assistants' experience, she was trained on this study and subsequently made to practice for three days. Thereafter, the semi-structured interview guide was piloted among some participants with similar characteristics in the Tamale Nursing Training College (TNMTC). In general, the result of the piloting was to improve upon the tools. One assistant was recruited and assisted by the principal Investigators (AA1& MNA) to ensure uniformity in the interviews.

The principal of the school gave his formal approval. The course representative assisted in contacting potential participants. Participants were chosen for participation based on the inclusion criteria. After the participants had gotten sufficient information about the study and had all of their questions answered, the participants voluntarily signed a consent form. The participants also gave their consent for the interviews to be audio recorded. In-depth interviews were performed in the comfort zone of the participants and in a serene environment to minimize interferences. None of the participants chose to change the interview's scheduled date, time, or location. Notes were taken while at the same time, the conversation was tape-recorded which lasted for about 20-30 minutes per participant. The interviews were conducted in English from March to April 2022.

Data Management and Analysis

Data analysis was done alongside data collection using thematic content analysis. The recorded audiotape was played using a VLC software player on the researcher's laptop for easy navigation to achieve an exact verbatim transcription into English text in a noise-free environment. The transcription was recorded in the Microsoft Word 2016 version and printed. The audiotape recording was compared to the transcribed text to achieve the accuracy of the data.

The data was analyzed manually using thematic content analysis [35]. This type of data analysis is used to elicit the experiences of individuals and syntax it into a meaningful whole [36]. Thematic content analysis brought meaning to the content narrative of experiences of lactating nursing students on campus into prominent themes. Reading the transcripts several times helped us become comfortable with the data before we started the real analysis. The transcripts were read severally to elicit codes from similar concepts into statements. Based on their relationships, these codes were transformed into sub-themes, and the sub-themes with similar meanings were grouped to form major themes to fit into the objectives of the study. Three researchers, including two seasoned qualitative researchers, carried out the analysis (MNA, AM, AA1 & AA2). Following a series of conversations among the researchers, they discovered themes and subthemes.

Methodological Rigour

The main goal of rigor in qualitative research is to represent study participants' experiences accurately. Guba et al [37] stipulated four (4) criteria for developing trustworthiness in qualitative research; credibility, dependability, confirmability, and transferability as cited by Polit et al., [38

]. To maintain the credibility of the research study, the interview guide was pre-tested to clarify and modify the questions. The researchers randomly traced some participants to check if the transcripts captured what they said during the interview. To have in-depth information, the interview was a face-to-face encounter with participants in the form of a conversation. On transferability, the researcher described the settings and the procedure involved in the study and the selection of participants. To ensure dependability in this study, the study findings were reviewed by experts to determine whether when a similar study is conducted with similar participants at a similar setting using audit trails and code-recode methods it would result in similar findings. All information that potentially influenced the study was well documented.

Results

Demographic characteristics of participants

The ages of the participants ranged between 21 and 35 years with an average age of 29 years. The participants were students from Registered midwifery (RM) and Registered Nurse Assistant Clinical (RNAC) departments with varied ethnic backgrounds. Nine of the participants were married whilst 1 was single. Out of the 10 participants, 7 were in their second year (level 200) of their respective nursing programs and the remaining 3 were first-year students. Half of the participants practiced Christianity whilst the remaining half practiced Islam. Similarly, half of the participants had their babies between 1 month and 6 months old while the remaining half had their babies between 7 and 12 months old.

Thematic content analysis structure

Three themes that emerged after the analysis included the experiences of lactating nursing students towards breastfeeding, the intention of lactating nursing students towards breastfeeding, and feeding methods employed by lactating nursing students. The experiences of lactating mothers were further categorized into 3 sub-themes: positive feelings/perceptions, negative feelings/perceptions, and social support for breastfeeding. The theme on intentions of lactating among nursing students was also categorized into 2 sub-themes: plans for breastfeeding during lectures and changes in plans during the lecture period. In the same vein feeding methods were also subdivided into 2 sub-themes: breastfeeding, and complementary feeding. Table 1 shows the main themes and sub-themes.

Table 1: Themes and sub-themes emerging from this study

<i>Themes</i>	<i>Sub-themes</i>
1. Experiences of lactating nursing students towards breastfeeding	1. Positive feelings/perceptions 2. Negative feelings/perceptions 3. Social support for breastfeeding.
2. Intention of lactating nursing students towards breastfeeding	1. Plans for breastfeeding during lectures 2. Changes in plans during the lecture period
3. Feeding methods employed by lactating nursing students.	1. Breastfeeding 2. Complementary feeding

Experiences of lactating nursing students (LNS) towards breastfeeding

Positive feelings/perceptions

It was realized that 8 of the participants had a positive feeling towards breastfeeding. It was worth noting that some of them were confident that their babies were safe in the hands of nannies and as such they had sound minds which increased their breastmilk production. Three of the participants also reported that they were able to send their babies to lectures during extra class periods and they were able to breastfeed while in the lecture halls. A participant stated that:

"My mind is settled when I know at this particular moment my child is with

My mother (respondents' biological mother) then I know that my child is in safe hands because she sits around my lecture hall with the baby. This helps me concentrate in class and I know with a sound mind it would also help me in the production of breastmilk to enable me to feed my baby." **(a lactating student_3)**

Another participant had this to say

"... extra classes like this, I can bring my baby because that one is not a normal class so if I'm coming, I can bring my baby inside if she wants to suck, she can suck there." **(a lactating student_8)**

Negative feelings/perceptions

From the participants' experiences, one of the major feelings they had about breastfeeding their babies while on campus was poor academic performance and the stress involved in leaving lectures to breastfeed their babies. Below are two narrations from two lactating students;

"It's not easy, it's very stressful, sometimes you would be in class and your baby's caretaker will be calling you that your baby is crying and you have to leave class and go and breastfeed" **(a lactating student_3)**

"..... sometimes I will come to class and within a short period, my caretaker will call me that the baby is crying, I will have to leave class and go back and breastfeed her and before I return my colleagues might have gone far" **(a lactating student_9).**

In addition, two lactating students expressed their unpleasant feelings regarding the cost of renting rooms and taking care of their babies' nannies. They narrated that they were unable to stay in the college hostels due to the presence of their babies and their nannies. They had to rent:

"My stepmother came with me to take care of my baby and this is very costly. This is a very big challenge because every month my husband would have to send me chop money and when it was only me, he used to give me GHC300-500 which I could use and save some but now that my mom is in, the spending is too much. Light bill and water bill, sometimes we those having babies, when the water bill comes, they even ask us to pay for ourselves and our caretakers, so this is a challenge" **(a lactating student_4)**

"I am struggling to pay my rent because I was supposed to be in the hostel but because of the child I have to rent, so I find it difficult. I am feeding myself and my caretaker so it's not easy." **(Lactating student_9).**

Social support

The third sub-theme that emerged in this study was social support from the staff and college authorities for lactating nursing students. Some of the participants combined their roles as students and at the same time lactating mothers without the help of nannies. Some of the participants indicated that some of the tutors treated them unfairly because of their babies by not allowing them into lectures and also by scheduling lectures at unfavorable hours. Some participants had this to say about the lack of support from school authorities:

"Sometimes they would organize early dawn classes and when you want to complain about leaving your child and coming to class at 6:00 am they would tell you that, you know you are coming to school, why should you give birth? So, I don't see the school helping us with our babies, I have to adjust and find time to learn and take care of my baby as well. That is what we are going through." **(a lactating student_3).**

"Coming to class, and going back home to feed him is not easy at all. Last time, they even said we shouldn't bring our babies to class again. If they see you in class with your baby, they will sack you" **(a lactating student_7).**

Two lactating students indicated that they had no nannies for their babies:

"For me, I have brought about 3 different caretakers and when they come because the place is far, they would go back to our home town and as of now I'm alone so when I come to the class I would have to go and beg someone so that she would collect the child and I would come to class." **(a lactating student_6).**

"I don't have a caretaker. Because I always bring her to one woman on campus, so whenever the woman is going home, she takes her along. So actually, it's not easy." (a lactating student_10)

As a result of the difficulties faced by lactating students on campus, some participants suggested that the school authorities should create a conducive and ideal environment for lactating mothers as their babies also deserve to be fed well as illustrated in the excerpt below:

"The place should be clean and quiet. There shouldn't be many people there while removing your breast to breastfeed your child but because we are in the institution, we breastfeed anyhow but if we get a quiet place like a small room for breastfeeding then it will be okay for us." (a lactating student_8).

Nine participants narrated their ordeals concerning placement of clinical practicum to communities that were far and unfavorable to them and their babies. Some of them suggested that priority should be given to lactating nursing students when it comes to practicum placement. Below are some excerpts from two of the participants:

"The clinical practicum too, if they are posting us, they should give us places we know we can go and stay and be comfortable with our babies. There are times we are sent to places that are not conducive for us (Far from family members who could provide support) and in the end, we don't learn anything from clinical practicum due to lack of concentration." (a lactating student_4)

"Sometime back when we were about to go for clinical practicum, I spoke to the clinical coordinator in the college to give me a place where I could go with my caretaker, but it was not done. So, if they can help me in the next clinical, they should give me a place where I can take my caretaker along with me. If they give me a far place, I may not get lorry fare for myself and the caretaker." (a lactating student_9)

Intentions of lactating nursing students toward breastfeeding

Plans during the lecture period

Lactating nursing students had different plans for breastfeeding their babies. Almost all participants planned to breastfeed their babies. Some participants were with the notion that, for proper and adequate breastfeeding of their babies they had to schedule periods within their lecture schedules to meet the demands of feeding their babies. They asked their nannies to move to campus around their lecture halls with their babies whenever they attended lectures. Two of such participants claimed they breastfeed their babies on demand:

"Me I plan when it's break time or it's time for a break then I breastfeed him and then at times I have to be forced to breastfeed based on demand or if he cries, I have to breastfeed..." (a lactating student_2)

"Hmmm I always want to feed my child on demand, so because of that if I am in class whether they bring her or not, I am not always comfortable. I have to always come out and call to find out whether she is crying, if they say no still, I would say they should bring her for breastfeeding because my child doesn't eat anything apart from breastmilk so I have always tried my best to feed her on demand." (a lactating student_4).

However, 5 participants stated that they do not breastfeed their baby until they close from lectures:

"As for me since I don't have anybody, I would be in class until I close then I can go and breastfeed the baby." (a lactating student_6)

"Actually, during lectures, I always go to class and I will wait when we close then I can go and breastfeed and it's not enough for the baby." (a lactating student_10)

Changes in plans

The statements of some of the lactating nursing students revealed that there were changes in some of their initial plans. However, some of them were of the view that their plans had not entirely changed, they continued to breastfeed their babies during lecture periods, which according to them is not enough for the growth of their babies. Two of the participants shared their views:

"I always feel like I will come to class then after class I will go back to breastfeed my baby but she likes crying too much, I will just come within some few minutes and my caretaker will call me, the child is crying so I will have to rush back and feed the child." **(a lactating student_9)**

"It's bitter because my experience is that I came with my stepmom and sometimes it's hard to tell her to always come with the baby to feed like every 30 minutes. So, I have to wait maybe every 1 hour and 40 minutes then I will call her or she will bring the baby here to breastfeed, and because of that it is affecting my baby a lot. He's not growing enough." **(a lactating student_5)**

A participant admitted that there are challenges in breastfeeding a baby whilst in school, however, since she had plans for both her child and her academics, she managed the situation:

"It's not easy, it's very stressful, sometimes you would be in class and your baby's caretaker would be calling you that your baby is crying and you have to leave class and go and breastfeed. Even though we have chosen the profession alongside childbirth, we have to bear with it but it's not easy. By the grace of God, everything is moving on well with us." **(a lactating student_3)**

Feeding Methods Employed by Lactating Nursing Students

Breastfeeding

Nine participants indicated that they fed their babies using human milk through breastfeeding and or cup feeding.

"I always give the child to someone outside and when it is a break, I will come out for the child to be breastfed, or if the child is crying and I'm less busy in class or like there is no teacher in class I will go out for the child to breastfeed..." **(a lactating student_1)**

"I still breastfeed my baby because she doesn't eat anything apart from breast milk. I do breastfeed directly; I don't express my breast milk. I only expressed when I delivered her when we wrote our end-of-first semester exams and that was two weeks after delivery and that time, she was very young, and before the exams, I had to delay breastfeeding her and express some of the breast milk for my mother to feed her in my absence and by the time I finished the exams she finishes the expressed milk and I then continued with breastfeeding. This was only done for a week, the period for the exams only..." **(a lactating student_4)**

Six participants indicated that they were able to practice exclusive breastfeeding. These are excerpts from two of the participants:

"It's only breast milk through direct breastfeeding I don't use bottle feeding I don't use anything." **(a lactating student_2).**

"Exclusive breastfeeding, I did exclusive but now because he is 1year 3months it's now better he doesn't breastfeed like before." **(a lactating student_7)**

One of the lactating nursing students indicated that she could not practice exclusive breastfeeding because of studies. She had this to say:

"Just the breastfeeding and porridge and I have not practiced exclusive breastfeeding because of the lecturing system" **(a lactating student_5).**

Complementary feeding

Seven of the participants narrated that they initiated feeding their babies using other feeds like porridge earlier than recommended. Some lactating nursing students also started giving staple foods like "Tuo Zaafi (TZ)" (In Ghana, TZ is a common staple. The three northern areas are where it is most prevalent. Cooked maize dough, some dry cassava dough, and salt less water make up the dish) to their babies.

"At first, I was doing exclusive breastfeeding at that time so I could send my baby to class so later on some of the tutors said we can't bring our children inside the classroom while they are teaching so I stopped the exclusive breastfeeding and started preparing other foods for my caretaker to feed the baby. At that time the baby was 3 months I added porridge because of what they told us..." **(a lactating student_8)**

"For now, when I started with the porridge alongside expressing breastmilk, she was taking, even now when you prepare TZ, my child eats. So, now every food that I am eating the child would also eat. So, it is helping her and it's making the child grow well. I don't express breastmilk again...." (a lactating student _3)

Discussion

This study aims to explore and describe the experiences of lactating nursing students in a Health Training Institution in the North East Region, of Ghana. Findings from this current study revealed that the majority of lactating nursing students opined that for proper and adequate breastfeeding of their babies, they planned to breastfeed their babies while lectures were ongoing to meet the demands of feeding. Despite these plans, some lactating students were frustrated by the behavior of some tutors who barred them from coming to class with their babies and the strict lecture timetable. This finding is consistent with a previous study which revealed that breastfeeding mothers had difficult emotions with breastfeeding and fear of missing academic activities [10]. These similarities could be attributed to the student's lack of knowledge of their rights to breastfeed their children.

In contrast to the above, Ryan et al [14] show that in colleges and universities in the United States of America (USA) lactating nursing students were able to breastfeed their babies with ease during lecture periods at scheduled intervals appropriately designed by school authorities. This difference as shown above could be associated with the policies on breastfeeding in these countries. For instance, in the US, Title IX mandates that universities that receive government funds provide basic facilities for lactating students, including a suitable location for milk expression and/or breastfeeding. Students who are aware of these laws cannot be barred from bringing their babies to class if the institution has failed to provide the essential facilities to promote breastfeeding [39]. In Ghana on the other hand, the National Labour Commission of Ghana and the ILO convention from 1981 place emphasis on the necessity to offer family-friendly working time, childcare services, as well as suitable facilities that are adequate for employees to handle childcare demands [40]. However, a study of Ghana's three universities showed that institutions in Ghana do not provide nursing rooms for faculty staff, or lactating students [16]. The lack of facilities such as nursing rooms for lactating students was also palpable in the current study. Therefore, there is a need for urgent dialogue on ways to implement a working document for all universities and colleges in Ghana to ensure breastfeeding-friendly policies.

In Ghanaian society, caring for babies by nannies, grandparents, or close family relatives is held in high esteem and is considered a responsibility by these grandmothers or relatives. In this study, the majority of the lactating nursing students reported that their close relatives including their mothers, sisters, and aunties reported to campus with them to serve as the caretakers for their babies during lecture periods. Similarly, a study conducted by Bell et al., [34] suggested that student support groups and lactating mothers should make good use of resources (relatives) available in their settings to improve lactation on campuses. In the present study, it was observed that lactating students use nannies to help them get some time for their academics as time is critical when it comes to learning and studying in Ghanaian schools. Balancing the demands of academic activities and breastfeeding may lead to poor academic performances of lactating nursing students and poor feeding practices as was reported by the study participants. It is, therefore, imperative for the college authorities to provide enough flexible lecture schedules (timetable) to enable lactating nursing students to properly breastfeed their babies on demand in a way that will not affect their participation in class activities.

About the above, the current study showed that the cost of living with an informal caretaker or nanny was very high as reported by most of the lactating nursing students. In the local Ghanaian context, it is the responsibility of the breastfeeding mother and her husband to take care of the nanny's basic needs including rent, utility bills, feeding, and clothing since they are not formally employed or hired. Although in Ghana, breastfeeding mothers are given three months to breastfeed their babies and still receive full pay, this does not apply to the participants since they are students. The implication is that a student mother who gives birth during her pursuit for higher academic excellence may be left with an option to defer the course if she is unable to organize sufficient income to take care of herself, the baby, and the caretaker since the schools generally

Do not provide any support. Due to their crucial roles in the health, care, growth, and development of children, the UN treaties on child care and women's rights are seen as inherent goals for national development [41]. If lactating students have to defer or pay more to be able to take care of their children and the caretakers then where is the gender equality, protecting the life of the newborn, women empowerment, and education for all as enshrined in the Sustainable Development Goals (SDGs) 3, 4 and 5. It is very clear that if this phenomenon is allowed to be fostered, this may cast doubts on Ghana's quest to the realization of the Sustainable Development Goals (SDGs) 3 and 5, especially by 2030. To curb this phenomenon, colleges/ universities can go into partnership with private entities to establish creches in their institutions for staff and students to keep their children. This in our view will eliminate the cost and burden of informal nannies.

Also, almost all the participants indicated a lack of support from their lecturers (tutors) during lecture periods and clinical practicum. Some of the participants narrated that, there was no place for them to sit comfortably to express milk or breastfeed their babies while on campus. Contrary, some studies revealed that schools receiving funding from the state carefully evaluated and provided lactating students with adequate spaced rooms on campus and the school authorities served as advocates in championing proper lactating practices which helped in breastfeeding or milk expression [10, 34]. Since breast milk is the ideal food for babies, support from family, employers, and society at large is needed for women who choose to breastfeed, this enables proper lactogenesis for proper and adequate breastfeeding of babies. Therefore, college authorities should provide lactating rooms to support lactating nursing students with their breastfeeding efforts on campus.

Almost all the participants stated that they breastfeed their babies with their breast milk and/or express their breast milk into feeding bottles for nannies to feed their babies while they attend lectures. This is related to a study conducted in Ghana where mothers resort to bottle feeding their children to overcome the barriers of breastfeeding in public areas [42]. The benefits of breastfeeding are numerous. For instance, the World Health Organization [1] has indicated that children who are breastfed score higher on IQ tests, are less likely to become overweight or obese, and are less likely to develop diabetes in the future. Also, breastfeeding can be beneficial to the mother as breast and ovarian cancer risk is lower for women who breastfeed [1]. Thus, breastfeeding is an essential component for the survival of a child as it contains nutrients in the right proportions for the growth and development of a healthy baby [5]. That said, expressing breastmilk into feeding containers is essential when the need arises for the continuity of feeding the child. Available literature shows the need to adhere to strict personal hygiene during bottle feeding to avoid child morbidity. For instance, children under the age of two who have underdeveloped immune systems and are susceptible to infections with enteric pathogens are more exposed to the negative effects of tainted food [43]. Also, 3 participants indicated that nearly 70% of diarrheal episodes in underdeveloped nations are caused by poor food hygiene practices [44]. Another study showed that 9 in 10 childhood mortality is caused by inadequate basic hygiene, unsafe water sources, and poor sanitation [45]. Therefore, breastmilk should be stored under hygienic conditions using clean or sterile containers to prevent childhood infections. The storage containers should be boiled every day before and after use to ensure the child's safety.

Exclusive breastfeeding is essential for the growth and development of the baby within the first six months of life [1]. The majority of participants also indicated that they started with exclusive breastfeeding but they had to truncate the process with artificial feeds as early as possible on their own without any advice from a qualified health provider. In contrast to this, formula supplements should be given under the guidance of a qualified health provider around 6 months, considering the baby's readiness and development with the sense that early initiation of artificial feeds poses a threat to breaking the EBF process [46].

Strength and Limitation

Findings from this study are not as broadly applicable as those from quantitative research. In situations where generalization is required, it must be done very carefully because the outcomes may differ in different tertiary institutions and environments. Nevertheless, since this study allows participants to express themselves while providing data, it is a more adaptable technique than quantitative research to explore lived experiences. As one of just a few studies conducted in Ghana, the broader perspectives described in this study can guide future research with a bigger sample size.

Conclusion

The study showed that almost all lactating students had intentions of breastfeeding their babies. However, lack of support from the school and lecturers, stress emanating from the coursework, lack of lactating spaces, and the increased cost associated with keeping nannies have been identified as barriers to the effective breastfeeding of babies.

Recommendations

The study recommends that a breastfeeding support policy or framework that outlines student rights, as well as lecturers, colleges, and universities' obligations to promote breastfeeding among lactating students, should be formulated and implemented. This framework should include the provision of a designated place or crèche within the campus to keep the babies whilst the mothers are in class or engaged in group or personal studies. This will reduce the financial burden of caring for nannies and further promote child health, education of women, and gender equality which is in line with Sustainable Development Goals 3, 4, and 5. There should be the establishment of breastfeeding support programs within college health centers or student services departments. These programs can offer lactation consultation services, breastfeeding classes, and peer support groups for breastfeeding mothers. Health professionals may improve the breastfeeding experiences of lactating students by providing proactive advice, information, and continued support.

Supporting information

None

Ethical Considerations

The research was conducted adhering strictly to the Helsinki Declaration in conducting Medical Research Involving Human Subjects. The ethical approval was obtained from the Committee on Human Research, Publications & Ethics (CHRPE) (Ref Number: CHRPE/AP/435/22). Administrative approval of the study was sought from the College of Nursing and Allied Health Sciences. After outlining the purpose and parameters of the study, the researchers requested consent from the participants. It was required of participants to provide both verbal and written consent. Participants had the freedom to revoke their consent at any time throughout the data-gathering procedure, therefore their earlier consent to participation in the study did not bind them.

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Author contribution statement

Recruitment and data collection: AA1, MNA, HY, MI; **Data analysis and interpretation:** AA1, AA2, MNA; **Supervision:** MNA, AA& AA1; **Manuscript Drafting and review:** AA1, MNA, AA2.

All authors attest they meet the ICMJE criteria for authorship and gave final approval for submission.

Data availability statement

Data sharing does not apply to this article as no datasets were generated or analyzed during the current study. Interview transcripts are not allowed to be shared per the ethics committee board. However, the dataset is available from the corresponding author (nungbaso.asumah@uds.edu.gh) on reasonable request.

Additional information

No additional information is available for this paper.

Declaration of competing interest

The authors declared no potential conflicts of interest concerning the research, authorship, and/or publication of this article.

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