*Science World Journal Vol. 21(No 2) 2026* https://dx.doi.org/10.4314/swj.v21i2.46
*www.scienceworldjournal.org*
*ISSN: 1597-6343 (Online), ISSN: 2756-391X (Print)*
*Published by Faculty of Science, Kaduna State University*

Full Length Research Article

# PERCEPTIONS ON BREASTFEEDING PRACTICES AND CHILD SPACING AMONG MOTHERS IN ABII LOCAL GOVERNMENT AREA, CROSS RIVER STATE, NIGERIA

[1]Stephen Edok Etuki, [2]Cletus I. Iboh, [2]Emmanuel I. Ogban, [1]Esalo Dorothy Amakwa, [*2]Emmanuel Chukwunenye Uttah

[1]Department of General Studies, College of Nursing Sciences, Itigidi, Cross River State, Nigeria
[2]Department of Animal and Environmental Biology, Faculty of Biological Sciences, University of Cross River State, Calabar, Nigeria

*Corresponding Author Email Address: drecuttah@yahoo.com

**ABSTRACT**
Breastfeeding plays a critical role in maternal and child health and has important implications for fertility regulation through the lactational amenorrhea mechanism. Understanding women's perceptions regarding breastfeeding and child spacing is essential for designing effective reproductive health interventions. This study assessed respondents' perceptions of the relationship between breastfeeding practices and child spacing. A descriptive cross-sectional study design was employed among 400 respondents. Data were collected using a structured questionnaire and analyzed using descriptive statistics and Chi-square tests. Frequencies, percentages, and statistical significance were used to describe respondents' perceptions. The findings revealed that 68.0% of respondents agreed that frequent breastfeeding delays ovulation, while 61.5% agreed that exclusive breastfeeding prolongs postpartum amenorrhea. A substantial majority (73.6%) believed that longer breastfeeding duration increases birth intervals. Conversely, only 47.0% agreed that breastfeeding alone is sufficient for family planning, whereas 53.0% disagreed. More than two-thirds (67.8%) agreed that the early introduction of complementary feeding shortens birth intervals. Furthermore, 77.1% agreed that mental illness can affect breastfeeding and child spacing. All perception domains showed statistically significant response distributions ($p < 0.001$), indicating strong, structured opinions among respondents. The study demonstrates a general awareness of the biological relationship between breastfeeding and fertility regulation. However, misconceptions regarding the effectiveness of breastfeeding as a sole family planning method persist. Strengthening maternal health education on lactational amenorrhea and optimal breastfeeding practices is recommended to improve reproductive health outcomes and promote informed family planning decisions.

**Keywords:** Breastfeeding, Child spacing, Family planning, Fertility, Lactational amenorrhea, Reproductive health

## INTRODUCTION

Breastfeeding is universally recognized as one of the most effective interventions for promoting maternal and child health. Beyond providing optimal nutrition for infants, breastfeeding contributes significantly to maternal health by enhancing postpartum recovery, reducing the risk of breast and ovarian cancers, and naturally regulating fertility (Victora *et al*., 2016). The relationship between breastfeeding and fertility has been extensively documented through the phenomenon of lactational amenorrhea, whereby frequent and exclusive breastfeeding suppresses ovarian activity and delays the return of ovulation following childbirth (Kennedy *et al*., 2019).

Birth spacing is a critical determinant of maternal and child health outcomes. Adequate intervals between pregnancies are associated with reduced maternal mortality, lower risks of preterm births, improved neonatal survival, and better nutritional outcomes for children (World Health Organization [WHO], 2023). The WHO recommends a minimum interval of 24 months between births to optimize health outcomes for both mothers and children (WHO, 2023).

The Lactational Amenorrhea Method (LAM) is a recognized modern family planning approach that utilizes the natural contraceptive effect of exclusive breastfeeding during the first six months postpartum. When practiced correctly under specific conditions, LAM is more than 98% effective in preventing pregnancy (Fabic & Choi, 2019). However, misconceptions regarding breastfeeding and fertility remain common in many low- and middle-income countries, resulting in inconsistent adoption of recommended breastfeeding practices and inappropriate reliance on breastfeeding as a sole contraceptive method beyond its effective period (Borda *et al.,* 2020).

Knowledge and perceptions significantly influence maternal behaviors related to infant feeding and family planning. Women who understand the physiological mechanisms linking breastfeeding and fertility are more likely to practice exclusive breastfeeding and adopt appropriate contraceptive measures after the return of fertility (Aguayo *et al*., 2021). Conversely, poor understanding may contribute to unintended pregnancies, short birth intervals, and adverse maternal and child health outcomes.

Mental health has also emerged as an important factor influencing breastfeeding practices and reproductive decision-making. Maternal depression, anxiety, and other psychological disorders have been associated with shorter breastfeeding duration and challenges in family planning adherence (Figueiredo *et al*., 2021). Understanding community perceptions regarding these relationships is essential for developing comprehensive maternal health programs.

Despite increasing awareness campaigns, limited studies have examined women's perceptions of the relationship between breastfeeding, fertility regulation, and child spacing. Therefore, this study assessed respondents' perceptions regarding breastfeeding practices and their influence on ovulation, postpartum amenorrhea, fertility regulation, and birth spacing.

## MATERIALS AND METHODS

### Study Design

A descriptive cross-sectional survey design was adopted to assess respondents' perceptions regarding breastfeeding practices and child spacing.

### Study Area

The study was carried out in Abi Local Government Area (LGA). The area is located at 5°50'09" N, 7°58'40" E, and comprises diverse socioeconomic and cultural groups with varying levels of access to maternal and child health services. The projected population of Abi for 2026 is 219,800 (CityPopulation.de). The major ethnic groups in Abi are the Bahumono people and the Agbo subgroup of Igbo. The LGA runs one General Hospital that handles general medical services, and 9 Local Health Centres for Primary Healthcare (PHC).

### Study Population

The study population consisted of women of reproductive age who had experienced childbirth and breastfeeding.

2.4 Sample Size

Sample size was calculated using Cochran's formula for prevalence studies:

Where:

$n_0 = Z^2p(1-p) / d^2$

Z = 1.96 (95% confidence level)

P = 0.5 (assumed prevalence due to variability)

D = 0.05 (precision level)

The calculated minimum sample size was 384, and was approximated to 400 to accommodate an equal number of respondents from 10 communities in the Local Government Area. An equal number of respondents (n = 40) were recruited from each of the ten selected communities, giving a total sample size of 400 participants.

### Sampling Technique

A multistage sampling technique was used to select eligible participants. Communities were first selected, followed by households and eligible respondents. In all 10 communities, the Abii Local Government Area was randomly selected. Within each community, households were identified through systematic household visits. Eligible mothers were recruited consecutively until the required sample size for each community was attained. Where more than one eligible mother was present in a household, one respondent was selected by simple random sampling.

### Data Collection Instrument

Data were collected using a structured, interviewer-administered questionnaire and were collected from March 2025 to February 2026 as part of a PhD dissertation. The questionnaire contained items assessing perceptions regarding breastfeeding, postpartum amenorrhea, ovulation, family planning, birth spacing, complementary feeding, and psychosocial factors.

To ensure the accuracy and consistency of the data collection instrument, the structured questionnaire underwent rigorous validity and reliability assessment before its administration in the study area. The calculated Cronbach alpha was 0.80, indicating that the questionnaire and scale had good internal consistency (reliability).

The questionnaire was developed after a review of the relevant literature on breastfeeding practices, fertility regulation, maternal health, and reproductive health, including the work of Shorey & Chee (2021). To establish face and content validity, the draft questionnaire was given to experienced researchers in Maternal and Child Health, Reproductive Health, Public Health, Epidemiology, and Biostatistics, who critically evaluated the instrument for relevance, appropriateness, clarity, comprehensiveness, and the suitability of the questions for addressing the study objectives.

The instrument was pretested in the Biase Local Government Area, which has similar demographic and socio-cultural characteristics. In all, 40, which represents10% of the sample size, were selected for the pretest. The purpose of the pretesting was to identify ambiguities, assess respondents' understanding of the questions, estimate the average time required to complete, and determine the instrument's internal consistency. This process ensured that the instrument was both valid and reliable for assessing breastfeeding.

Data were collected using a structured questionnaire designed to assess respondents' perceptions regarding breastfeeding and its effects on ovulation, postpartum amenorrhea, birth intervals, family planning, and child spacing. Responses were measured using a four-point Likert scale: Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD).

### Data Analysis

Data were entered and analyzed using the Statistical Package for Social Sciences (SPSS Version 26.0). Descriptive statistics, including frequencies and percentages, were used to summarize responses. Chi-square ($\chi^2$) tests were employed to determine the association between the socio-demographic characteristics and the outcome variables. Statistical significance was established at $p < 0.05$.

### Ethical Considerations

Ethical approval was obtained from the Faculty of Biological Sciences Ethics Committee (reference number: UNICROSS/FBS/EC/2025/023). Informed consent was obtained from all respondents before participation, and confidentiality of information was maintained throughout the study.

## RESULTS

A total of 400 questionnaires were administered, and all were received, resulting in a 100% response rate. The Socio-demographic characteristics of the respondents are presented in Table 1. A total of 400 mothers participated in the study. The majority were aged 21–40 years (74.5%), with 37.5% between 31–40 years. Most respondents had secondary education (45.5%), while only 8.0% had no formal education. In terms of reproductive characteristics, 42.0% had parity of 3–4, and 70.5% were not using any contraceptive method.

**Table 1**. Socio-demographic characteristics of the respondents

| Variable | Category | Frequency | Percentage (%) |
|---|---|---|---|
| Age (years) | < 20 | 41 | 10.25 |
| | 21-30 | 148 | 37.00 |
| | 31-40 | 150 | 37.50 |
| | ≥ 41 | 61 | 15.25 |
| Education | None | 32 | 8.00 |
| | Primary | 87 | 21.75 |
| | Secondary | 182 | 45.50 |

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| | | | |
|---|---|---|---|
| | Tertiary | 99 | 24.75 |
| Parity | 1-2 | 119 | 29.75 |
| | 3-4 | 168 | 42.00 |
| | ≥ 5 | 113 | 28.25 |

**Perceptions Regarding Breastfeeding and Child Spacing**

Table 2 presents respondents' perceptions regarding the relationship between breastfeeding practices and child spacing. The chi-square ($\chi^2$) values and corresponding p-values indicate that the distribution of responses for all perception variables differed significantly from an equal distribution ($p < 0.001$), suggesting strong opinions among respondents on these issues.

A majority of respondents agreed that frequent breastfeeding delays ovulation, with 170 (42.5%) agreeing and 102 (25.5%) strongly agreeing, giving a total positive perception of 272 (68.0%). In contrast, 128 (32.0%) disagreed or strongly disagreed. The observed distribution was statistically significant ($\chi^2 = 87.46$, $p < 0.001$), indicating that respondents were significantly more likely to agree than disagree with this statement.

Most respondents believed that exclusive breastfeeding prolongs postpartum amenorrhea, with 246 (61.5%) agreeing (21.5% strongly agree; 40.0% agree). About 154 (38.5%) disagreed. The distribution was highly significant ($\chi^2 = 62.28$, $p < 0.001$).

A substantial majority, 294 (73.5%), agreed that longer breastfeeding duration increases birth interval. Only 106 (26.5%) disagreed. The highly significant $\chi^2$ value ($\chi^2 = 110.12$, $p < 0.001$) indicates strong consensus among respondents. The proportion agreeing (43.8%) was significantly higher than that for all other response categories, while the strongly disagree category had the lowest frequency (7.5%).

Responses to this statement were more divided. While 188 (47.0%) agreed or strongly agreed, a slightly greater proportion, 212 (53.0%), disagreed or strongly disagreed. The significant chi-square value ($\chi^2 = 35.64$, $p < 0.001$) indicates that opinions were not evenly distributed.

Regarding the perception that breastfeeding alone is sufficient for family planning, the largest proportion of respondents selected "disagree" (36.0%). Pairwise comparisons (see Table 5) revealed that respondents who disagreed were significantly more numerous than those who strongly agreed (24.5%) ($\chi^2 = 8.74$, df = 1, $p = 0.003$), agreed (22.5%) ($\chi^2 = 12.46$, df = 1, $p < 0.001$), and strongly disagreed (17.0%) ($\chi^2 = 27.25$, df = 1, $p < 0.001$).

A total of 225 (56.3%) respondents agreed that poor breastfeeding practices shorten child spacing, while 175 (43.8%) disagreed. The observed pattern was statistically significant ($\chi^2 = 28.91$, $p < 0.001$).

Most respondents agreed that early complementary feeding shortens the birth interval, with 271 (67.8%) agreeing and only 129 (32.3%) disagreeing. The difference was highly significant ($\chi^2 = 94.78$, $p < 0.001$).

This variable recorded the strongest level of agreement among respondents. A total of 308 (77.0%) respondents agreed or strongly agreed, while only 92 (23.0%) disagreed or strongly disagreed. The highest chi-square value was observed for this variable ($\chi^2 = 156.37$, $p < 0.001$).

**Table 2**. Perception Domains of Respondents (N = 400)

| Variable | SA n (%) | A n (%) | D n (%) | SD n (%) | $\chi^2$ | p-value |
|---|---|---|---|---|---|---|
| Frequent breastfeeding delays ovulation | 102 (25.5) | 170 (42.5) | 39 (9.8) | 89 (22.3) | 87.46 | <0.001 |
| Exclusive breastfeeding prolongs postpartum amenorrhea | 86 (21.5) | 160 (40.0) | 109 (27.3) | 45 (11.3) | 62.28 | <0.001 |
| Longer breastfeeding duration increases birth interval | 119 (29.8) | 175 (43.8) | 76 (19.0) | 30 (7.5) | 110.12 | <0.001 |
| Breastfeeding alone is sufficient for family planning | 98 (24.5) | 90 (22.5) | 144 (36.0) | 68 (17.0) | 35.64 | <0.001 |
| Poor breastfeeding practice shortens child spacing | 105 (26.3) | 120 (30.0) | 134 (33.5) | 41 (10.3) | 28.91 | <0.001 |
| Early complementary feeding shortens birth interval | 146 (36.5) | 125 (31.3) | 109 (27.3) | 20 (5.0) | 94.78 | <0.001 |
| Mental illness can affect breastfeeding and child spacing | 179 (44.8) | 129 (32.3) | 41 (10.3) | 51 (12.8) | 156.37 | <0.001 |

**Frequent Breastfeeding Delays Ovulation**

Specific statistical differences between response categories for the statement "Frequent breastfeeding delays ovulation", a post-hoc comparison of proportions was performed (see Table 3). Regarding the perception that frequent breastfeeding delays ovulation, pairwise post hoc comparisons revealed significant differences across several response categories. The proportion of respondents who agreed with the statement (42.5%) was significantly higher than those who strongly agreed (25.5%) ($\chi^2 = 17.00$, df = 1, $p < 0.001$). Likewise, the proportion who agreed was significantly greater than those who disagreed (9.8%) ($\chi^2 = 82.11$, df = 1, $p < 0.001$) and those who strongly disagreed (22.3%) ($\chi^2 = 25.33$, df = 1, $p < 0.001$). Furthermore, respondents who strongly disagreed were significantly more numerous than those who disagreed ($\chi^2 = 19.53$, df = 1, $p < 0.001$). These findings indicate that agreement with the statement predominated among respondents, supporting the overall significant association observed in the omnibus chi-square test ($\chi^2 = 87.46$, df = 3, $p < 0.001$).

**Table 3**. Post-hoc comparison of proportions on the assertion "Frequent breastfeeding delays ovulation"

| Comparison | Ob/Freq | $\chi^2$ (df = 1) | p-value | Interpretation |
|---|---|---|---|---|
| A vs SA | 170 vs 102 | 17.00 | < 0.001 | Agree responses were significantly higher than Strongly Agree responses |
| A vs D | 170 vs 39 | 82.11 | < 0.001 | Agree responses were significantly higher than Disagree responses |
| A vs SD | 170 vs 89 | 25.33 | < 0.001 | Agree responses were significantly higher than Strongly Disagree responses |
| SD vs D | 89 vs 39 | 19.53 | < 0.001 | Strongly |

| | | | | |
|---|---|---|---|---|
| | | | | Disagree responses were significantly higher than Disagree responses |

**Exclusive Breastfeeding Prolongs Postpartum Amenorrhea**

The pairwise comparisons on the assertion "Exclusive breastfeeding prolongs postpartum amenorrhea" are presented in Table 4. For the perception that exclusive breastfeeding prolongs postpartum amenorrhea, respondents were significantly more likely to agree (40.0%) than to strongly agree (21.5%) ($\chi^2 = 30.05$, df = 1, $p < 0.001$). Similarly, the proportion who agreed was significantly greater than the proportion who strongly disagreed (11.3%) ($\chi^2 = 64.51$, df = 1, $p < 0.001$). In addition, respondents selecting agree were significantly more numerous than those selecting disagree (27.3%) ($\chi^2 = 9.67$, df = 1, $p = 0.002$).

These findings suggest a strong perception among respondents regarding the role of exclusive breastfeeding in prolonging postpartum amenorrhea. The predominance of agreement supports widespread awareness of the fertility-suppressing effect of exclusive breastfeeding. It is consistent with the highly significant overall chi-square result for this variable ($\chi^2 = 62.28$, df = 3, $p < 0.001$).

Using a Bonferroni-adjusted significance threshold of $\alpha = 0.05/3 = 0.0167$, all reported pairwise differences remain statistically significant after adjustment for multiple comparisons.

**Table 4**. Pairwise comparisons on the assertion "Exclusive Breastfeeding prolongs postpartum amenorrhea"

| Comparison | Frequencies | $\chi^2$ | df | p-value |
|---|---|---|---|---|
| Agree vs Strongly Agree | 160 vs 86 | 30.05 | 1 | < 0.001 |
| Agree vs Strongly Disagree | 160 vs 45 | 64.51 | 1 | < 0.001 |
| Agree vs Disagree | 160 vs 109 | 9.67 | 1 | 0.002 |

**Longer Breastfeeding Duration Increases Birth Interval**

The pairwise comparisons on the assertion that "Longer breastfeeding duration increases birth interval" are shown in Table 5.

**Table 5.** Pairwise comparisons on the assertion that "Longer breastfeeding duration increases birth interval" Comparisons

| Comparison | Frequencies | $\chi^2$ | df | p-value |
|---|---|---|---|---|
| Agree vs Strongly Agree | 175 vs 119 | 13.20 | 1 | < 0.001 |
| Agree vs Disagree | 175 vs 76 | 39.08 | 1 | < 0.001 |
| Agree vs Strongly Disagree | 175 vs 30 | 102.56 | 1 | < 0.001 |
| Strongly Agree vs Disagree | 119 vs 76 | 9.59 | 1 | 0.002 |
| Strongly Agree vs Strongly Disagree | 119 vs 30 | 53.12 | 1 | < 0.001 |
| Disagree vs Strongly Disagree | 76 vs 30 | 21.04 | 1 | < 0.001 |

For the perception that longer breastfeeding duration increases birth interval, respondents were significantly more likely to agree (43.8%) than to strongly agree (29.8%) ($\chi^2 = 13.20$, df = 1, $p < 0.001$), disagree (19.0%) ($\chi^2 = 39.08$, df = 1, $p < 0.001$), or strongly disagree (7.5%) ($\chi^2 = 102.56$, df = 1, $p < 0.001$).

Similarly, respondents who strongly agreed were significantly more numerous than those who disagreed ($\chi^2 = 9.59$, df = 1, $p = 0.002$) and those who strongly disagreed ($\chi^2 = 53.12$, df = 1, $p < 0.001$). Furthermore, the proportion of respondents who disagreed was significantly higher than those who strongly disagreed ($\chi^2 = 21.04$, df = 1, $p < 0.001$).

These results indicate a strong consensus among respondents that prolonged breastfeeding contributes to increased birth intervals. The combined agreement level (73.5%) was substantially higher than the combined disagreement level (26.5%), reinforcing the overall significant association observed in the omnibus chi-square test ($\chi^2 = 110.12$, df = 3, $p < 0.001$).

Applying a Bonferroni correction for six pairwise comparisons ($\alpha = 0.05 / 6 = 0.0083$) showed that all pairwise comparisons remained statistically significant after adjustment, as all p-values were below the corrected significance threshold of 0.0083.

**Breastfeeding Alone Is Sufficient for Family Planning**

No statistically significant difference was observed between respondents who strongly agreed and those who agreed ($\chi^2 = 0.34$, df = 1, $p = 0.559$). Likewise, the difference between agree and strongly disagree responses was not statistically significant ($\chi^2 = 3.06$, df = 1, $p = 0.080$). Although respondents who strongly agreed were more numerous than those who strongly disagreed, the difference was modest ($\chi^2 = 5.42$, df = 1, $p = 0.020$).

Overall, the findings suggest that respondents were significantly more inclined to reject the notion that breastfeeding alone is sufficient for family planning. The predominance of disagreement (53.0% combined D + SD) over agreement (47.0% combined SA + A) indicates awareness that breastfeeding may not provide complete contraceptive protection unless the criteria for the Lactational Amenorrhea Method (LAM) are strictly met.

**Table 6**. Pairwise comparisons on the statement "Breastfeeding Alone Is Sufficient for Family Planning"

| Comparison | Frequencies | $\chi^2$ | df | p-value |
|---|---|---|---|---|
| Disagree vs Strongly Agree | 144 vs 98 | 8.74 | 1 | 0.003 |
| Disagree vs Agree | 144 vs 90 | 12.46 | 1 | < 0.001 |
| Disagree vs Strongly Disagree | 144 vs 68 | 27.25 | 1 | < 0.001 |
| Strongly Agree vs Agree | 98 vs 90 | 0.34 | 1 | 0.559 |
| Strongly Agree vs Strongly Disagree | 98 vs 68 | 5.42 | 1 | 0.020 |
| Agree vs Strongly Disagree | 90 vs 68 | 3.06 | 1 | 0.080 |

For six pairwise comparisons, the Bonferroni-adjusted significance level was 0.0083 ($\alpha = 0.0 / 6 = 0.0083$). After adjustment, only the comparisons involving the Disagree category remained statistically significant after correcting for multiple testing, confirming that disagreement was the dominant response pattern for this statement.

*Science World Journal Vol. 21(No 2) 2026* https://dx.doi.org/10.4314/swj.v21i2.46
*www.scienceworldjournal.org*
*ISSN: 1597-6343 (Online), ISSN: 2756-391X (Print)*
*Published by Faculty of Science, Kaduna State University*

**Table 7**. Significance after Bonferroni adjustment on the statement "Breastfeeding Alone Is Sufficient for Family Planning"

| Comparison | p-value | Significant? |
|---|---|---|
| Disagree vs Strongly Agree | 0.003 | Yes |
| Disagree vs Agree | <0.001 | Yes |
| Disagree vs Strongly Disagree | <0.001 | Yes |
| Strongly Agree vs Agree | 0.559 | No |
| Strongly Agree vs Strongly Disagree | 0.020 | No |
| Agree vs Strongly Disagree | 0.080 | No |

**Poor Breastfeeding Practice Shortens Child Spacing**

For the perception that poor breastfeeding practice shortens child spacing, the highest proportion of respondents selected disagree (33.5%), followed closely by agree (30.0%) and strongly agree (26.3%). Pairwise comparisons revealed no significant difference between respondents who disagreed and those who agreed ($\chi^2$ = 0.77, df = 1, p = 0.381), nor between those who disagreed and strongly agreed ($\chi^2$ = 3.52, df = 1, p = 0.061). Similarly, no significant difference was observed between respondents who agreed and those who strongly agreed ($\chi^2$ = 1.00, df = 1, p = 0.317). However, respondents who disagreed were significantly more numerous than those who strongly disagreed (10.3%) ($\chi^2$ = 49.46, df = 1, p < 0.001). Likewise, respondents who agreed were significantly more numerous than those who strongly disagreed ($\chi^2$ = 38.75, df = 1, p < 0.001). At the same time, respondents who strongly agreed were also significantly more numerous than those who strongly disagreed ($\chi^2$ = 28.05, df = 1, p < 0.001).

These findings indicate that respondents' opinions were relatively divided between agreement and disagreement regarding the effect of poor breastfeeding practices on child spacing. Nevertheless, the very low proportion of strongly disagree responses suggests that few respondents completely rejected the proposed relationship.

**Table 8**. Pairwise comparisons on the statement "poor breastfeeding practices shorten child spacing"

| Comparison | Frequencies | $\chi^2$ | df | p-value |
|---|---|---|---|---|
| Disagree vs Agree | 134 vs 120 | 0.77 | 1 | 0.381 |
| Disagree vs Strongly Agree | 134 vs 105 | 3.52 | 1 | 0.061 |
| Disagree vs Strongly Disagree | 134 vs 41 | 49.46 | 1 | < 0.001 |
| Agree vs Strongly Agree | 120 vs 105 | 1.00 | 1 | 0.317 |
| Agree vs Strongly Disagree | 120 vs 41 | 38.75 | 1 | < 0.001 |
| Strongly Agree vs Strongly Disagree | 105 vs 41 | 28.05 | 1 | < 0.001 |

For six pairwise comparisons, the Bonferroni-corrected significance threshold was 0.0083. Therefore, after adjustment for multiple comparisons, only comparisons involving the Strongly Disagree category remained statistically significant (see Table 9), suggesting that the principal distinction in respondents' perceptions was between those who strongly rejected the statement and all other response groups.

**Table 9**. Significance after Bonferroni adjustment on the statement "Poor breastfeeding practices shorten child spacing"

| Comparison | p-value | Significance after Bonferroni correction? |
|---|---|---|
| Disagree vs Agree | 0.381 | No |
| Disagree vs Strongly Agree | 0.061 | No |
| Disagree vs Strongly Disagree | <0.001 | Yes |
| Agree vs Strongly Agree | 0.317 | No |
| Agree vs Strongly Disagree | <0.001 | Yes |
| Strongly Agree vs Strongly Disagree | <0.001 | Yes |

**Early Complementary Feeding Shortens Birth Interval**

Pairwise chi-square tests (df = 1) were conducted to identify significant differences between response categories (see Table 10).

For the perception that early complementary feeding shortens birth interval, the largest proportion of respondents strongly agreed (36.5%), followed by those who agreed (31.3%), disagreed (27.3%), and strongly disagreed (5.0%). Pairwise comparisons showed no significant difference between respondents who strongly agreed and those who agreed ($\chi^2$ = 1.63, df = 1, p = 0.202). Likewise, the difference between respondents who agreed and those who disagreed was not statistically significant ($\chi^2$ = 1.09, df = 1, p = 0.296).

A modest difference was observed between respondents who strongly agreed and those who disagreed ($\chi^2$ = 5.37, df = 1, p = 0.020), indicating that strong agreement was more common than disagreement. However, the most pronounced differences involved the strongly disagree category. Respondents who strongly agreed were significantly more numerous than those who strongly disagreed ($\chi^2$ = 95.71, df = 1, p < 0.001). Similarly, respondents who agreed significantly outnumbered those who strongly disagreed ($\chi^2$ = 76.03, df = 1, p < 0.001), while respondents who disagreed were also significantly more numerous than those who strongly disagreed ($\chi^2$ = 44.49, df = 1, p < 0.001).

Overall, these findings provide substantial support for the perception that early complementary feeding may shorten birth intervals, with 67.8% of respondents agreeing (SA + A) compared with 32.3% disagreeing (D + SD).

**Table 10.** Pairwise comparisons on the statement "Early Complementary Feeding Shortens Birth Interval"

| Comparison | Frequencies | $\chi^2$ | df | p-value |
|---|---|---|---|---|
| Strongly Agree vs Agree | 146 vs 125 | 1.63 | 1 | 0.202 |
| Strongly Agree vs Disagree | 146 vs 109 | 5.37 | 1 | 0.020 |
| Strongly Agree vs Strongly Disagree | 146 vs 20 | 95.71 | 1 | < 0.001 |
| Agree vs Disagree | 125 vs 109 | 1.09 | 1 | 0.296 |
| Agree vs Strongly Disagree | 125 vs 20 | 76.03 | 1 | < 0.001 |
| Disagree vs Strongly Disagree | 109 vs 20 | 44.49 | 1 | < 0.001 |

For six pairwise comparisons, the Bonferroni-adjusted significance level was 0.0083. Therefore, after adjustment for multiple testing (see Table 11), only the comparisons involving the Strongly Disagree category remained statistically significant, demonstrating that the very small proportion of respondents who strongly rejected

the statement differed markedly from all other response groups.

**Table 11**. Significance after Bonferroni adjustment on the statement "Early Complementary Feeding Shortens Birth Interval"

| Comparison | p-value | Significant after Bonferroni correction? |
|---|---|---|
| Strongly Agree vs Agree | 0.202 | No |
| Strongly Agree vs Disagree | 0.020 | No |
| Strongly Agree vs Strongly Disagree | <0.001 | Yes |
| Agree vs Disagree | 0.296 | No |
| Agree vs Strongly Disagree | <0.001 | Yes |
| Disagree vs Strongly Disagree | <0.001 | Yes |

**Mental Illness Can Affect Breastfeeding and Child Spacing**

Pairwise chi-square tests (df = 1) were conducted to identify significant differences between response categories (see Table 12). For the perception that mental illness can affect breastfeeding and child spacing, the largest proportion of respondents strongly agreed (44.8%), followed by those who agreed (32.3%), strongly disagreed (12.8%), and disagreed (10.3%). Pairwise comparisons revealed that respondents who strongly agreed were significantly more numerous than those who agreed ($\chi^2 = 9.69$, df = 1, $p = 0.002$), disagreed ($\chi^2 = 86.56$, df = 1, $p < 0.001$), and strongly disagreed ($\chi^2 = 71.23$, df = 1, $p < 0.001$).

Similarly, respondents who agreed were significantly more numerous than those who disagreed ($\chi^2 = 45.55$, df = 1, $p < 0.001$) and those who strongly disagreed ($\chi^2 = 33.80$, df = 1, $p < 0.001$). However, there was no statistically significant difference between respondents who disagreed and those who strongly disagreed ($\chi^2 = 1.09$, df = 1, $p = 0.297$).

These findings indicate a strong consensus among respondents that maternal mental illness can influence breastfeeding practices and child spacing. The combined proportion of respondents agreeing (77.0%) was substantially greater than the combined proportion expressing disagreement (23.0%), supporting the overall highly significant chi-square result ($\chi^2 = 156.37$, df = 3, $p < 0.001$).

For six pairwise comparisons, the Bonferroni-adjusted significance threshold was 0.0083. Thus, after correcting for multiple comparisons, all differences involving the Strongly Agree and Agree categories remained statistically significant, whereas the difference between Disagree and Strongly Disagree responses was not significant. This pattern demonstrates strong endorsement of the statement by the study population.

Table 13. Pairwise comparisons on the statement "Mental Illness Can Affect Breastfeeding and Child Spacing"

| Comparison | p-value | Significant after Bonferroni correction? |
|---|---|---|
| Strongly Agree vs Agree | 0.002 | Yes |
| Strongly Agree vs Disagree | <0.001 | Yes |
| Strongly Agree vs Strongly Disagree | <0.001 | Yes |
| Agree vs Disagree | <0.001 | Yes |
| Agree vs Strongly Disagree | <0.001 | Yes |
| Disagree vs Strongly Disagree | 0.297 | No |

## DISCUSSION

The present study assessed respondents' perceptions regarding breastfeeding practices and their relationship with fertility regulation and child spacing. The findings demonstrate a general awareness regarding the biological and reproductive benefits of breastfeeding, although notable misconceptions remain.

The majority of respondents (68.0%) agreed that frequent breastfeeding delays ovulation. This finding aligns with established physiological evidence indicating that frequent suckling suppresses the hypothalamic-pituitary-ovarian axis through elevated prolactin secretion, thereby delaying the resumption of ovulatory cycles after childbirth (McNeilly, 2018; Kennedy *et al*., 2019). Similar findings have been reported in studies from sub-Saharan Africa, where women recognized breastfeeding as a natural means of delaying pregnancy (Borda *et al*., 2020; Aguayo *et al.,* 2021).

More than sixty percent of respondents also agreed that exclusive breastfeeding prolongs postpartum amenorrhea. This observation is consistent with previous research demonstrating that exclusive breastfeeding significantly extends the duration of postpartum infertility compared with partial breastfeeding (Victora *et al.,* 2016). Respondents' perceptions reflect an encouraging level of awareness of the physiological effects of breastfeeding on reproductive function. However, the relatively high proportion of respondents who disagreed suggests that knowledge gaps remain within the population.

The finding that 73.6% of respondents believed longer breastfeeding duration increases birth intervals is biologically plausible and consistent with evidence showing that prolonged breastfeeding contributes to delayed fertility return and wider birth spacing (Fabic & Choi, 2019). Adequate birth spacing has been associated with reductions in maternal depletion syndrome, infant mortality, and childhood malnutrition (WHO, 2023). The high level of agreement, therefore, reflects a positive understanding of the relationship between infant feeding practices and reproductive outcomes.

Interestingly, perceptions were divided regarding whether breastfeeding alone is sufficient for family planning. More respondents disagreed (53.0%) than agreed (47.0%), indicating uncertainty regarding the contraceptive effectiveness of breastfeeding. This finding may actually reflect a more accurate understanding of LAM because breastfeeding is only highly effective as contraception when three conditions are met: exclusive breastfeeding, postpartum amenorrhea, and infant age below six months (Kennedy *et al.,* 2019). Similar uncertainty has been reported among postpartum women in developing countries, where awareness of LAM often exists but detailed knowledge of its criteria remains limited (Borda *et al*., 2020). The finding underscores the need for targeted education emphasizing both the benefits and limitations of breastfeeding as a contraceptive strategy.

Perceptions regarding poor breastfeeding practices and child spacing were more evenly distributed. While a slight majority agreed that poor breastfeeding practices shorten the interval between children, a substantial proportion disagreed. This variability may indicate differing levels of understanding regarding the mechanisms linking breastfeeding intensity and fertility suppression. Studies have shown that reduced breastfeeding frequency or mixed feeding practices can accelerate the return of ovulation and increase the likelihood of conception (McNeilly, 2018). The observed divergence of opinion suggests opportunities for enhanced community education.

A substantial majority (67.8%) agreed that early introduction of complementary feeding shortens birth intervals. This finding reflects awareness that reduced breastfeeding intensity weakens lactational infertility. Early complementary feeding decreases suckling stimulation, leading to reduced prolactin secretion and earlier resumption of ovarian activity (Victora *et al*., 2016). Similar observations have been reported among women receiving postpartum counseling, where understanding of complementary feeding practices was associated with improved family planning awareness (Aguayo *et al*., 2021).

One of the most notable findings was that 77.1% of respondents agreed that mental illness can affect breastfeeding and child spacing. This high level of awareness is encouraging because maternal mental health is increasingly recognized as a critical determinant of breastfeeding success and reproductive decision-making. Maternal depression and anxiety have been linked to early breastfeeding cessation, reduced maternal-infant bonding, and inconsistent contraceptive use (Figueiredo *et al*., 2021; Shorey & Chee, 2021). The strong agreement observed suggests growing recognition of the interconnectedness of psychological well-being and reproductive health.

The statistically significant Chi-square values across all perception domains indicate that responses were not randomly distributed but reflected clearly established beliefs among respondents. These findings suggest that while awareness regarding breastfeeding and fertility regulation is generally high, important gaps remain concerning the precise conditions under which breastfeeding provides contraceptive protection.

Overall, the study highlights the need for strengthened maternal health education programs that emphasize exclusive breastfeeding, lactational amenorrhea, postpartum family planning, and maternal mental health. Integrating breastfeeding counseling with reproductive health services could improve both maternal and child health outcomes while promoting optimal birth spacing.

**Conclusion**

Respondents demonstrated substantial perception of the relationship between breastfeeding and fertility regulation. Most participants recognized that frequent and prolonged breastfeeding delays ovulation, prolongs postpartum amenorrhea, and contributes to increased birth intervals. However, misconceptions regarding the effectiveness of breastfeeding as a sole family planning method persist. Awareness of the influence of mental health on breastfeeding and child spacing was also high. Strengthening education on lactational amenorrhea, optimal breastfeeding practices, and postpartum family planning is necessary to improve reproductive health outcomes.

**Recommendations**

Maternal health education programs should emphasize the physiological basis of lactational amenorrhea. Health workers should provide comprehensive counseling on the criteria and limitations of LAM. Community awareness campaigns should promote exclusive breastfeeding for the first six months of life. Mental health screening and support services should be integrated into maternal and child health programs. Postpartum family planning education should accompany breastfeeding counseling to prevent unintended pregnancies.

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