



The Relationship Between Mother's Knowledge Level about Exclusive Breastfeeding and the Provision of Exclusive Breastfeeding at the KIA Polyclinic of Weda Regional General Hospital, Central Halmahera Regency

Tri Fanty Jayanty¹, Reny Retnaningsih^{2*}

¹Undergraduate of Midwifery Study Program, Faculty of Health Sciences, Institute of Technology and Health Sciences RS dr Soepraoen, Malang, Indonesia

²Undergraduate of Midwifery Study Program, Faculty of Health Sciences, Institute of Technology and Health Sciences RS dr Soepraoen, Malang, Indonesia

*Corresponding Author: renyretna@itsk-soepraoen.ac.id

Abstract. Anemia during pregnancy remains a problem associated with maternal and fetal morbidity and mortality. In addition to iron supplementation, nutrient-rich foods may provide complementary nutritional support. Sweet potato and tuna croquettes contain protein, heme iron, vitamin B12, β -carotene, and vitamin C, which contribute to hemoglobin synthesis. This study aimed to evaluate the effectiveness of sweet potato and tuna croquettes in increasing hemoglobin levels among pregnant women with anemia in the working area of Belang Primary Health Center. This pre-experimental study used a one-group pretest–posttest design. Conducted from March to May 2026, it involved 20 pregnant women with anemia selected through total sampling. Hemoglobin levels were measured before and after intervention. Data were analyzed using Paired Sample t-test with SPSS at a 95% confidence level. Mean hemoglobin increased from 10.38 ± 0.75 g/dL before the intervention to 11.49 ± 0.88 g/dL afterward. The increase was statistically significant ($p < 0.001$). Sweet potato and tuna croquettes were effective in increasing hemoglobin levels and may serve as a complementary strategy for anemia management in pregnancy through antenatal care services.

Keywords: Anemia; Hemoglobin; Pregnant Women; Sweet Potato; Tuna.

1. Background

Exclusive breastfeeding (ASI) is among the most efficacious therapies for enhancing the health and survival of newborns. Exclusive breastfeeding over the initial six months of life has been demonstrated to diminish the risk of infections, malnutrition, and neonatal and infant mortality. Exclusive breastfeeding not only benefits the infant but also contributes to the mother's health by diminishing the likelihood of postpartum haemorrhage, breast cancer, and ovarian cancer (World Health Organization [WHO], 2023). The comprehensive nutritional composition and inherent antibodies in breast milk facilitate optimal growth, development, and immune system formation in infants. Consequently, exclusive breastfeeding has emerged as a critical metric in maternal and child health initiatives across numerous nations, including Indonesia (UNICEF, 2022). The WHO and UNICEF advocate for exclusive breastfeeding from birth to six months, without supplementary food or beverages, except for specific drugs and vitamins as medically indicated (WHO, 2023). Breastfeeding persists alongside supplemental foods from six months of age to two years or beyond. Breast milk comprises macro and micronutrients that fulfil newborns' nutritional requirements and contains immune components that safeguard infants against respiratory infections, diarrhoea, and other infectious disorders (Victoria et al., 2016). Moreover, exclusive breastfeeding enhances the child's cognitive development and fortifies the emotional connection between the mother and the infant (Horta & Victoria, 2013). The success of exclusive breastfeeding requires assistance from multiple variables, including the mother, family, and healthcare professionals, due to its considerable benefits.

The efficacy of exclusive breastfeeding is affected by multiple factors, including the mother's information base. A comprehensive understanding will augment the mother's awareness of the advantages of breast milk, appropriate breastfeeding methods, and the significance of exclusive breastfeeding throughout the initial six months of the infant's life. Mothers possessing substantial knowledge have more confidence and motivation to engage in exclusive breastfeeding than those with less information (Ministry of Health of the Republic of Indonesia, 2023). In addition to knowledge, factors influencing the supply of

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exclusive breastfeeding encompass familial support, maternal employment, cultural norms, educational background, and assistance from healthcare professionals (IDAI, 2020). The insufficient awareness regarding the advantages of exclusive breastfeeding frequently results in mothers prematurely introducing supplementary foods, so diminishing the efficacy of exclusive breastfeeding and heightening the risk of health complications in newborns.

The prevalence of exclusive breastfeeding in numerous nations has not yet attained the anticipated objectives. The WHO seeks to elevate the rate of exclusive breastfeeding to a minimum of 70% by 2030; nonetheless, this percentage currently remains comparatively low in numerous underdeveloped nations (WHO, 2023). In Indonesia, the prevalence of exclusive breastfeeding has risen in recent years; nonetheless, it remains unevenly distributed throughout various regions. Data from the Ministry of Health of the Republic of Indonesia indicates that national exclusive breastfeeding rates have not yet achieved the objectives of the maternity and child health program (Ministry of Health of the Republic of Indonesia, 2023). The inadequate prevalence of exclusive breastfeeding is affected by several variables, including a deficiency in maternal understanding, insufficient familial support, and inadequate breastfeeding teaching during prenatal and postnatal care. These circumstances render the enhancement of exclusive breastfeeding practices a paramount concern in maternal and neonatal health services.

Numerous prior research have demonstrated a correlation between maternal knowledge and the practice of exclusive breastfeeding. Research conducted by Ramadani and Hadi (2021) indicates that mothers possessing substantial information are more inclined to practise exclusive breastfeeding than those with limited understanding. Sari et al. (2022) revealed that maternal knowledge is substantially correlated with the success of exclusive breastfeeding. The success rate of exclusive breastfeeding varies by area due to socio-cultural influences, availability to healthcare resources, education, and maternal support systems. Research on the correlation between mothers' understanding of exclusive breastfeeding and the implementation of exclusive breastfeeding at the KIA Polyclinic of Weda Regional General Hospital in Central Halmahera Regency remains insufficient.

This study seeks to ascertain the correlation between mothers' understanding of exclusive breastfeeding and the implementation of exclusive breastfeeding at the KIA Polyclinic of Weda Regional General Hospital in Central Halmahera. The research findings are anticipated to underpin enhancements in health education, the quality of midwifery services, and exclusive breastfeeding promotion initiatives to maximally promote maternal and infant health.

2. Research Method

Research Design

This research employs a quantitative observational analytical method utilising a cross-sectional design. The cross-sectional method is employed to ascertain the correlation between a mother's knowledge of exclusive breastfeeding and the practice of providing exclusive breastfeeding through the concurrent assessment of independent and dependent variables..

Location and Time Research

The study was performed in the KIA Polyclinic of Weda Regional General Hospital, Central Halmahera Regency, from January to March 2026. The research area was chosen due to the persistent presence of mothers who have not adequately practiced exclusive breastfeeding, with the necessity of enhancing breastfeeding instruction within maternity and child health services.

Population and Sample

The study population included all mothers with infants aged 6 to 24 months who attended the KIA Polyclinic at Weda Regional General Hospital, Central Halmahera Regency, throughout the study period. The sample method employed was incidental sampling, based on the characteristics of respondents who attended during the research period and fulfilled the research criteria. This study included 40 respondents. The inclusion criteria comprise moms with infants aged six months or older, those willing to participate as respondents, and those capable of effective communication throughout the research procedure. The exclusion criteria encompass mothers who fail to complete the questionnaire and responders with inadequate research data.

Research Variable

The independent variable in this study is the mother's knowledge on exclusive breastfeeding, whereas the dependent variable is the implementation of exclusive breastfeeding. Research data were acquired by primary data collection utilising a questionnaire as the instrument. The questionnaire includes respondent demographics and enquiries concerning the mother's knowledge of exclusive breastfeeding. Data collection was performed directly with respondents who fulfilled the research criteria following the acquisition of their agreement to participate.

Research Instrumen

The research instruments include a respondent characteristic sheet, an observation sheet for fried potato consumption, and a calibrated digital haemoglobin meter (hemoglobinometer). Characteristic data were collected by interviews and the Maternal and Child Health (MCH) book, whereas haemoglobin levels were assessed prior to and during the intervention using an identical examination approach. The compliance with the consumption of potato cakes was documented daily by an observation sheet throughout the intervention period.

Research Procedure

The research commenced with an elucidation to the potential responders concerning the study's aim, advantages, and procedures, subsequently followed by the execution of the informed consent form. Subsequently, data collection regarding respondent characteristics and initial haemoglobin levels (pretest) was executed. Participants were thereafter administered an intervention consisting of sweet potato and tuna fish fritters in accordance with the research protocol during the designated intervention time. Adherence to the eating of sweet potato and tuna fritters was observed during the intervention's execution. Upon completion of the intervention, haemoglobin levels are reassessed (posttest) with the identical instruments and methodologies as the first evaluation. All data were documented on observation sheets and subsequently subjected to statistical processing and analysis.

Data Analysis

Univariate analysis is employed to delineate the frequency distribution of respondent characteristics, alongside the variable of maternal knowledge level and exclusive breastfeeding. Additionally, a bivariate analysis is performed utilising the Chi-Square test to ascertain the correlation between maternal awareness on exclusive breastfeeding and the practice of providing exclusive breastfeeding. The threshold for statistical significance is established at a p-value of less than 0.05. The complete procedure of data processing and analysis was conducted utilising statistical software.

3. Results And Discussion

Result

Characteristics of the Respondents

Table 1 illustrates the distribution of respondent characteristics according to maternal age, educational attainment, occupation, awareness regarding exclusive breastfeeding, and practices of exclusive breastfeeding at the KIA Polyclinic of Weda Regional General Hospital, Central Halmahera Regency.

Tabel 1. Frequency Distribution of Respondent Characteristics.

Characteristics	Frequency (n)	Percentage (%)
Mother's Age		
<20 years	5	12,5
20–35 years	28	70,0
>35 years	7	17,5
Educations		
Junior High School	10	25,0
High School/Vocational School	22	55,0
Higher Education	8	20,0
Mother's Work		
Not Working	24	60,0
Working	16	40,0
Level of Knowledge about Exclusive Breastfeeding		
Good	18	45,0
Fair	14	35,0
Poor	8	20,0
Exclusive Breastfeeding		
Yes	25	62,5
No	15	37,5

According to Table 1, the predominant age group among respondents is 20–35 years, including 28 individuals (70.0%), whereas the age group under 20 years represents the smallest fraction, with 5 individuals (12.5%). The bulk of respondents possess secondary education, comprising 22 individuals (55.0%). A majority of responders, comprising 24 individuals (60.0%), are unemployed. The majority of moms possess a commendable understanding of exclusive breastfeeding, with 18 individuals (45.0%) categorised as informed, whereas 8 individuals (20.0%) fall into the less educated category. Moreover, the predominant number of responders exclusively breastfed their infants, totalling 25 individuals (62.5%).

The Relationship Between Knowledge Level and Exclusive Breastfeeding

Table 2 shows the relationship between mothers' knowledge level about exclusive breastfeeding and the provision of exclusive breastfeeding at the KIA Polyclinic of Weda Regional General Hospital, Central Halmahera Regency.

Table 2. The Relationship Between Mother's Knowledge Level about Exclusive Breastfeeding and the Provision of Exclusive Breastfeeding (n = 20).

Level of Knowledge	Exclusive Breastfeeding Yes n (%)	Exclusive Breastfeeding No n (%)	Total	p-value
Baik	16 (88,9)	2 (11,1)	18	0,012
Cukup	7 (50,0)	7 (50,0)	14	
Kurang	2 (25,0)	6 (75,0)	8	
Total	25 (62,5)	15 (37,5)	40	

According to Table 2, respondents possessing a high degree of expertise exhibited the greatest percentage of exclusive breastfeeding, totalling 16 individuals (88.9%). In contrast, among responders with a low level of understanding, the majority did not practise exclusive breastfeeding, comprising 6 individuals (75.0%). The Chi-Square test results revealed a p-value of 0.012 ($p < 0.05$), signifying a significant correlation between the mother's knowledge of exclusive breastfeeding and the practice of providing exclusive breastfeeding at the KIA Polyclinic of Weda Regional General Hospital, Central Halmahera Regency. This research indicates that a mother's enhanced understanding of exclusive breastfeeding correlates with an increased likelihood of her practicing exclusive nursing for her infant.

Discussion

This study demonstrates a substantial correlation between maternal knowledge of exclusive breastfeeding and the implementation of exclusive breastfeeding at the KIA Polyclinic of Weda Regional General Hospital in Central Halmahera Regency. Mothers possessing a high level of knowledge exhibit a greater incidence of exclusive breastfeeding than those with sufficient or low levels of knowledge. These data suggest that knowledge significantly influences maternal behaviour in breastfeeding practices. Mothers who comprehend the advantages of exclusive breastfeeding typically exhibit greater enthusiasm and confidence in delivering excellent nursing during the initial six months of the infant's life. Comprehensive understanding enables women to comprehend appropriate nursing procedures, the immunological advantages of breast milk, and the dangers associated with the premature introduction of additional foods. The World Health Organization (WHO, 2023) asserts that exclusive breastfeeding is a crucial intervention for enhancing baby health and decreasing newborn morbidity and mortality rates. UNICEF (2022) asserts that the efficacy of exclusive breastfeeding is significantly affected by the mother's comprehension of the advantages of breast milk and the support from her environment.

The connection between information and health behaviour can be elucidated through health behaviour theory, which posits that knowledge serves as a predispositional factor in the development of behaviour. Notoatmodjo (2018) asserts that knowledge underpins the formation of attitudes and behaviours essential for health maintenance. Mothers with adequate understanding of exclusive breastfeeding will more readily acquire health information, comprehend the advantages of breastfeeding, and consistently implement exclusive breastfeeding practices. Knowledge influences the psychological preparedness of moms in confronting numerous challenges during the nursing process. IDAI (2020) states that breast milk provides comprehensive nutrients and natural antibodies that enhance the infant's immune system, prevent illnesses, and promote normal growth. Exclusive breastfeeding not only benefits the infant but also facilitates uterine involution, diminishes the likelihood of breast and ovarian cancer, and enhances the emotional connection between mother and child (Victora et al., 2016). Consequently, enhancing mothers' understanding of exclusive breastfeeding is a crucial strategy for promoting the efficacy of breastfeeding initiatives.

The findings of this study align with other prior studies indicating a correlation between maternal awareness and the practice of exclusive breastfeeding. Research conducted by Ramadani and Hadi (2021) indicates that moms possessing a high level of knowledge are more inclined to practise exclusive breastfeeding than those with little information. A study conducted by Sari et al. (2022) shown that maternal knowledge is substantially correlated with the success of exclusive breastfeeding in infants aged 0–6 months. A study by Setyorini et al. (2020) shown that effective breastfeeding education enhances the success of exclusive breastfeeding among postpartum moms. The congruence in the findings of these research suggests that knowledge is a reliable determinant of maternal breastfeeding behaviour. The success rate of exclusive breastfeeding may differ among regions due to socio-cultural factors,

availability of health information, and assistance from healthcare professionals and family members. The Indonesian Ministry of Health (2023) indicates that inadequate coverage of exclusive breastfeeding in various locations is still affected by insufficient health education and the prevalent practice of early supplemental feeding for newborns. The provision of exclusive breastfeeding is determined not only by the mother's knowledge but also by factors like as her education level, employment status, family support, cultural background, and the quality of healthcare services. Mothers possessing higher educational attainment typically encounter less difficulty in obtaining health information and comprehending the advantages of exclusive breastfeeding than those with lower educational levels. The mother's profession may influence breastfeeding success, particularly for working moms with restricted time for direct nursing (Horta & Victora, 2013). Support from spouses and family members is a crucial element in enhancing a mother's motivation to persist with exclusive breastfeeding. In the Poli KIA RSUD Weda region of Central Halmahera Regency, there is a necessity to enhance health education on exclusive breastfeeding through lactation counselling during prenatal and postnatal care. The WHO (2023) asserts that ongoing breastfeeding counselling by healthcare experts enhances the efficacy of exclusive breastfeeding practices and assists mothers in addressing challenges encountered during nursing.

This research underscores the necessity of improving health education and advocating for exclusive breastfeeding within obstetric and public health services. Healthcare professionals, particularly midwives, are essential in delivering breastfeeding counselling, supporting postpartum mothers, and educating about the advantages of exclusive breastfeeding during pregnancy. Ongoing initiatives through health education, prenatal classes, and lactation counselling are essential to augment mothers' understanding of exclusive breastfeeding. Moreover, bolstering support from family and the surrounding environment is essential to enhance moms' confidence in exclusively nursing their infants. Consequently, the extent of maternal knowledge may serve as a crucial factor in facilitating the success of exclusive breastfeeding and enhancing the health quality of both mothers and infants.

4. Conclusion And Suggestions

This study demonstrates a substantial correlation between maternal awareness regarding exclusive breastfeeding and the implementation of exclusive breastfeeding at the KIA Polyclinic of Weda Regional General Hospital, Central Halmahera Regency. Mothers possessing a high level of expertise are more likely to successfully provide exclusive breastfeeding than those with a sufficient or low level of knowledge. Comprehensive understanding enables moms to comprehend the advantages of exclusive breastfeeding, the significance of nursing during the initial six months of the infant's life, and the beneficial effects of breast milk on the health of both mother and child. The data suggest that awareness level is a significant factor affecting mothers' behaviour regarding exclusive breastfeeding practices.

This study's results have substantial implications for midwifery services and health promotion, especially with the enhancement of exclusive breastfeeding coverage. Health education on the advantages of exclusive breastfeeding, lactation counselling, and support for breastfeeding moms must be effectively implemented from the prenatal to the postpartum period. Healthcare professionals, particularly midwives, are crucial in delivering information, encouragement, and assistance to moms, hence enhancing their confidence in exclusively nursing their infants. Furthermore, enhancing the quality of prenatal care (ANC) and postnatal care is essential to bolster the effectiveness of the exclusive breastfeeding initiative. The findings of this study are anticipated to underpin the formulation of health promotion initiatives and the enhancement of mother and child health services to facilitate the optimal success of exclusive breastfeeding.

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