Examining the predictive role of breastfeeding knowledge on self-efficacy among second-time nursing mothers in Angeles City, Pampanga

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Article Info	ABSTRACT
	Despite the well-documented health benefits of breastfeeding for both mother and infant, exclusive breastfeeding rates remain suboptimal globally, with barriers including knowledge gaps and poor maternal confidence. Understanding how breastfeeding knowledge influences self-efficacy is critical to improving breastfeeding outcomes and achieving public health targets. This study examined the extent to which breastfeeding knowledge is associated with breastfeeding self-efficacy among second-time nursing mothers in Angeles City, Pampanga. A cross-sectional descriptive-correlational design was employed using snowball sampling to recruit 104 second-time nursing mothers. Data were collected using the Gender-Friendly Breastfeeding Knowledge Scale (GFBFKS) and the Breastfeeding Self-Efficacy Scale–Short Form (BSES-SF). Descriptive statistics, Pearson's correlation, and linear regression analyses were conducted using IBM SPSS at a significance level of 0.05. Respondents demonstrated high breastfeeding knowledge (3.98 ± 1.29) and high breastfeeding self-efficacy (3.85 ± 1.27). Pearson's correlation revealed a strong positive relationship between breastfeeding knowledge and self-efficacy ($r = 0.872^*$, p-value 0.001). Linear regression analysis showed that breastfeeding knowledge predicts self-efficacy ($\beta = 0.677$, $t = 18.034$, $p = 0.001$), explaining 76.1% of the variance ($R^2 = 0.761$). Breastfeeding knowledge significantly predicts maternal confidence in breastfeeding ability. These findings support the integration of knowledge-based assessments and targeted educational interventions into prenatal and postnatal care, reinforcing initiatives such as the Philippine Plan of Action for Nutrition's 5.8% annual increase target and the WHO's exclusive breastfeeding goals, ultimately strengthening maternal and child health outcomes in Central Luzon.

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1. INTRODUCTION

The health of mothers and their babies depend on breastfeeding (Kehinde et al., 2022), yet exclusive breastfeeding (EBF) rates remain low across the world. EBF rates fall below 33% in high-income countries and below 60% in upper-middle-income countries, contributing to preventable infant deaths in low- and middle-income nations where diarrhea and pneumonia remain leading causes (North et al., 2021). The United Nations' SDG 3 initiative (United Nations, 2015), along with WHO recommendations (World Health Organization, 2023) and the Philippine PPAN targets (Candelario, 2023), aims to improve these outcomes. However, breastfeeding progress continues to be constrained by barriers such as insufficient counseling,

workplace challenges, weak Milk Code enforcement, persistent myths, and maternal doubts about breastfeeding (Samaniego et al., 2022). These obstacles highlight the importance of strengthening mothers' breastfeeding knowledge, as adequate understanding helps build the confidence needed to initiate and sustain breastfeeding.

Breastfeeding knowledge (BK) is a key determinant of breastfeeding success, shaping mothers' understanding, practical skills, and ability to manage challenges (Manjapallikkunnel et al., 2023). Higher levels of BK are more common among older and more educated mothers (Manjapallikkunnel et al., 2023). Although research on breastfeeding self-efficacy (BSE) has identified various influences, including personal characteristics, cultural factors, and social environments (Değer et al., 2023). Many studies overlook the cognitive mechanisms that link knowledge to confidence (Brani et al., 2024; Naja et al., 2022). Guided by Bandura's Social Cognitive Theory, this study conceptualizes BK as a cognitive foundation that strengthens BSE by shaping how mothers interpret breastfeeding challenges, draw from prior experiences, regulate anxiety, and build confidence in their ability to breastfeed.

Scholars in the Philippines have begun investigating the relationship between mothers' breastfeeding knowledge (BK) and their confidence in their ability to breastfeed. Gonzales (2020) and Rubenecia et al. (2024) emphasize knowledge as a key factor influencing maternal confidence, while Ngo et al. (2021) and Bayaga (2020) highlight how social norms, work-related barriers, and limited postpartum support continue to constrain breastfeeding practices. Research findings indicate that Filipino mothers experience postpartum changes because of traditional beliefs that have evolved through time, while being supported by their family members, especially their mothers and mothers-in-law. The cultural environment of mothers determines their choices regarding infant care and recovery, as well as postpartum healthcare service utilization, according to Siregar et al. (2021). Although scholars have begun exploring these dynamics, existing Philippine research remains primarily descriptive and seldom tests cause-and-effect relationships. Empirical studies examining the statistical association between BK and breastfeeding self-efficacy (BSE) remain scarce, particularly in Central Luzon, underscoring the need for localized evidence that reflects the cultural environments in which Filipino mothers develop confidence.

Expanding on this gap, this study examines the extent to which breastfeeding knowledge (BK) influences breastfeeding self-efficacy (BSE) among second-time nursing mothers in Angeles City, Pampanga. Second-time mothers are of particular interest because, although they possess knowledge gained from prior breastfeeding experiences, they may continue to face uncertainties that undermine their confidence. Understanding how these mothers draw upon and interpret their previous experiences offers insight into the process of maternal learning and adaptation. Grounded in Bandura's Social Cognitive Theory, the study applies this framework by proposing that breastfeeding knowledge shapes how second-time mothers evaluate and make meaning of their earlier breastfeeding experiences, which in turn contributes to their sense of efficacy (Figure 1).
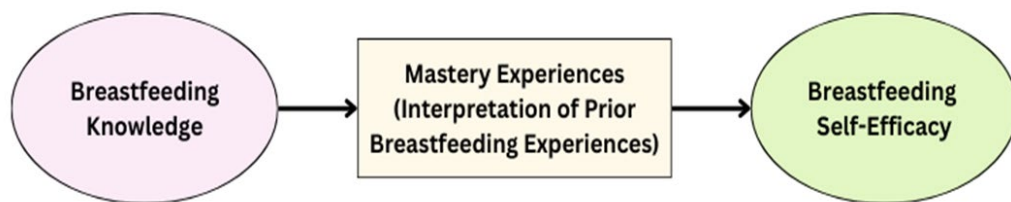

Figure 1. Conceptual Framework

In Angeles City, Pampanga, generating such evidence is essential, as it can inform nursing curricula, community health initiatives, and barangay-based maternal programs across Central Luzon. Specifically, this study aims to: (1) describe the demographic profiles of the respondents in terms of age, educational background, and socio-economic status (employment and annual household income); (2) determine the level of BK among second-time nursing mothers; (3) determine the level of BSE among second-time nursing mothers; (4) examine the significant relationship between BK and BSE; and (5) assess whether BK predicts BSE. The study is guided by the following hypotheses: H_1—there is a significant correlation between a mother's knowledge of breastfeeding and her self-efficacy in successfully breastfeeding her baby; and H_2— BK predicts BSE of second-time nursing mothers in Angeles City, Pampanga. The findings are expected to inform targeted interventions that strengthen maternal confidence, support exclusive breastfeeding, and align with national initiatives such as the Department of Health's "Breastfeeding TSEK" campaign and the World Health Organization's global breastfeeding targets.

2. METHODOLOGY
2.1. Study Design

The cross-sectional descriptive-correlational design was applied to investigate how BK BSE in second-time nursing mothers. As previously outlined, breastfeeding is the best way to feed a baby and has many important health benefits for the mother and her child. Although knowledge and self-efficacy are known to be positively correlated from prior research, the predictive role is unclear. To control this, the research design was used to allow determining the prediction of BK on BSE over other competing covariates in the study. The researchers elicited the data by using survey questionnaires to mothers, in Angeles City Pampanga. This local context was helpful in providing specific insights in relation to BK and BSE for second-time nursing mothers.

2.2. Sample

Based on a G*Power analysis, the required sample size for the study was determined to be a minimum of 43 respondents. However, for the purpose of improving statistical validity and enriching representation, a total of 104 second-time nursing mothers were surveyed.

Respondents were selected through snowball sampling, a non-probability sampling method where initial participants referred other eligible mothers to participate. Five initial seeds were selected from barangay health centers in Angeles City, Pampanga, specifically chosen because they met the inclusion criteria and were known to have connections with other nursing mothers in their communities. These seeds were identified through coordination with barangay health workers who facilitated the initial contact. Each seed was asked to refer 2-3 eligible mothers from their personal networks, including contacts from community groups, social media groups for mothers, and neighborhood associations. This approach was effective for identifying individuals with particular shared characteristics relevant to the study, especially in populations often difficult to access through random sampling methods. To reduce sampling bias inherent in snowball sampling, several measures were implemented: (1) seeds were selected from different barangays to ensure geographic diversity across Angeles City; (2) referral chains were monitored to prevent over-representation from any single network, with a maximum of three referral waves per seed; (3) demographic characteristics of participants were tracked throughout recruitment to identify and address any emerging homogeneity; and (4) the research team actively sought referrals from diverse socioeconomic backgrounds by engaging with health centers serving different communities within the city.

The inclusion criteria were: (1) currently breastfeeding their second child; (2) residing in Angeles City, Pampanga; and (3) voluntarily participating in this study. Exclusion criteria were: (1) first-time mothers; (2) mothers who had stopped breastfeeding; or (3) mothers with medical contraindications to breastfeeding. All subjects were recruited voluntarily and provided informed consent following introduction to the study's purpose.

2.3. Research Instrument
2.3.1. Breastfeeding Knowledge

The Gender-Friendly Breastfeeding Knowledge Scale (GFBFKS), developed by Gupta et al. (2021), is a concise 18-item instrument designed to assess breastfeeding knowledge. It has demonstrated strong reliability, with a Cronbach's alpha coefficient exceeding 0.70. The GFBFKS employs a 5-point Likert-type scale, where positively worded items (1, 4, 5, 6, 8, 9, 10, 13, 14, 18) are rated from 1 ("False") to 5 ("True"), while negatively worded items (2, 3, 7, 11, 12, 15, 16, 17) are reverse scored. The total score ranges from 18 to 90, with higher scores indicating greater BK. Scores of 80 and above represent good knowledge, 65 to 79 indicate average knowledge, 50 to 64 reflect poor knowledge, and scores below 49 suggest no BK.

The reliability of the instrument was supported by principal component analysis (PCA) and intraclass correlation coefficients (ICCs) ranging from 0.693 to 0.736, confirming its stability across populations. The researchers formally requested and received permission from the authors to use and adapt the scale for this study.

2.3.2. Breastfeeding Self-efficacy

The Breastfeeding Self-Efficacy Scale–Short Form (BSES-SF), developed by Dennis (2003), was used to measure the level of breastfeeding confidence among second-time nursing mothers. The BSES-SF is a 14-item version of the original 33-item scale and uses a 5-point Likert-type scale ranging from 1 ("Not at all confident") to 5 ("Always confident"). Total scores range from 14 to 70, with higher scores indicating greater self-efficacy.

The BSES-SF is grounded in Albert Bandura's Social Cognitive Theory, emphasizing self-belief as a determinant of behavior. The scale has consistently shown high reliability (Cronbach's $\alpha = 0.90$–0.94) and strong validity through content, construct, and cause-and-effect testing. In this study, the BSES-SF achieved

a Cronbach's alpha of 0.92, confirming excellent internal consistency. Permission to use and adapt the instrument was obtained from the original author.

Both instruments have demonstrated strong validity and reliability in previous research and in this study. Operationally, BK refers to mothers' understanding of breastfeeding principles and practices, while BSE refers to their perceived confidence in performing breastfeeding behaviors effectively.

2.4. Data Collection Procedure

A quantitative approach was used to gather data from second-time nursing mothers over one month from mid-January to mid-February 2025. Formal approval was obtained from barangay officials for adherence to local protocol and community cooperation. Data were collected by four student researchers who ensured respondent safety and comfort throughout the data collection process. While the student researchers did not undergo formal training, they provided clear instructions, maintained confidentiality, and remained available to address any concerns or questions from participants. All respondents were given a detailed explanation of the study, its procedures, and expected duration. Written consent was sought prior to administering the questionnaire and respondents were assured about their confidentiality, voluntariness of participation, and right to withdraw at any time.

A printed survey questionnaire, including both instruments on 32 items was completed by each respondent. The survey was self-administered, with respondents completing the questionnaire independently. However, the four data collectors remained present throughout the process to provide guidance, clarify any unclear items, and ensure complete responses. All surveys were conducted face-to-face in various barangays of Angeles City, Pampanga, with data collection taking place in two primary locations: barangay health centers and respondents' homes. Each survey took approximately 10 minutes to complete. Since four student researchers conducted the surveys simultaneously, up to four respondents could complete the questionnaire at the same time, with each session lasting approximately 10 minutes. All completed survey questionnaires were kept confidential and stored in secure filing cabinets to which the research team had access.

2.5. Ethical Considerations

Ethical guidelines were followed religiously in the study on BK and BSE second time nursing mothers, Angeles City, Pampanga. The respondents had a full understanding of the procedure, as well as their rights regarding participation. Harm to respondents was minimized by exclusion of emotional or psychological harm through the nature of a study involving breastfeeding. Anonymization was performed and data were stored to ensure privacy and confidentiality of the study respondents by the researchers. The selection of respondents was appropriate and consistent with the study purpose, while violations such as fabrication of data, data falsehood and plagiarism were not carried out to ensure validity and integrity. The study was granted approval by the Holy Angel University Institutional Review Board (2024-136-AGLLANETA-BreastFeedingKnowledgePREDBSE) for its ethical considerations. Cultural appropriateness was achieved by obeying the local customs of breastfeeding and parenting. Conduct and reporting of the findings were reported transparently with honesty to fairly represent results and disclose limitations in addition to potential conflicts of interests.

2.6. Data Analysis

The data were analyzed using the IBM Statistical Package for the Social Sciences (IBM SPSS), following a structured approach that included descriptive, correlational, and regression analyses, with a significance level of 0.05. Descriptive statistics addressed the first three research questions by presenting respondents' demographic profiles and subscale scores for BK and BSE. Frequencies and percentages described categorical data, while means and standard deviations determined the levels and variability of BK and BSE among respondents.

For the interpretation of breastfeeding knowledge using the GFBFKS, mean scores were categorized as follows: 1.00 to 1.80 indicated no breastfeeding knowledge, 1.81 to 2.60 reflected low breastfeeding knowledge, 2.61 to 3.40 represented moderate breastfeeding knowledge, 3.41 to 4.20 indicated high breastfeeding knowledge, and 4.21 to 5.00 signified very high breastfeeding knowledge. Higher mean scores indicated greater breastfeeding knowledge, with categories classifying respondents' understanding from minimal (no knowledge) to extensive (very high knowledge).

Similarly, for breastfeeding self-efficacy as measured by the BSES-SF, mean scores were interpreted using the following ranges: 1.00 to 1.80 indicated no breastfeeding self-efficacy, 1.81 to 2.60 reflected low breastfeeding self-efficacy, 2.61 to 3.40 represented moderate breastfeeding self-efficacy, 3.41 to 4.20 indicated high breastfeeding self-efficacy, and 4.21 to 5.00 signified very high breastfeeding self-efficacy. Higher mean scores represented stronger breastfeeding confidence and self-efficacy among respondents.

Pearson's correlation coefficient was then used to assess the relationship between BK and BSE, addressing the fourth research question and testing H1. Finally, linear regression analysis examined the predictive role of BK on BSE, addressing the fifth research question and testing H2.

3. RESULTS
3.1. Demographic Profile of the Respondents

The result shows that out of 104 respondents, the majority of them (61.5%) were aged 25–31 years. Most of the respondents completed high school education (47.1%), and working (50%%), and reported an annual household income between ₱200,001 and ₱400,000 (56.7%) [Table 1].

Table 1. Demographic profile of the respondents (n=104).

VARIABLE	CATEGORY	FREQUENCY	PERCENTAGE
Age	18-24	33	31.7
	25-31	64	61.5
	32-38	7	6.7
Education	Elementary	11	10.6
	High school	49	47.1
	College	44	42.3
Occcupation	Working	50	1.9
	Housewife	41	39.4
	No response	17	16.3
Income (annual in peso)	100,000 - 200,000	39	37.5
	200,001 - 400,000	59	56.7
	400,001 - 600,000	3	2.9
	No response	3	2.9

3.2. Breastfeeding Knowledge Among Second-Time Nursing Mothers in Angeles City

Mean scores and interpretations are presented below for the GFBFKS [Table 2]. The overall average (3.98 ± 1.29) indicates that mothers who are on their second birth have high knowledge about breastfeeding. Respondents demonstrated highest overall knowledge of the benefits of breastfeeding for importance of breastmilk (Item 1), early initiation (Item 4) and bonding (Item 9). Yet, misconceptions about the impact of breastfeeding on cancer, productivity, and family planning remained (Items 3, 7, 12).

Table 2. Mean score of breastfeeding knowledge among second-time nursing mothers in Angeles City.

ITEM	DESCRIPTION	MEAN ± SD
1	Mother milk is best for the baby	4.52 ± 1.24
2	Mother milk is not easily digested by the child	3.26 ± 1.51
3	Breastfeeding causes breast and ovarian cancer to mother	3.77 ± 1.26
4	Child should be breastfed as early as possible soon after birth	4.13 ± 1.29
5	Colostrum (breast milk secreted immediately after delivery) should not be discarded	4.04 ± 1.37
6	Breastfeeding improves immunity of the child	4.17 ± 1.25
7	Breastfeeding has no role in lactational amenorrhea/ family planning/ avoiding immediate pregnancy for 6 months after delivery	3.57 ± 1.12
8	Mother milk improves the intelligence (IQ) of child	4.12 ± 1.22
9	Breastfeeding promotes bonding between mother and baby	4.27 ± 1.31
10	Breastfeeding reduces sickness in mother and baby	4.16 ± 1.26
11	Father should not support the mother in breastfeeding	4.18 ± 1.28
12	Breastfeeding decreases work productivity/ earnings/ working days of family	3.46 ± 1.37
13	Exclusive breastfeeding is giving only breast milk for first 6 months of life/child/ baby/ age	3.50 ± 1.35
14	Child can be breastfed up to 2 years	4.08 ± 1.19
15	Mother cannot continue breastfeeding after starting the supportive/complementary feeding from 6 months of life	3.75 ± 1.20
16	Breastfeeding increases health related expenses of the family	4.15 ± 1.36
17	Breastfeeding should be given only when child cries	4.19 ± 1.26
18	As a future parent you are decision maker in facilitating breastfeeding	4.23 ± 1.37
	Overall	**3.98 ± 1.29**

Legend: No Breastfeeding Knowledge (1.00 to 1.80); Low Breastfeeding Knowledge (1.81 to 2.60); Moderate Breastfeeding Knowledge (2.61 to 3.40); High Breastfeeding Knowledge (3.41 to 4.20); Very High Breastfeeding Knowledge (4.21 to 5.00)

3.3. Breastfeeding Self-Efficacy Scores Among Second-Time Nursing Mothers in Angeles City

Results shows that the Breastfeeding Self-Efficacy Scale–Short Form (BSES-SF) scores produced an overall mean of 3.85 (SD = 1.27), reflecting high BSE. Respondents were most confident in ensuring proper latching (Item 4), mother's own satisfaction (Item 5) and continuing to breastfeed for every feeding (Item 12). Lower scores were seen for managing time-consuming aspects (Item 10) and feeding while the baby is crying (Item 6). [Table 3].

Table 3. Mean score of breastfeeding self-efficacy among second-time nursing mothers in Angeles City.

ITEM	DESCRIPTION	MEAN ± SD
1	I can always determine that my baby is getting enough milk	3.71 ± 1.43
2	I can always successfully cope with breastfeeding like I have with other challenging tasks	3.78 ± 1.30
3	I can always breastfeed my baby without using formula as a supplement	3.78 ± 1.36
4	I can always ensure that my baby is properly latched on for the whole feeding	4.03 ± 1.24
5	I can always manage the breastfeeding situation to my satisfaction	4.00 ± 1.25
6	I can always manage to breastfeed even if my baby is crying	3.77 ± 1.22
7	I can always keep wanting to breastfeed	3.71 ± 1.17
8	I can always comfortably breastfeed my family members present	3.93 ± 1.21
9	I can always be satisfied with my breastfeeding experience	3.92 ± 1.25
10	I can always deal with the fact that breastfeeding can be time consuming	3.41 ± 1.38
11	I can always finish feeding my baby on one breast before switching to the other breast	3.97 ± 1.17
12	I can always continue to breastfeed my baby for every feeding	4.04 ± 1.28
13	I can always manage to keep up with my baby's breastfeeding demands	3.97 ± 1.21
14	I can always tell when my baby is finished breastfeeding	3.81 ± 1.27
	Overall	**3.85 ± 1.27**

Legend: Very Low Breastfeeding Self-Efficacy (1.00 to 1.80); Low Breastfeeding Self-Efficacy (1.81 to 2.60); Moderate Breastfeeding Self Efficacy (2.61 to 3.40); High Breastfeeding Self-Efficacy (3.41 to 4.20); Very High Breastfeeding Self-Efficacy (4.21 to 5.00)

3.4. Correlation Between Breastfeeding Knowledge and Breastfeeding Self-Efficacy

The result shows that there is a strong, positive and statistically significant relationship between BK and BSE (Table 6; r = 0.872*, p-value 0.001). This implies that mothers who are more aware of the in-turn have higher confidence in their breastfeeding ability [Table 4].

Table 4. Preferred training modalities.

VARIABLES	r	p-value	STRENGTH
BK ↔ BSE	0.872*	0.001	Strong Positive

Significant at p=0.01

3.5. Regression Analysis Between Breastfeeding Knowledge and Breastfeeding Self-Efficacy

Linear regression analysis tested whether BK could predict BSE. Results showed a standardized regression coefficient of β = 0.677 (t = 18.034, p = 0.001) and R^2 = 0.761, indicating that 76.1% of the variance in self-efficacy is explained by BK [Table 5].

Table 5. Results of the Regression Analysis Between Breastfeeding Knowledge and Breastfeeding Self-Efficacy

BK	β	t	p	R²
	0.677	18.034	0.001	0.761

The effect size (β = 0.677) represents a large effect, confirming that higher BK significantly contributes to increased self-efficacy.

4. DISCUSSION

4.1. Demographic Profile of the Respondents

Most respondents were young adults between the ages of 25 and 31 who had completed high school, belonged to the lower middle class, were housewives, and did not have formal employment. These profiles suggest potential factors influencing their confidence and decision-making. Younger mothers may still be establishing their maternal roles, and women with only a high school education may not have as much access

to evidence-based BK. Additionally, the high percentage of housewives and limited financial resources may lead to a greater reliance on informal networks, which is consistent with Si and Mao's (2024) claim that BSE can be directly impacted by socioeconomic circumstances and educational background. These demographic factors likely shaped the participants' breastfeeding experiences, highlighting the importance of studies that look at the interactions between self-efficacy and age, education, and economic status.

4.2. Level of Breastfeeding Knowledge

The respondents' high level of BK reflects the strong flow of information within social and community networks, implying that essential breastfeeding concepts are effectively shared through healthcare interactions, peer conversations, and family practices, all of which significantly influence BK (Manjapallikkunnel et al., 2023). This broad access to basic breastfeeding knowledge suggests that mothers are generally well-equipped to understand the benefits of breastfeeding and its fundamental principles (Morse & Brown, 2022). However, minor gaps in technicalities, such as physiological mechanisms and long-term health advantages, suggest that not all areas of breastfeeding education are given equal weight. This shows that deeper biological and technical understanding may necessitate more tailored interventions from healthcare providers.

4.3. Level of Breastfeeding Self-Efficacy

BSE was also high, indicating that many mothers believe they can cope with common breastfeeding challenges. Repeated exposure helps build mastery, which may explain why confidence is linked to prior breastfeeding experience (Al-Thubaity et al., 2023). Cultural norms further shape this confidence (Değer et al., 2023), as breastfeeding is widely regarded as the expected practice in many Filipino households. Shared parental experiences, observable breastfeeding habits at home, and encouragement from family help a mother believe she can breastfeed effectively. However, lower confidence in time management highlights that practical barriers such as work demands and domestic responsibilities can undermine breastfeeding continuity despite strong cultural and peer support (Bednarek et al., 2023). This highlights the need for support strategies that extend beyond education by addressing the time-related and structural constraints mothers frequently confront.

4.4. Relationship Between Breastfeeding Knowledge and Self-Efficacy

The relationship between BK and BSE was notably strong, showing that a mother's understanding of breastfeeding coexists with her confidence in doing it. This link can be attributed to the combined effects of community learning, cultural reinforcements, and previous maternal experience. Mothers in many Filipino households that practice breastfeeding observe these behaviors regularly, which makes it simpler for them to transform knowledge into self-assured action. In contrast, first-time mothers frequently rely on outside guidance and may require more formal schooling to achieve comparable levels of confidence.

Studies from Saudi Arabia, Lebanon, Qatar, and Northwest Ethiopia have shown similar results, suggesting that BK and BSE are intrinsically related and mutually supportive (Naja et al., 2022; Abebe et al., 2022; Al-Thubaity et al., 2023). These studies highlight that mothers with sufficient knowledge are better able to manage problems, sustain exclusive breastfeeding, and make educated decisions. Conversely, a lack of information makes it more difficult to commence and maintain breastfeeding. When prior experience is combined with proper information, mothers gain stronger skills and confidence, which helps explain the study's unusually high correlation.

4.5. Predictive Relationship Between BK and BSE

BK was a strong predictor of BSE, suggesting that learning does not merely coexist with confidence but actively shapes it. When mothers understand effective techniques, benefits, and solutions to common difficulties, they develop a clearer sense of control in managing breastfeeding. This predictive strength may also reflect cultural expectations that encourage mothers, particularly experienced ones, to rely on previously gained skills and collective family guidance. For second-time mothers, combining experiential mastery with formal and informal knowledge makes the path from learning to confidence even more direct. This highlights the importance of comprehensive, practical breastfeeding education, especially for first-time mothers who may benefit most from confidence-building interventions.

Similar patterns have been observed in Hong Kong, the United States, and Southwest Ethiopia, where mothers with greater breastfeeding education and knowledge demonstrate higher confidence and stronger commitment to exclusive breastfeeding (Wong et al., 2021; Aderibigbe et al., 2023; Gizaw et al., 2022). These findings align with Bandura's self-efficacy theory, which explains that confidence develops through mastering experiences, observing others, receiving support, and recognizing one's own mental and physical states (Bandura, 2001). For second-time mothers, prior breastfeeding experience combined with knowledge enhances both confidence and effectiveness in breastfeeding.

4.6. Implications for Practice

The results highlight the key role of well-established BK in achieving BSE. The findings support global health priorities such as the WHO's goal of increasing EBF rates, as well as national initiatives, like PPAN's goal for 2023 to 2028 to increase EBF to 5.8% annually and the DOH's "Breastfeeding TSEK" initiative, which stresses Tama, Sapat, Eksklusibo, at Kontinuado breastfeeding practices. Emphasizing BK as a foundation for building self-efficacy may therefore serve as a key strategy in addressing breastfeeding disparities and improving maternal and child health.

Healthcare providers, especially nurses, midwives, and obstetricians, can integrate BK and BSE assessments into routine prenatal and postnatal care. By identifying mothers with low self-efficacy, they can deliver tailored education and support to help ensure successful breastfeeding outcomes. Moreover, because peer and family support play important roles in shaping BK, partners and family members should also be involved in education and counseling to create a more supportive environment. At the community level, local initiatives such as mother-to-mother support groups, peer counseling programs, and breastfeeding clubs can provide spaces for sharing knowledge and experiences, fostering both understanding and confidence.

4.7. Limitations

This study used a non-probability snowball sampling method, which, while practical for accessing mothers within close community networks, may have introduced selection bias by overrepresenting individuals with similar backgrounds, beliefs, or breastfeeding experiences. This may partially explain the unusually high correlation observed between BK and BSE, as culturally homogeneous groups tend to share knowledge and practices more consistently. The focus on second-time breastfeeding mothers in Angeles City provided specificity but limited diversity, excluding first-time mothers, multiparous mothers beyond the second child, adoptive mothers, and those from different socioeconomic or cultural contexts. Additionally, data were collected at a single point in time, with no analysis of long-term breastfeeding behaviors or changes in self-efficacy throughout the postpartum period.

The moderate standard deviations observed across survey items (ranging from 1.12 to 1.51) reflect natural heterogeneity within the sample, attributed to differences in educational attainment, socioeconomic status, and varied first-time breastfeeding experiences. While this variability strengthens statistical analyses by providing adequate variance, it suggests that second-time mothers in Angeles City are not a homogeneous group. Future research could explore subgroup analyses to better understand how specific demographic or experiential factors contribute to this variability in knowledge and self-efficacy.

4.8. Recommendations for Future Research

Future studies may address these limitations by including a more diverse and representative sample. Expanding the scope to include first-time, multiparous, and adoptive mothers could provide a deeper understanding of how BK influences BSE in various situations. Longitudinal research could also determine whether BK has lasting effects on BSE and breastfeeding duration, offering a clearer view of the long-term impact of maternal education.

Additionally, studying factors such as age, mental health, and financial status may reveal how these influence BSE. Comparing different communities or groups may help understand the impact of economic and cultural backgrounds to breastfeeding practices. Evaluating breastfeeding education programs, especially those designed for second-time mothers, and exploring the role of family and healthcare support would also be beneficial.

Moreover, future research could examine the influence of family, relatives, and healthcare professionals in strengthening a mother's efficacy in breastfeeding. Lastly, developing and assessing technology-based breastfeeding education programs could expand access to information and reduce barriers to learning and support.

5. CONCLUSION

This study examined the role of BK to BSE among second-time mothers in Angeles City, Pampanga. The quantitative data indicated a strong positive correlation between BK and BSE, suggesting that as mothers gain more knowledge about breastfeeding, they also gain confidence and competence. This supports the idea that BK is a strong, independent factor that motivates mothers' behaviors and contributes to their BSE.

As PPAN sets a goal of 5.8% annual increase in EBF for 2023 to 2028, it becomes highly important to understand the factors that may help improve and sustain the practice. The objectives on BSE are also closely aligned with the DOH's "Breastfeeding TSEK" (Tama, Sapat, Ekslusibo) campaign that promotes the practice of correct, adequate, and exclusive breastfeeding. However, the momentum is still impeded by

barriers such as inconsistent programming, limited access to counselling services, and entrenched beliefs about breastfeeding. Thus, it becomes pivotal to revisit and accentuate the importance of providing sufficient information on breastfeeding to nursing mothers to implement local and national breastfeeding initiatives successfully.

To achieve this, healthcare providers should implement prenatal and postpartum assessments to identify mothers with low self-efficacy and provide targeted education and support systems. Collaborations between local government and health organizations should also promote the sustainability of community-based programs like peer counseling, partner-inclusive education, and breastfeeding support groups. These initiatives can help provide essential avenues for knowledge sharing, empowerment, and the normalization of exclusive breastfeeding in the community. Ultimately, empowering mothers through continuous breastfeeding education is key to sustaining national and global efforts toward improved child health and development.

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