

INFLUENCE OF EXCLUSIVE BREASTFEEDING PRACTICE AND BREASTFEEDING DURATION ON ACADEMIC PERFORMANCE OF NURSING MOTHERS AMONG UNDERGRADUATE BUSINESS EDUCATION STUDENTS IN TERTIARY INSTITUTIONS IN ADAMAWA STATE, NIGERIA

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ABSTRACT

This study investigated the influence of exclusive breastfeeding practice and breastfeeding duration on the academic performance of nursing mothers among undergraduate Business Education students in tertiary institutions in Adamawa State, Nigeria. The study had two objectives, two research questions and two null hypotheses. A descriptive-correlational survey research design was adopted for the study. The target population comprised undergraduate Business Education students who were nursing mothers or had practised breastfeeding while enrolled in their current undergraduate programmes in selected tertiary institutions in Adamawa State. A sample of 86 nursing mothers was drawn from Modibbo Adama University, Yola; Federal College of Education, Yola; and Adamawa State College of Education, Hong, using the snowball sampling technique. All 86 respondents satisfied the eligibility requirements and had their official Cumulative Grade Point Average (CGPA) successfully linked to their questionnaire responses. Data were collected using the Breastfeeding Practices Questionnaire (BPQ) and the Academic Performance Record Extraction Sheet. The BPQ measured exclusive breastfeeding practice and breastfeeding duration, while academic performance was measured using respondents' official CGPA obtained from institutional academic records. The instruments were subjected to face and content validation by three lecturers in the Faculty of Education, Modibbo Adama University, Yola. A field trial involving 30 respondents yielded a Cronbach Alpha reliability coefficient of 0.836. Mean, standard deviation and Pearson Product Moment Correlation were used to answer the research questions, while simple linear regression was used to test the null hypotheses at the 0.05 level of significance. The findings revealed that exclusive breastfeeding practice had a strong positive influence on academic performance ($r = .638$) and significantly predicted academic performance, $F(1, 84) = 57.660$, $p < .05$, accounting for 40.7% of the variation in CGPA. Breastfeeding duration had a moderate positive influence ($r = .531$) and significantly predicted academic performance, $F(1, 84) = 33.052$, $p < .05$, accounting for 28.2% of the variation. The study concluded that exclusive breastfeeding practice and breastfeeding duration were significantly associated with academic performance. It was recommended that tertiary institutions provide breastfeeding-friendly spaces, reasonable academic flexibility, and appropriate facilities to enable nursing mothers to maintain exclusive breastfeeding and sustain breastfeeding for the recommended period while pursuing their academic goals.

Keywords: Exclusive breastfeeding practice, breastfeeding duration, academic performance, nursing mothers, Business Education students, Adamawa State.

INTRODUCTION

Motherhood, particularly during the early stages of childbearing, presents a unique set of responsibilities that may significantly affect different aspects of a woman's life, including her educational pursuits. Among undergraduate students, especially those enrolled in Business

Education programmes, combining academic responsibilities with childbearing duties such as breastfeeding, infant care and maternal health may pose considerable challenges. Breastfeeding is widely recognised as an important practice for infant health and maternal well-being because of its nutritional, immunological and psychological benefits (World Health Organisation [WHO], 2020). The WHO recommends exclusive breastfeeding for the first six months of life, followed by continued breastfeeding with appropriate complementary foods for up to two years or beyond to promote optimal growth and development (Adeyemo & Adeyemo, 2018). Beyond its nutritional benefits, breastfeeding promotes mother-infant bonding and may contribute positively to maternal psychological well-being and resilience (Mgongo et al., 2024). However, for nursing mothers pursuing higher education, particularly undergraduate Business Education students, breastfeeding responsibilities occur simultaneously with lectures, assignments, examinations, practical activities and other academic demands, thereby creating circumstances that may affect their academic performance.

Breastfeeding practices encompass the different methods, patterns and behaviours through which nursing mothers provide breast milk and other feeds to their infants. Binns et al. (2016) observed that breastfeeding practices include such dimensions as exclusivity, feeding pattern, frequency and duration. In the context of the present study, breastfeeding practices are specifically conceptualised as exclusive breastfeeding practice and breastfeeding duration. Exclusive breastfeeding involves feeding an infant only breast milk during the first six months without water, formula or other foods, except medically prescribed supplements or medicines. Breastfeeding duration refers to how long breastfeeding is sustained. Shittu et al. (2024) found that mothers may adopt different infant-feeding patterns and that feeding decisions can be influenced by household and social conditions. Among university populations, breast milk expression has also been associated with issues such as time, scheduling, availability of suitable pumping spaces and milk-storage facilities (Dinour et al., 2015; Bai et al., 2016).

For undergraduate Business Education students who are nursing mothers, these breastfeeding practices may place different demands on their academic lives. Ogbuanya and Chukwuedo (2017) noted that maternal responsibilities may compete with academic activities for students' time and attention. Exclusive breastfeeding may require frequent direct feeding or the expression of breast milk when the mother is away from her infant. Breastfeeding over a longer duration may extend maternal feeding responsibilities across several months or academic semesters. Victora et al. (2016) emphasised the importance of optimal breastfeeding for maternal and child health. Therefore, understanding these distinct breastfeeding practices is important because their implications for nursing mothers' academic responsibilities may not be identical.

Academic performance refers to the measurable outcomes of a student's educational endeavours and is commonly assessed through indicators such as grades, Grade Point Average and other measures of academic attainment (Yorke & Longden, 2014). In the context of undergraduate Business Education nursing mothers, academic performance may be influenced by several interacting factors, including maternal responsibilities, breastfeeding practices, time management, psychological well-being and the physical demands associated with childcare (Ogbuanya & Chukwuedo, 2017). In the present study, academic performance is specifically operationalised using the nursing mothers' official Cumulative Grade Point Average (CGPA) obtained from their respective institutions. Using official CGPA provides an objective basis for determining whether differences in exclusive breastfeeding practice and breastfeeding duration correspond with variations in academic performance. Examining these relationships is important in understanding whether particular breastfeeding practices present greater academic demands than others among undergraduate nursing mothers.

Institutional support plays an important role in shaping the experiences of nursing mothers in tertiary institutions. Supportive arrangements such as flexible lecture schedules, childcare facilities,

breastfeeding-friendly environments, private lactation spaces and safe facilities for storing expressed breast milk may help nursing mothers balance their maternal and academic responsibilities. However, support systems for student-mothers in many Nigerian tertiary institutions have been reported to be limited, leaving nursing mothers to manage their dual responsibilities with inadequate institutional assistance (Eze & Oguche, 2020). Such conditions may particularly affect mothers practising exclusive breastfeeding or breast milk expression because periods spent on campus may require them to breastfeed directly or express and safely store breast milk. The absence of supportive arrangements may lead to missed lectures, difficulty meeting assignment deadlines or interruptions in study activities. Musa and Danjuma (2022) maintained that institutional support can contribute to students' academic success by facilitating effective time management, reducing stress and enabling students to maintain greater concentration on academic responsibilities.

The challenges experienced by nursing mothers in higher education may also be physical in nature and are closely associated with the breastfeeding practices adopted. Breastfeeding and infant care demand considerable maternal energy, particularly when feeding occurs frequently during both the day and night. Lawrence and Lawrence (2021) observed that lactation and breastfeeding involve physiological demands on the mother. For a student-mother, frequent breastfeeding and disrupted sleep may result in tiredness and reduced energy available for academic activities. Oyefusi and Ayeni (2020) similarly associated the demands of motherhood and childcare with challenges to student-mothers' academic engagement. The extent of these demands may differ according to breastfeeding practice. A mother breastfeeding frequently may experience different time and physical demands from one who combines breast milk with other feeds, while a mother who expresses breast milk may encounter additional demands associated with pumping, storage and transporting expressed milk. Consequently, the different breastfeeding practices warrant separate examination in relation to academic performance rather than being treated as one homogeneous behaviour.

Physical demands are closely related to effective time management, which remains a major challenge for nursing mothers pursuing undergraduate education, particularly in demanding programmes such as Business Education. The dual responsibility of caring for an infant and meeting academic obligations may create time constraints that affect study schedules, class attendance and timely completion of coursework. Breastfeeding routines, particularly exclusive breastfeeding and frequent feeding, may involve repeated feeding sessions throughout the day and night (Ogunyemi & Adeyemi, 2019). Breastfeeding duration may also determine how long the mother continues to manage these feeding responsibilities alongside her studies. These competing demands may reduce the amount of uninterrupted time available for academic work. Ajayi and Olatunji (2021) observed that difficulties in managing academic and maternal responsibilities may contribute to academic stress among student-mothers. Understanding the different breastfeeding practices is therefore necessary in determining whether particular feeding behaviours are more strongly related to the academic performance of nursing mothers.

Role conflict may also arise where undergraduate Business Education students who are nursing mothers experience competing expectations from their roles as students and mothers. Greenhaus and Beutell (1985) described role conflict as occurring when pressures arising from different roles become incompatible in some respect. For nursing mothers in tertiary institutions, breastfeeding responsibilities may require them to feed their infants at times that coincide with lectures, study periods, examinations or other academic activities. Frequent feeding schedules, maintaining exclusive breastfeeding and continuing breastfeeding for a prolonged period may therefore increase the need to coordinate the maternal and academic roles (Ogbuanya & Chukwuedo, 2017). Limited support and societal expectations may further increase the difficulty of combining these responsibilities (Adeyemo & Adeyemo, 2018). Boles et al. (1997) similarly demonstrated that competing family and work roles can contribute to role stress and emotional exhaustion. Thus,

differences in breastfeeding practice may produce different levels and forms of role demands for undergraduate nursing mothers.

In Nigeria, where women's participation in tertiary education continues to expand, nursing mothers among undergraduate students are increasingly required to manage the dual demands of academic work and childcare. Adamawa State, located in North-East Nigeria, presents social and economic circumstances that may influence both women's educational experiences and maternal responsibilities. Ibrahim and Ahmed (2021) associated women's educational participation in northern Nigeria with prevailing social and cultural conditions. Within tertiary institutions in Adamawa State, Business Education students are prepared for professional roles in areas such as accounting, marketing, entrepreneurship and office-related education and are required to participate in lectures, coursework, teaching practice and other programme activities. Nursing mothers within this group may adopt different breastfeeding practices, including exclusive breastfeeding and varying breastfeeding durations, depending on their circumstances. Adebowale (2021) observed that mothers' attitudes and circumstances may influence exclusive breastfeeding practice. Similarly, evidence from northern Nigeria indicates that social and household influences can shape mothers' feeding decisions (Shittu et al., 2024). These circumstances provide justification for examining the individual breastfeeding practices of nursing mothers rather than assuming that all mothers experience breastfeeding in the same way.

Despite the global emphasis on optimal breastfeeding practices, limited research has examined the relationship between breastfeeding and the academic performance of nursing mothers in tertiary institutions, particularly in resource-constrained environments such as Adamawa State. Existing Nigerian studies have largely concentrated on breastfeeding knowledge, attitudes and practices among mothers in community and health-related settings (Ojong et al., 2015; Tyndall et al., 2016), with comparatively limited attention to undergraduate student-mothers. Studies conducted in higher education environments indicate that breastfeeding students may face barriers such as inadequate lactation spaces, scheduling constraints and other institutional difficulties (Albrecht et al., 2017). More specifically, there remains limited evidence regarding whether exclusive breastfeeding practice and breastfeeding duration are individually associated with the academic performance of undergraduate nursing mothers. Treating breastfeeding practice as a single broad construct may therefore conceal the specific contribution or relationship of each feeding practice to academic outcomes.

This study consequently focuses on the influence of two specific dimensions of breastfeeding practice on academic performance. Rather than examining breastfeeding practices only in general terms, the study seeks to determine the influence of exclusive breastfeeding practice and breastfeeding duration on the academic performance of nursing mothers among undergraduate Business Education students in tertiary institutions in Adamawa State. Academic performance will be measured using the respondents' official CGPA obtained from their respective institutions. The findings are expected to provide more specific evidence regarding the breastfeeding practices associated with variations in academic performance and contribute to the development of appropriate measures for supporting nursing mothers in combining their maternal and educational responsibilities.

Conceptual Framework

The conceptual framework explains the relationship between exclusive breastfeeding practice and breastfeeding duration on the academic performance of nursing mothers among undergraduate business education students in tertiary institutions in Adamawa State, Nigeria. It identifies the key variables involved and illustrates how exclusive breastfeeding practice and breastfeeding duration influences academic performance of nursing mothers among undergraduate business education students in tertiary institutions in Adamawa State, Nigeria

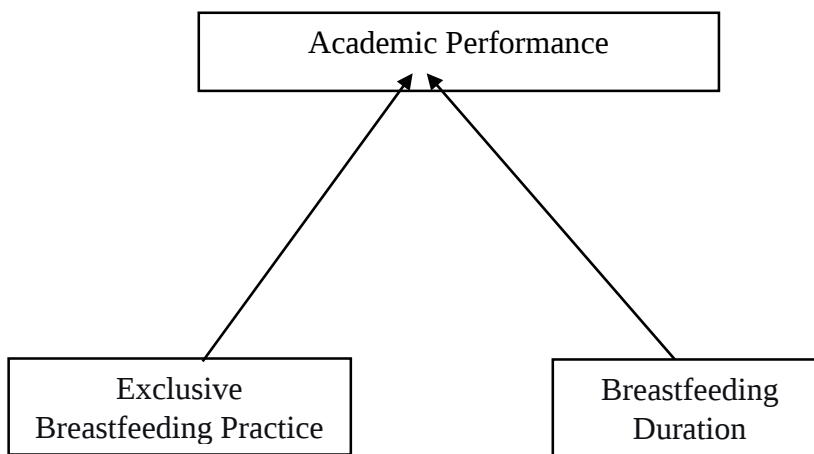


Figure 1 showing the conceptual framework of the study

RESEARCH METHODOLOGY

Research Design

The study adopted a descriptive-correlational survey research design. The design was considered appropriate because the study sought to describe the breastfeeding practices of nursing mothers and determine the statistical relationships between the identified breastfeeding-practice dimensions and their academic performance without manipulating any of the variables. Specifically, the study examined exclusive breastfeeding practice and breastfeeding duration in relation to academic performance measured by the respondents' official Cumulative Grade Point Average (CGPA).

The descriptive component of the design enabled the researcher to describe the characteristics and breastfeeding practices of the respondents as they existed naturally, while the correlational component enabled the researcher to determine the direction and magnitude of the statistical relationships between each breastfeeding-practice dimension and academic performance. Regression analysis was further used to determine the extent to which the breastfeeding-practice variables statistically predicted variations in academic performance.

Area of the Study

The study location of this study was Adamawa State, Nigeria. It was located at Latitude 9° 4' 55.1964" and Longitude 8° 40' 30.9972". The National Bureau of Statistics (2025) revealed that the youth population was 42% of the whole population of the study region. Tertiary institutions were abundant in the region, including universities, colleges, and polytechnics. The institutions, which were the focus of the study, included Modibbo Adama University Yola in Girei L.G.A, Federal College of Education Yola, in Yola North LGA, and College of Education Hong in Hong LGA.

Population of the Study

The target population of the study comprised undergraduate Business Education students who were nursing mothers or who had practised breastfeeding while enrolled in their current undergraduate programmes in selected tertiary institutions in Adamawa State. The institutions covered by the study included Modibbo Adama University, Yola; Federal College of Education, Yola; and Adamawa State College of Education, Hong.

For the purpose of obtaining valid information on the breastfeeding-practice dimensions, respondents were required to have had direct breastfeeding experience during their current undergraduate programme. A respondent who was no longer breastfeeding at the time of data collection was eligible provided that her breastfeeding experience occurred while she was enrolled

in the present undergraduate programme and she could provide information relating to the identified index child.

For retrospective assessment of exclusive breastfeeding practice and feeding during the first six months, the index child should have attained at least six months of age at the time of data collection. This is necessary because a mother whose child has not completed the first six months cannot yet provide a complete account of whether exclusive breastfeeding was maintained throughout that period.

For the purpose of the study, the index child refers to the child whose breastfeeding experience the respondent reports in completing the questionnaire. Where a respondent has more than one child, she is required to provide responses only in relation to the child she breastfed while enrolled in her current undergraduate Business Education programme and whose breastfeeding experience falls within the eligibility period specified for the study.

Respondents were also required to have an official CGPA available in their institutional academic records at the time of data collection. This was necessary because academic performance in the study was not based on respondents' perceptions but on objectively obtained institutional records. The inclusion criteria therefore required that a respondent:

- (a) was an undergraduate Business Education student in one of the selected tertiary institutions in Adamawa State;
- (b) was currently breastfeeding or had breastfed an index child while enrolled in her current undergraduate programme;
- (c) had sufficient breastfeeding history to respond to the relevant breastfeeding-practice items, particularly those relating to the first six months;
- (d) consented voluntarily to participate in the study; and
- (e) consented to the use of her Student Identification/Registration Number solely for retrieving and linking her official CGPA to her questionnaire response.

Students who had never breastfed while enrolled in their present undergraduate programme, could not provide the required breastfeeding history, did not have an available official CGPA, or did not consent to academic-record linkage were excluded from the final analytical sample.

Sample and Sampling Technique

The sample for the study comprised 86 nursing mothers drawn from Modibbo Adama University, Yola; Federal College of Education, Yola; and Adamawa State College of Education, Hong. The respondents were undergraduate Business Education students who were either currently breastfeeding or had breastfed an index child while enrolled in their current undergraduate programmes. The snowball sampling technique was used to select the respondents. This technique was considered appropriate because nursing mothers constituted a specialised population for which a complete and readily accessible sampling frame was not available across the selected tertiary institutions. The procedure involved identifying initial eligible nursing mothers through relevant departments, student networks and other appropriate contacts within the institutions. These initial respondents subsequently assisted the researcher in identifying other undergraduate Business Education students who met the eligibility requirements for participation in the study.

To be included in the study, a respondent was required to be an undergraduate Business Education student in one of the selected institutions and to have had breastfeeding experience while enrolled in her current undergraduate programme. The respondent was also required to provide sufficient information on the breastfeeding history of the identified index child to enable the researcher to assess the breastfeeding-practice dimensions of exclusive breastfeeding practice and breastfeeding duration.

Each potential respondent identified through the snowball procedure was screened against the study's inclusion criteria before the questionnaire was administered. Therefore, referral by another respondent did not automatically qualify a student for participation in the study.

In addition, respondents were required to have an official Cumulative Grade Point Average (CGPA) available in their respective institutional academic records and to consent to the use of their Student Identification/Registration Number solely for the purpose of linking their questionnaire responses with their official CGPA. The Student Identification/Registration Number was used only for record linkage and was excluded from the final analytical dataset after the required academic information had been obtained.

All the 86 respondents satisfied the eligibility requirements, completed the relevant breastfeeding-practice questionnaire items and had their official CGPA successfully linked to their questionnaire responses. Consequently, the final analytical sample for the study remained 86 nursing mothers.

Instrument for Data Collection

Two related sources of data were used for the study. The first source consisted of respondents' self-reported information on breastfeeding practices collected through a structured questionnaire titled Breastfeeding Practices Questionnaire (BPQ). The second source consisted of the respondents' official Cumulative Grade Point Average (CGPA) obtained from the academic records of their respective institutions. The Breastfeeding Practices Questionnaire (BPQ) was developed in line with the objectives, research questions and hypotheses of the study. The instrument consisted of sections covering demographic and identification information, exclusive breastfeeding practice, and breastfeeding duration.

Section A: Demographic and Identification Information

Section A elicited relevant demographic and identification information from the respondents. The information included institution and Student Identification/Registration Number. The Student Identification/Registration Number was collected solely for the purpose of linking each respondent's questionnaire responses with her official CGPA obtained from the institution.

The Student Identification/Registration Number was not treated as a study variable. After the questionnaire responses had been successfully matched with the respondents' official academic records, each respondent was assigned a unique identification code for data analysis in order to maintain confidentiality.

Section B: Exclusive Breastfeeding Practice

Section B contained five items designed to measure exclusive breastfeeding practice among the respondents. The items assessed the extent to which the respondent fed the index child with breast milk only during the first six months of life without giving water, infant formula, pap, cereals or other foods and liquids, except medically prescribed medicines, vitamins or supplements.

The section was designed to determine the extent to which nursing mothers adhered to exclusive breastfeeding during the recommended first six months of the child's life while undertaking their undergraduate studies.

Section C: Breastfeeding Duration

Section C consisted of five items designed to measure breastfeeding duration. The items assessed the length of time for which respondents sustained breastfeeding, including breastfeeding during the first six months and continuation of breastfeeding after the introduction of appropriate complementary foods.

The section also assessed whether respondents continued breastfeeding beyond six months and maintained breastfeeding despite lectures, examinations and other academic responsibilities.

Sections B and C contained five items each, giving a total of 10 items measuring the two breastfeeding-practice dimensions. The items were rated on a four-point response scale as follows:

Strongly Agree (SA) = 4

Agree (A) = 3

Disagree (D) = 2

Strongly Disagree (SD) = 1

Academic Performance Record Extraction Sheet

Academic performance was not measured through respondents' perceptions or questionnaire statements. A separate Academic Performance Record Extraction Sheet was used to obtain each respondent's official CGPA from the appropriate academic records of her institution.

The record extraction sheet contained spaces for the respondent's identification code, Student Identification/Registration Number, institution, level of study, official CGPA, academic session or period covered, source of the academic record and date of extraction. The Student Identification/Registration Number was used only for linking the questionnaire response with the corresponding academic record.

The dependent variable for the study was the respondent's latest official cumulative CGPA available at the time of data collection. All the institutions involved in the study, Modibbo Adama University, Yola; Federal College of Education, Yola; and Adamawa State College of Education, Hong operated a 5-point CGPA system. Consequently, the respondents' official CGPA values were measured on the same scale and were used directly in the statistical analysis without further conversion or standardisation.

Validation of the Instrument

The Breastfeeding Practices Questionnaire (BPQ) and the Academic Performance Record Extraction Sheet were subjected to face and content validation. The instruments, together with the study objectives, research questions and hypotheses, were presented to three lecturers in the Faculty of Education, Modibbo Adama University, Yola. Two of the validators were from the Department of Vocational Education, while the third was drawn from another department within the Faculty of Education.

The validators assessed the relevance, clarity and appropriateness of the items in relation to the breastfeeding-practice dimensions of exclusive breastfeeding practice and breastfeeding duration. They also examined the wording, grammar, spelling, response format and consistency of the items with the objectives, research questions and hypotheses.

Attention was given to ensuring a clear distinction between exclusive breastfeeding and mixed feeding during the first six months, and to ensuring that the items on breastfeeding duration adequately reflected the intended construct. The Academic Performance Record Extraction Sheet was also reviewed to ensure its suitability for obtaining and linking respondents' official CGPA with their questionnaire responses. The corrections and suggestions made by the validators were incorporated into the final versions of the instruments before administration.

Reliability of the Research Instrument

To establish the reliability of the instrument, field trial was carried out in Taraba State University because the state shares similar characteristics with Adamawa State. The questionnaires were administered to thirty (30) respondents, the data that were generated from the field trial was analyzed using Cronbach Alpha technique. The analysis yielded a reliability coefficient of 0.836, indicating that the instrument has a high level of internal consistency. This value suggests that the questionnaire is reliable and suitable for use in the main study. The choice of Cronbach Alpha was based on the submission of Madiha and Walid (2016), who opined that Cronbach's Alpha is one of

the most suitable statistical tools for determining the reliability coefficient of instruments. A reliability index of 0.7 or higher was taken as indicating acceptable internal consistency.

Method of Data Collection

The researcher obtained a letter of introduction from the Head of Department, Vocational Education, Modibbo Adama University, Yola, which was presented to the relevant authorities in the selected tertiary institutions. Following the necessary ethical clearance and institutional permission, data collection commenced. Data for the study were obtained from two sources: respondents' questionnaire responses on breastfeeding practices and their official Cumulative Grade Point Average (CGPA) obtained from institutional academic records.

Eligible nursing mothers were approached with the assistance of trained research assistants. The purpose of the study, voluntary nature of participation and confidentiality of the information provided were explained to the respondents. Informed consent was obtained before the administration of the Breastfeeding Practices Questionnaire (BPQ).

Each completed questionnaire was assigned a unique respondent code. The respondents' Student Identification/Registration Numbers were collected solely for the purpose of linking questionnaire responses with their official CGPA. The researcher subsequently obtained the official CGPA of each respondent from the appropriate institutional academic records and recorded it on the Academic Performance Record Extraction Sheet.

The official CGPA was matched with the corresponding questionnaire using the Student Identification/Registration Number. After successful linkage, the Student Identification/Registration Number was separated from the analytical dataset, and only the assigned respondent code was used for data entry and analysis. Identifiable information was kept securely and separately from the research dataset.

The questionnaires were administered and retrieved within a period of three weeks. Completed copies were checked for completeness before data entry. Only respondents who satisfied the study eligibility criteria, provided sufficient information on the breastfeeding-practice variables and had successfully linked official CGPA records were included in the final statistical analysis.

Method of Data Analysis

The data collected for the study were coded, entered, and analysed using appropriate statistical techniques. Descriptive statistics, specifically mean and standard deviation, were used to answer the research questions. A criterion mean of 2.50 was adopted as the benchmark for determining the respondents' level of agreement or disagreement with the questionnaire items. Thus, mean responses of 2.50 and above were considered to indicate agreement, while mean responses below 2.50 were considered to indicate disagreement.

Linear regression analysis was employed to test the null hypotheses at the 0.05 level of significance. The null hypothesis was rejected when the obtained p-value was less than 0.05, indicating a statistically significant relationship or predictive effect. Conversely, the null hypothesis was retained when the p-value was greater than or equal to 0.05, indicating that the relationship or predictive effect was not statistically significant.

RESULTS

This chapter presents, analyses and discusses the results of the study on the influence of exclusive breastfeeding practice and breastfeeding duration on the academic performance of nursing mothers among undergraduate Business Education students in tertiary institutions in Adamawa State. The analysis was based on data obtained from 86 respondents. The two breastfeeding-practice variables examined were exclusive breastfeeding practice and breastfeeding duration, while academic performance was measured using the respondents' official Cumulative Grade Point Average (CGPA).

Mean, standard deviation and r-value were used to answer the research questions, while simple linear regression was used to test the two null hypotheses at the 0.05 level of significance.

Answers to Research Questions

Research Question One: What is the influence of exclusive breastfeeding practice on the academic performance of nursing mothers among undergraduate Business Education students in tertiary institutions in Adamawa State?

Table 1: Analysis of Mean Respondent on the Influence of Exclusive Breastfeeding Practice on the Academic Performance of Nursing Mothers among Undergraduate Business Education Students in Tertiary Institutions in Adamawa State, Nigeria N=86

S/n	Questionnaire Items	Mean	Std	Rmks
1	I fed my baby only breast milk during the first six months without giving water.	2.98	1.16	Agree
2	I avoided giving my baby infant formula during the first six months.	3.33	0.94	Agree
3	I avoided giving my baby pap, cereal or other solid foods during the first six months.	3.22	0.89	Agree
4	I maintained exclusive breastfeeding despite attending lectures and other academic activities.	3.37	0.91	Agree
5	During the first six months, breast milk remained the only food or drink I provided for my baby, except prescribed medicines or supplements.	3.23	0.88	Agree
Grand Mean		3.23	0.95	Agree

Results from Table 1 show the mean rating and standard deviation for the influence of exclusive breastfeeding practice on the academic performance of nursing mothers among undergraduate Business Education students in tertiary institutions in Adamawa State, Nigeria. The table revealed that all the 5 items had their mean values ranged from 2.98 to 3.37 which were above the cut-off point of mean 2.50 indicating that all the items were in agreement with the research question one that there was an influence of exclusive breastfeeding practice on the academic performance of nursing mothers among undergraduate Business Education students in tertiary institutions in Adamawa State, Nigeria. The table further revealed that the standard deviation of all the 5 items ranged from 0.88 to 1.16 which imply that there was less variability in the opinion of the respondents.

Research Question Two: What is the influence of breastfeeding duration on the academic performance of nursing mothers among undergraduate Business Education students in tertiary institutions in Adamawa State, Nigeria?

Table 2: Analysis of Mean Respondent for the Influence of Breastfeeding Duration on the Academic Performance of Nursing Mothers among Undergraduate Business Education Students in Tertiary Institutions in Adamawa State, Nigeria N=86

S/n	Questionnaire Items	Mean	Std	Rmks
1	I maintained breastfeeding continuously throughout the first six months of my baby's life.	3.23	0.89	Agree
2	I continued breastfeeding my baby after introducing complementary foods.	3.36	0.91	Agree
3	I continued breastfeeding my baby beyond six months.	3.30	0.75	Agree
4	I maintained breastfeeding for an extended period despite the demands of lectures, examinations and other academic activities.	2.86	0.98	Agree
5	My academic activities did not cause me to stop breastfeeding earlier than I intended.	3.05	0.96	Agree
Cluster Mean		3.16	0.90	Agree

Results from Table 2 show the mean rating and standard deviation for the influence of breastfeeding duration on the academic performance of nursing mothers among undergraduate Business Education students in tertiary institutions in Adamawa State, Nigeria. The table revealed that all the 5 items had their mean values ranged from 2.86 to 3.36 which were above the cut-off point of mean 2.50 indicating that all the items were in agreement with the research question two that there was an influence of breastfeeding duration on the academic performance of nursing mothers among undergraduate Business Education students in tertiary institutions in Adamawa State, Nigeria. The table further revealed that the standard deviation of all the 5 items ranged from 0.75 to 0.98 which imply that there was less variability in the opinion of the respondents. The grand mean is 3.16 which is again above the cutoff point of 2.50.

Test of Null Hypotheses

The two null hypotheses were tested using simple linear regression at the 0.05 level of significance. A null hypothesis was rejected where the probability value was less than .05 and was not rejected where the probability value was greater than or equal to .05.

Hypothesis One

H₀₁: There is no statistically significant influence of exclusive breastfeeding practice on the academic performance of nursing mothers among undergraduate Business Education students in tertiary institutions in Adamawa State, Nigeria.

Table 3a: Test of Linear Regression Analysis on the Influence of Exclusive Breastfeeding Practice on Academic Performance of Nursing Mothers among Undergraduate Business Education Students in Tertiary Institutions in Adamawa State, Nigeria

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	18.849	1	18.849	57.660	.000
Residual	27.459	84	.327		
Total	46.308	85			

Table 3a shows that the regression model was statistically significant, $F(1, 84) = 57.660$, $p < .05$. Since the probability value was less than the 0.05 level of significance, the null hypothesis was rejected. It was therefore concluded that exclusive breastfeeding practice had a statistically significant influence on the academic performance of nursing mothers among undergraduate Business Education students in tertiary institutions in Adamawa State.

Table 3b: Model Summary of Regression Analysis on the Influence of Exclusive Breastfeeding Practice on Academic Performance of Nursing Mothers among Undergraduate Business Education Students in Tertiary Institutions in Adamawa State, Nigeria

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.638	.407	.400	.57175

Predictor: Exclusive Breastfeeding Practice
Dependent Variable: Academic Performance

Table 3b shows a regression coefficient of $R = .638$ and R Square of .407. This means that exclusive breastfeeding practice accounted for approximately 40.7% of the variation in academic performance when considered independently. The remaining 59.3% of the variation was associated with other factors not included in this regression model.

Hypothesis Two

H₀₂: There is no statistically significant influence of breastfeeding duration on the academic performance of nursing mothers among undergraduate Business Education students in tertiary institutions in Adamawa State, Nigeria.

Table 4a: Test of Linear Regression Analysis on the Influence of Breastfeeding Duration on Academic Performance of Nursing Mothers among Undergraduate Business Education Students in Tertiary Institutions in Adamawa State, Nigeria

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	13.076	1	13.076	33.052	.000
Residual	33.232	84	.396		
Total	46.308	85			

Table 4a shows that breastfeeding duration significantly predicted academic performance, $F(1, 84) = 33.052$, $p < .05$. Since the probability value was less than .05, the null hypothesis was rejected. It was therefore concluded that breastfeeding duration had a statistically significant influence on the academic performance of nursing mothers among undergraduate Business Education students in tertiary institutions in Adamawa State, Nigeria.

Table 4b: Model Summary of Regression Analysis on the Influence of Breastfeeding Duration on Academic Performance of Nursing Mothers among Undergraduate Business Education Students in Tertiary Institutions in Adamawa State, Nigeria

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.531	.282	.274	.62898

Predictor: Breastfeeding
Dependent Variable: Academic Performance

Table 4b shows an R value of .531 and R Square of .282. This indicates that breastfeeding duration accounted for approximately 28.2% of the variation in academic performance.

Summary of Major Findings

Based on the results of the study, the following major findings were made:

1. Exclusive breastfeeding practice had a strong positive influence on the academic performance ($r = .638$) and significantly influenced academic performance, $F(1, 84) = 57.660$, $p < .05$. Exclusive breastfeeding practice accounted for 40.7% of the variation in CGPA.
2. Breastfeeding duration had a moderate positive influence on academic performance ($r = .531$) and significantly influenced academic performance, $F(1, 84) = 33.052$, $p < .05$. Breastfeeding duration explained 28.2% of the variation in CGPA.

DISCUSSION OF FINDINGS

Influence of Exclusive Breastfeeding Practice on Academic Performance

The study revealed a strong positive relationship between exclusive breastfeeding practice and the academic performance of nursing mothers. The regression analysis further showed that exclusive breastfeeding practice significantly predicted academic performance, accounting for 40.7% of the variation in CGPA. The finding suggests that respondents who reported stronger adherence to exclusive breastfeeding also tended to record higher CGPA. This finding is relevant to Ojo et al. (2020), who found that student-mothers experienced substantial academic pressure while attempting to practise exclusive breastfeeding. Although their study did not use official CGPA, it demonstrated that breastfeeding and academic responsibilities are closely interconnected among student-mothers.

Anibijuwon and Esimai (2020) similarly reported that student nursing mothers encountered academic and childcare challenges while combining motherhood with university education. The finding of the present study extends this evidence by demonstrating a statistically significant influence between exclusive breastfeeding practice and an objective measure of academic performance. The positive influence found in this study may reflect the determination and organisational skills of mothers who successfully maintained exclusive breastfeeding despite academic demands. Such mothers may have developed effective time-management strategies, secured reliable childcare support, and prioritised their academic work efficiently. These attributes could contribute to both successful exclusive breastfeeding and stronger academic performance.

The finding is also consistent with the Technology Acceptance Model (TAM) adapted to breastfeeding behaviour, in which perceived usefulness and perceived ease of use influence the

adoption of a practice. Mothers who perceived exclusive breastfeeding as beneficial and manageable within their academic schedules may have been more committed to maintaining the practice and may also have applied similar commitment to their studies. However, the finding represents a statistical association rather than proof of causation. Other factors such as family support, personal motivation and institutional conditions may also contribute to the observed academic outcomes.

Influence of Breastfeeding Duration on Academic Performance

The study found a moderate positive and statistically significant influence of breastfeeding duration on academic performance, explaining 28.2% of the variation in CGPA. This suggests that respondents who sustained breastfeeding for longer periods tended to have higher CGPA. Akadri et al. (2020) showed that breastfeeding duration varies among Nigerian mothers and that many mothers continue breastfeeding beyond the exclusive breastfeeding period. Ojo et al. (2020) also reported variations in intended breastfeeding duration among student-mothers, while West et al. (2017) observed that returning to university could affect breastfeeding continuation.

The present finding indicates that sustained breastfeeding did not necessarily disadvantage academic performance. Nursing mothers who were able to continue breastfeeding over a longer period may have developed effective coping strategies and support arrangements that also assisted their academic participation. Longer breastfeeding duration may reflect a stable and supportive environment in which the mother receives assistance with childcare, enabling her to continue breastfeeding while also meeting academic obligations. Such stability may contribute positively to both breastfeeding continuity and academic achievement.

The finding aligns with the Theory of Planned Behaviour, which proposes that perceived behavioural control influences the persistence of a behaviour. Mothers who perceived that they could manage breastfeeding alongside academic activities may have been more likely to sustain breastfeeding over a longer period and may also have approached their studies with greater confidence and persistence. However, the finding should be interpreted with caution. Breastfeeding duration is influenced by multiple factors, including maternal health, infant health, family circumstances and institutional support. The positive relationship observed in this study may therefore reflect the combined influence of these factors rather than breastfeeding duration alone.

CONCLUSION

Based on the findings of the study, it was concluded that exclusive breastfeeding practice and breastfeeding duration are significantly associated with the academic performance of nursing mothers among undergraduate Business Education students in tertiary institutions in Adamawa State. Exclusive breastfeeding practice demonstrated a strong positive relationship with academic performance, indicating that nursing mothers who reported stronger adherence to exclusive breastfeeding also tended to record higher CGPA. Breastfeeding duration was also positively associated with academic performance, indicating that continuing breastfeeding for a longer period did not necessarily disadvantage nursing mothers academically. Rather, mothers who successfully sustained breastfeeding tended to record higher academic performance.

The study consequently concludes that exclusive breastfeeding practice and breastfeeding duration are statistically associated with the academic performance of nursing mothers among undergraduate Business Education students in tertiary institutions in Adamawa State.

RECOMMENDATIONS

Based on the findings of the study, the following recommendations were made:

1. Since exclusive breastfeeding practice had a strong positive and statistically significant influence on academic performance, tertiary institutions should provide supportive arrangements such as breastfeeding-friendly spaces and reasonable academic flexibility to

enable nursing mothers to maintain exclusive breastfeeding without unnecessary disruption to their studies.

2. Nursing mothers should be supported to continue breastfeeding for the recommended period through flexible academic arrangements and adequate family and institutional support.
3. Tertiary institutions should provide private and hygienic lactation spaces and, where feasible, appropriate facilities for the safe storage of expressed breast milk to enable nursing mothers to participate effectively in academic activities while maintaining breastfeeding.
4. Academic advisers and student support units should be sensitised to the needs of nursing mothers so that appropriate guidance and accommodations can be provided when required.
5. Government and regulatory bodies should formulate policies that encourage tertiary institutions to establish breastfeeding-friendly environments for student-mothers.

SUGGESTIONS FOR FURTHER STUDIES

Based on the scope and findings of the study, the following areas are suggested for further research:

1. A similar study should be conducted among nursing mothers in other disciplines and tertiary institutions in North-Eastern Nigeria to determine whether the findings are consistent across different academic programmes and institutional environments.
2. Further studies should employ longitudinal research designs to examine changes in exclusive breastfeeding practice, breastfeeding duration and academic performance over time and provide stronger evidence regarding the temporal relationship between the variables.
3. Future studies should investigate the role of family support, childcare arrangements and institutional breastfeeding support as possible moderating or mediating factors in the relationship between breastfeeding practices and academic performance.
4. A comparative study could be conducted between nursing mothers in public and private tertiary institutions to determine whether institutional characteristics influence the relationship between breastfeeding practices and academic performance.
5. Further research should examine breastfeeding practices using larger samples and multivariate statistical models that control for factors such as age, marital status, socioeconomic background, level of study and previous academic performance.

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