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Body Image Perception, Nutrient Intake, and Nutritional Status of Working Breastfeeding Mothers

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ABSTRACT

Background: The nutritional intake of breastfeeding mothers is often suboptimal, despite the increased energy and nutrient requirements needed to support breast milk production and infant growth. Inadequate intake may adversely affect both the mother's nutritional status and the baby's health.

Research Methods: This cross-sectional study was conducted from Oktober 2024 to Januari 2025 among 36 working breastfeeding mothers in Tampan District, Pekanbaru City, selected using purposive sampling. Body image perception was assessed using a structured questionnaire, nutrient intake was measured using a 24-hour dietary recall, and nutritional status was assessed using Mid-Upper Arm Circumference (MUAC). Descriptive statistics were used to summarize the data. Correlation analyses were performed using Pearson or Spearman correlation tests.

Research Result: The results showed that the majority of breastfeeding mothers were employed in the non-self-employed sector (63.9%), with most having a positive body image perception (94.4%) and normal nutritional status (91.7%). However, many still experienced inadequate nutrient intake, particularly in energy, protein, and carbohydrates. Bivariate analysis showed that there was a significant correlation between body image perception and nutritional status (p=0.028), while no significant correlation between energy, protein, fat, and carbohydrate intake and nutritional status of breastfeeding mothers (p>0.05).

Conclusion: This study showed that there was a significant correlation between body image perception and the nutritional status of working breastfeeding mothers (p-value = 0.028), indicating that psychological factors may play a role in determining maternal nutritional status. However, no significant correlations were found between energy, protein, fat, and carbohydrate intake and the nutritional status of breastfeeding mothers (p > 0.05).

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1. INTRODUCTION

After childbirth, the nutritional intake of breastfeeding mothers is often overlooked despite the increased nutritional demands during lactation. Lactating mothers require additional energy and nutrients to support breast milk production, maternal recovery, and the maintenance of adequate nutritional status. Maternal dietary intake also contributes to the composition of several nutrients in breast milk. Therefore, inadequate nutrient intake during lactation may compromise maternal nutrient reserves and adversely affect both maternal and infant health (Adhikari et al., 2022; Amaral et al., 2021). Breastfeeding mothers are considered a nutritionally vulnerable group because continuous milk production requires adequate maternal nutrient stores. When dietary intake is insufficient, the body compensates by mobilizing maternal nutrient reserves to sustain lactation. Prolonged inadequate nutrient intake may compromise maternal nutritional status and alter the nutritional composition of breast milk, potentially affecting infant growth and development (Adhikari et al., 2022; Amaral et al., 2021).

The nutritional status of breastfeeding mothers is influenced by multiple factors, including dietary intake, physical activity, health status, and psychosocial conditions. Recent evidence suggests that maternal nutritional status is determined not only by nutrient intake but also by biological and behavioral factors that interact during the lactation period (Adhikari et al., 2022). In Indonesia, nutritional problems among women of reproductive age remain a public health concern. According to the 2018 Basic Health Research (Riskesdas), 17.3% of pregnant women experienced chronic energy deficiency (CED), indicating that maternal undernutrition remains prevalent and may continue into the postpartum period (Kementerian Kesehatan RI, 2018).

Besides nutritional factors, postpartum physiological and psychological changes may influence maternal eating behaviors. Following childbirth, women often experience weight retention and body shape changes, which may affect their perception of body image (Shabira & Ginanjar, 2026). A study conducted in Jakarta reported that approximately one-third of postpartum women experienced negative body image (Ridwan et al., 2018). Recent evidence has shown that body image dissatisfaction during the postpartum period is associated with lower breastfeeding self-efficacy, maladaptive eating behaviors, and poorer maternal health outcomes (Kapa et al., 2022). Mothers with negative body image may adopt unhealthy dietary restriction practices in an attempt to regain their pre-pregnancy body shape. Such behaviors may reduce energy and nutrient intake despite the increased nutritional requirements during lactation, thereby increasing the risk of maternal nutrient depletion and impaired postpartum recovery (Kapa et al., 2022; Asimaki et al., 2022).

Several studies have reported that inadequate energy and protein intake may adversely affect maternal nutritional status. However, the determinants of nutritional status during lactation are multifactorial and involve interactions between dietary intake, psychological factors, and maternal health conditions (Adhikari et al., 2022). Although previous studies have investigated nutrient intake or body image separately, limited evidence has simultaneously examined the relationship between body image perception, nutrient intake, and nutritional status among working breastfeeding mothers, particularly in Indonesia. Working mothers face additional challenges in balancing employment, breastfeeding, and meeting their nutritional needs, making them a population at increased nutritional risk. Therefore, this study aimed to analyze the association between body image perception, nutrient intake, and the nutritional status of working breastfeeding mothers.

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2. METHODS

This cross-sectional study was conducted from October 2024 to January 2025 among 36 working breastfeeding mothers in Tampan District, Pekanbaru City, who were selected using purposive sampling. The independent variables were body image perception and nutrient intake (energy, protein, fat, and carbohydrate intake), while the dependent variable was nutritional status. Body image perception was measured using a structured body image questionnaire. Nutrient intake was assessed using a 24-hour dietary recall and categorized according to the recommendations of the Indonesian National Workshop on Food and Nutrition (WNPG) 2012 into five levels of nutritional adequacy: severe deficit (<70%), moderate deficit (70–79%), mild deficit (80–89%), normal (90–119%), and excess (≥120%). Nutritional status was determined by measuring Mid-Upper Arm Circumference (MUAC) using a non-stretchable MUAC tape and classified as normal (MUAC ≥23.5 cm) or chronic energy deficiency (CED) (MUAC <23.5 cm). Descriptive statistics were used to summarize the data. Data normality was assessed using the Shapiro–Wilk test. Correlation analyses were performed using the Pearson correlation test for normally distributed data and the Spearman rank correlation test for non-normally distributed data. Statistical significance was set at $p<0.05$.

3. RESULTS AND DISCUSSION

3.1. Types of Occupation of Breastfeeding Mothers

The distribution of breastfeeding mothers' occupations is presented to describe the respondents' characteristics based on their daily work activities. This information is important, as the type of occupation may influence activity patterns, rest time, and dietary habits, which in turn can affect nutritional status and the quality of breast milk. The distribution of occupational types among breastfeeding mothers is shown in Table 1.

Table 1. Distribution of Occupational types among Breastfeeding Mothers

Type of Occupation	N	%
Self-employed	13	36,1
Non-Self-Employed	23	63,9
Total	36	100

Based on Table 1, the frequency distribution of occupational types showed that the majority of breastfeeding mothers were employed in the non–self-employed sector (63.9%). These occupations included pharmacists, lecturers, teachers, bank employees, and other salaried workers. Maternal employment has been recognized as an important factor influencing breastfeeding practices because work-related responsibilities may limit opportunities for direct breastfeeding and expressing breast milk during working hours (Vilar-Compte et al., 2021). In addition, inadequate workplace support, including the absence of lactation rooms, inflexible working schedules, and limited breastfeeding breaks, has been reported as a major barrier to exclusive breastfeeding among employed mothers (Vilar-Compte et al., 2021).

The results also indicated that the average working duration of breastfeeding mothers was 7 hours per day. Longer working hours may increase the duration of mother–infant separation, thereby reducing opportunities for direct breastfeeding and making it more difficult to maintain exclusive breastfeeding (Dutheil et al., 2021). Without adequate workplace support, such as flexible working arrangements, paid breastfeeding breaks, and appropriate lactation facilities, employed mothers are less likely to achieve the recommended duration of exclusive breastfeeding (Dutheil et al., 2021; Cunningham et al., 2024).

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3.2. Body Image Perception of Breastfeeding Mothers

The perception of body image among breastfeeding mothers was presented to describe how mothers assessed and perceived their bodies after childbirth. During the breastfeeding period, the physical changes experienced often gave rise to various perceptions that could influence the fulfillment of nutritional needs and the quality of breast milk. The distribution of body image perceptions among breastfeeding mothers was presented in Table 2.

Table 2. Distribution of Body Image Perception among Breastfeeding Mothers

Category	n	%
Negatives Body Image Perception	2	5,6
Positive Body Image Perception	34	94,4
Total	36	100

Based on Table 2, the frequency distribution of body image perception among breastfeeding mothers showed that the majority had a positive body image perception (94.4%). This finding indicates that most mothers demonstrated good acceptance of their body condition during the breastfeeding period. Positive body image has been associated with greater breastfeeding self-efficacy, improved maternal psychological well-being, and more positive breastfeeding experiences (Kapa et al., 2022). Conversely, mothers with negative body image may experience dissatisfaction with postpartum body changes, which can reduce breastfeeding confidence and encourage unhealthy weight-control behaviors, such as restrictive eating practices (Kapa et al., 2022). A recent systematic review also reported that body image, emotional well-being, self-confidence, and social support are important biopsychosocial factors influencing breastfeeding outcomes among postpartum women (Asimaki et al., 2022). Consequently, promoting a positive body image during the postpartum period may support successful breastfeeding and improve maternal health outcomes (Asimaki et al., 2022; Kapa et al., 2022).

3.3 Nutrient Intake of Breastfeeding Mothers

The nutrient intake of breastfeeding mothers was assessed to describe the level of dietary adequacy during the lactation period. Adequate nutrient intake was essential to support breast milk production and quality, as well as to maintain maternal health. During this period, energy and nutrient requirements increased, and inadequate or imbalanced intake could affect both maternal nutritional status and infant growth and development. The distribution of nutrient intake among breastfeeding mothers was presented in Table 3.

Table 3. Distribution of Nutrient Intake among Breastfeeding Mothers

Category	n	%
Energy Intake		
Severe deficit	22	61,1
Moderate deficit	6	16,7
Mild deficit	2	5,6
Normal	4	11,1
Excess	2	5,6
Protein Intake		
Severe deficit	20	55,6
Moderate deficit	6	16,7
Mild deficit	4	11,1
Normal	4	11,1
Excess	2	5,6
Fat Intake		

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Category	n	%
Severe deficit	7	19,4
Moderate deficit	2	5,6
Mild deficit	9	25,0
Normal	9	25,0
Excess	9	25,0
Carbohydrate Intake		
Severe deficit	25	69,4
Moderate deficit	5	13,9
Mild deficit	2	5,6
Normal	3	8,3
Excess	1	2,8
Total	36	100

Based on Table 3, the distribution of nutrient intake among breastfeeding mothers showed that the majority did not meet the Recommended Dietary Allowance (RDA) according to the Indonesian National Workshop on Food and Nutrition (WNPG) 2012 classification. The level of energy adequacy was predominantly in the severe deficit category (61.1%). Macronutrient adequacy was also largely insufficient, with protein intake (55.6%) and carbohydrate intake (69.4%) mostly classified in the severe deficit category. In contrast, fat adequacy was distributed across the mild deficit (25.0%), normal (25.0%), and excess (25.0%) categories.

These findings indicate that inadequate dietary intake remains common among breastfeeding mothers despite their increased nutritional requirements during lactation (Adhikari et al., 2022). Adequate energy and macronutrient intake are essential to support breast milk production, maintain maternal nutritional status, and replenish maternal nutrient reserves during the postpartum period (Amaral et al., 2021). Prolonged deficiencies in energy, protein, and carbohydrate intake may compromise maternal nutritional status and reduce maternal nutrient stores, while inadequate dietary quality may also influence the composition of certain nutrients in breast milk (Adhikari et al., 2022; Amaral et al., 2021).

3.4 Nutritional Status of Breastfeeding Mothers

The distribution of the nutritional status of breastfeeding mothers was presented to provide an overview of the respondents' nutritional condition during the lactation period. During this period, physiological changes and increased nutritional requirements made monitoring nutritional status particularly important. The distribution of nutritional status among breastfeeding mothers was presented in Table 4.

Table 4. Distribution of Nutritional Status of Breastfeeding Mothers

Category	n	%
CED	3	8,3
Normal	33	91,7
Total	36	100

Based on Table 4, the results showed that the majority of working breastfeeding mothers had a normal nutritional status (91.7%), while 8.3% experienced chronic energy deficiency (CED). Chronic energy deficiency remains an important nutritional concern among women of reproductive age, particularly during pregnancy and lactation, because nutritional requirements increase substantially to support maternal health and breastfeeding. Inadequate maternal nutritional status during lactation may compromise maternal nutrient reserves and alter the composition of some nutrients in breast milk, which may subsequently affect infant growth and health outcomes (Adhikari et al., 2022; Amaral et al., 2021).

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3.5 The Correlation between Body Image Perception and Nutritional Status of Breastfeeding Mothers

The correlation between body image perception and the nutritional status of breastfeeding mothers was examined to assess the relationship between psychological aspects and physical conditions during the lactation period. Inaccurate body image perceptions could influence dietary behaviors and potentially affect maternal nutritional status as well as breast milk quality. The correlation between body image perception and the nutritional status of breastfeeding mothers was presented in Table 5.

Table 5. The correlation between Body Image Perception and Nutritional Status of Breastfeeding Mothers

Variabe	*p*
Body Image Perception with Nutritional Status Breastfeeding Mothers	0,028

The present study found a significant association between body image perception and the nutritional status of working breastfeeding mothers. This finding suggests that psychological factors may influence maternal eating behaviors and nutritional well-being during the lactation period. Mothers with negative body image may engage in restrictive eating practices or unhealthy weight-control behaviors in an attempt to regain their pre-pregnancy body shape, which can adversely affect their nutritional status. Recent evidence indicates that postpartum body image dissatisfaction is associated with lower breastfeeding self-efficacy, maladaptive eating behaviors, and poorer maternal health outcomes (Kapa et al., 2022).

Furthermore, breastfeeding is influenced not only by biological factors but also by psychological and social determinants. A recent systematic review highlighted that maternal body image, emotional well-being, self-confidence, and social support are important biopsychosocial factors affecting maternal health and breastfeeding outcomes. Therefore, improving mothers' psychological well-being may contribute to better nutritional status during lactation (Asimaki et al., 2022).

Negative body image may also encourage mothers to adopt unhealthy dietary restriction practices in an effort to achieve their pre-pregnancy body shape. Such behaviors may reduce energy and nutrient intake despite the increased nutritional requirements during lactation, thereby compromising maternal nutritional status. Sustained inadequate dietary intake during breastfeeding may increase the risk of maternal nutrient depletion, fatigue, and impaired postpartum recovery (Kapa et al., 2022; Asimaki et al., 2022).

3.6 The correlation between Nutrient Intake and Nutritional Status of Breastfeeding Mothers

The correlation between nutrient intake and the nutritional status of breastfeeding mothers was examined to illustrate the relationship between dietary consumption patterns and nutritional conditions during the lactation period. Inadequate intake relative to nutritional requirements could affect maternal nutritional status and influence the quality of breast milk produced. The correlation between nutrient intake and the nutritional status of breastfeeding mothers was presented in Table 6.

Table 6. The correlation between Nutrient Intake and Nutritional Status of Breastfeeding Mothers

Variabel	*p*
Energy Intake with Nutritional Status of Breastfeeding Mothers	0,360**
Protein Intake with Nutritional Status of Breastfeeding Mothers	0,257**

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Variabel	*p*
Fat Intake with Nutritional Status of Breastfeeding Mothers	0,295*
Carbohydrate Intake with Nutritional Status of Breastfeeding Mothers	0,545**

*Person correlation test
*Spearman correlation test

In the present study, no significant associations were found between energy, protein, fat, or carbohydrate intake and the nutritional status of breastfeeding mothers ($p > 0.05$). Although these associations were not statistically significant, adequate nutrient intake remains essential to support maternal health and successful lactation. A recent systematic review reported that maternal dietary intake and nutritional status contribute to breast milk composition; however, maternal nutritional status is also influenced by multiple factors, including physiological adaptation, maternal nutrient reserves, health status, and psychosocial conditions (Adhikari et al., 2022).

Most breastfeeding mothers in this study had inadequate energy, protein, and carbohydrate intake. This finding is consistent with previous studies indicating that many lactating women fail to meet the recommended dietary intake despite increased nutritional requirements during breastfeeding. Prolonged inadequate nutrient intake may deplete maternal nutrient reserves and adversely affect maternal health and breast milk quality (Adhikari et al., 2022). Furthermore, chronic deficiencies in energy and protein may reduce breast milk production and alter its nutritional composition, potentially affecting infant growth and development (Sayar & Koseoglu, 2025).

These findings suggest that maternal nutritional status should be evaluated not only based on nutrient intake but also by considering other determinants such as dietary quality, physical activity, breastfeeding practices, psychosocial well-being, health conditions, and socioeconomic factors. Future studies with larger and more diverse populations are recommended to explore these factors comprehensively (Asimaki et al., 2022).

3.7 Limitations of this Study

One limitation of this study is that only limited participant characteristics were collected. Demographic variables such as age, educational level, parity, and duration of breastfeeding were not recorded, which limited further analysis of factors that might influence body image perception, nutrient intake, and nutritional status. Future studies should include more comprehensive participant characteristics.

4. CONCLUSION

Based on the study results, there was a significant correlation between body image perception and the nutritional status of working breastfeeding mothers (p-value = 0.028), indicating that psychological factors played a role in determining maternal nutritional status. Meanwhile, no significant associations were found between energy, protein, fat, and carbohydrate intake and the nutritional status of breastfeeding mothers (p-value > 0.05), suggesting that other factors may have had a greater influence on nutritional status.

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