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INCIDENT OF STUNTING IN TODDLER: A QUANTITATIVE OBSERVATIONAL ANALYTICAL SURVEY RESEARCH

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Abstract

While stunting has been the subject of numerous studies, few have focused on Central Lombok Regency. Thus, the purpose of this research was to examine the association between the frequency of pregnancy tests, colostrum feeding, exclusive breastfeeding, and supplemental nursing, and the incidence of stunting. This study used a quantitative observational-analytic survey design. 3589 infants between the ages of 0 and 59 months who were enrolled at one of the health centers in Central Lombok Regency, Indonesia, were the study's population. In this study, 97 children under the age of five were used as samples, and the sampling strategy used was systematic cluster random sampling. For each variable in this study, a questionnaire served as the instrument. After that, the data were examined using a logistic regression test to identify the main influencing variables and crosstab analysis to assess the significance of the association between the variables. The number of ANC visits (ρ-value = 0,001), the amount of colostrum administered (ρ-value = 0,001), the amount of exclusive breastfeeding (ρ-value = 0,00000), and the amount of complementary nursing (ρ-value = 0,00000) were found to be correlated with the number of stunted babies. A history of exclusive breastfeeding was the main factor (ρ-value of 0,00000) linked to the incidence of stunting in toddlers in the operating area of one of the community health centers in Central Lombok Regency. According to this research, mothers of toddlers should exclusively breastfeed their infants to prevent childhood stunting.
Keyword: Stunting, ANC visits, giving colostrum, exclusive breastfeeding

INTRODUCTION

After religion, health is the second most significant blessing. Stunting is one of the several issues facing the health sector, though (Purwiningsih, Suryaningsih, and Wardhani, 2023; Wahyuni, 2023). A linear growth problem called stunting is brought on by chronic infectious illnesses or starvation. Most often, stunting affects young people. Children that are stunted typically have low IQs, impaired immune systems, and disruptions or damage to their brain development, making them more vulnerable to infections and illnesses. In addition, children who are stunted have shorter stature, lower productivity, and a higher chance of developing diabetes, cancer, and dying young. Apart from that, stunting also results in children's short stature, loss of productivity, and a greater risk of diabetes, cancer, and premature death (Sari and Harianis, 2022).

A medical condition known as stunting affects people in practically every country in the globe, including Indonesia. Indonesia ranks eighth out of ten ASEAN countries and 115th out of 151 countries in the world for the prevalence of stunting, according to UNICEF's 2020 JME statistics. The frequency of stunting in children under five years old in Indonesia as determined by Basic Health Research findings (Riskesdas) It was 30.8% in 2018, 27.67% in 2019, and 26.92% in 2020. According to data from the Indonesian Nutrition Status Survey (SSGI), the prevalence of stunting was 24.4% in 2012 and 21.6% in 2022. This number is still considerably below the WHO threshold. (World Health Organisation), namely 20% (Fadliana and Darajat, 2021).

Because of this, a good deal of study has been done on stunting; however, less has been done on the correlation between stunting and the frequency of prenatal visits, the administration of colostrum, the practice of exclusive breastfeeding, and the timing of the introduction of supplementary meals to breast milk.. Research (Camelia, 2020) employs observational analytical research techniques to investigate the connection between stunting and ANC quality. The findings of this study demonstrate a strong correlation between stunting and ANC quality. Research (Asmin and Abdullah, 2021) investigates the connection between the prevalence of stunting and exclusive breastfeeding using a cross-sectional method. The study's findings indicate a strong correlation between immunization, stunting, and exclusive breastfeeding.

Palupi, Kusuma, and Puspitarini (2021) examine the link between mother and child variables as predictors of stunting using a case-control study design. The study's findings show that the single factor exclusively linked to stunting is exclusive breastfeeding. Yuana, Larasati, and Berawi (2021) employ a design of systematic review with use a systematic review design with PRISMA to evaluate Indonesia's stunting risk factors. The findings of this study indicate that male gender, children between the ages of 12 and 32 months, low birth weight, and birth length less than 48 cm are the risk factors that contribute to stunting in Indonesia on an individual basis. (LBW), Maternal height <150 cm, maternal age at pregnancy <20 years and >35 years, number of household members ≥5, residing in a home with ≥3 children under 5 years of age, and antenatal care <4 times. Sitti Mawaddah's research (2020) investigates the connection between prenatal care, birth spacing, feeding habits, and the prevalence of stunting using a cross-sectional research approach. The findings of this study show that there is no correlation between pregnancy tests and the occurrence of stunting, however there is a relationship between feeding practices and birth spacing (Antenatal Care, or ANC) and the incidence of stunting.

In contrast to earlier studies, this one intends to investigate the relationship between stunting and the frequency of pregnancy tests, as well as the best practices for giving colostrum, exclusive breast milk, and complementary foods to breast milk. It will specifically focus on one of the community health centers in Central Lombok Regency. The study's hypothesis, which is based on a number of theories and the findings of earlier research, is that, at one of the health centers in Lombok Regency, there is a significant correlation between the incidence of stunting and the frequency of pregnancy checks, the administration of colostrum, the administration of exclusive breast milk, and the timing of the administration of complementary foods to breast milk.

RESEARCH METHODS

This study used a quantitative observational-analytic survey design. Because the goal of this research was to investigate the relationship between multiple variables, this approach was used (Adiputra et al., 2021), specifically the frequency of prenatal exams, the administration of colostrum, the exclusive breastfeeding technique, the timing of complementary food introduction to breast milk, and the prevalence of toddler stunting.

The 3589 infants in this study ranged in age from 0 to 59 months. By applying the sample computation from Slovin and the systematic cluster random sampling method (Siyoto and Sodik, 2015), There were 97 children used as samples in this investigation. In this study, 97 toddlers served as samples. In Central Lombok Regency, Indonesia, a community health center served as the site of this study. This puskesmas was selected because to the high rate of stunting—3589 children under five—in the puskesmas' working region. Every variable in this study that passed validity and reliability tests had a questionnaire used to gather data. August 2023 to October 2023 saw the collection of data. The frequency of pregnancy tests, the administration of colostrum, the exclusive breastfeeding technique, the timing of complementary food introduction, and the incidence of stunting in toddlers were all examined using Crosstab analysis. Meanwhile, a logistic regression test was performed to determine which variable was dominant. According to the test criteria, there was a significant link between the variables if the significance value was less than 0.01. (Indratno and Irwinsyah, 1998; Tampil, Komalig, and Langi, 2017; Budiastuti and Bandur, 2018; Sangadji and Aningsih, 2021).

RESULTS AND DISCUSSION

Completeness and Stunting Incidents

The information gathered from the Crosstab findings indicated that the ρ-value was 0.001. Stated differently, a noteworthy correlation was seen between the frequency of stunting and the comprehensiveness of ANC visits. In addition, data showed that the LR value was 15.07. This meant that moms who attended the ANC less than four times or between four and six times had a 15.07-fold higher risk of stunting than mothers who visited the ANC six times or more. Table 1 displays the full findings.

Table 1. Crosstab Analysis Results 1

ANC Equipment	Total		*ρ-value*	LR (95%CI)
	N	%		
ANC< 4 times	43	44		
ANC 4-6 times	19	20	0,001	15,07
ANC > 6 times	35	36		
Amount	97	100		

The results of this research were then in line with research (Camelia, 2020), It demonstrated a strong correlation (ρ-value = 0.004 and ρ-value = 0.003) between the frequency of stunting and the quality and amount of ANC. This research was also in line with Amini (2016) ANC visits and the incidence of stunting in toddlers aged 12-59 months were shown to be significantly correlated, with an OR value of 2.284 (ρ-value 0.021 < 0.05 and 95% CI of 1.124-4.639). Several other research results also supported the results of this research (Annisa Hamid et al., 2021; Darmawan, Reski, and Andriani, 2022; Hapsari, Fadhilah, and Wardani, 2022; Zurhayati and Hidayah, 2022; Astuti et al., 2023).

The frequency of stunting was correlated with the completeness of ANC visits because routine ANC visits by a mother during pregnancy could identify early pregnancy hazards, particularly those pertaining to nutritional issues. Aside from that, in order to receive appropriate antenatal care, ANC had to be performed on a regular basis and services had to adhere to standards because every pregnancy had a possibility of developing issues or difficulties. ANC visits at least four times during pregnancy conferred benefits to expectant mothers, including as early pregnancy risk detection, labor and delivery preparation, maintenance of good maternal health throughout lactation, and postpartum care (Sovia Madi, Babakal, and Simanjuntak, 2023).

ANC examinations were very important for the health of the mother and foetus, as stated by Ramadhini, Sulastri, and rfandi (22021) that routine prenatal or antenatal care could lower the number of deaths of mothers and foetuses (ANC) exams were a measure of the standard of care provided to expectant mothers at each visit from K1 to K4. (Sovia Madi, Babakal, and Simanjuntak, 2023).

Low birth weight (LBW) was associated with a six-fold increased risk of low birth weight (birth weight) if ANC visits were insufficient (Ravenalla, Hakimi, and Pramono, 2016). According to Fitrayeni, Suryati, and Faranti (2017) A stunted child could result from improper monitoring of the mother's and fetus's health if prenatal care checkups did not exceed service standards.

The Relationship between Giving Colostrum and Stunting

Table 2 showed that the ρ-value was 0.001. Stated differently, there was a noteworthy correlation between the administration of colostrum and the prevalence of stunting. Table 2 also indicated that the LR value was 15.045. Based on these findings, it was possible to draw the conclusion that mothers who fed their babies colostrum for two days or three days were at a 15.045-fold increased risk of stunting their offspring in comparison to mothers who fed them colostrum for six days.

Table 2. Crosstab Analysis Results 2

Giving Colostrum	Total		*ρ-value*	LR (95%CI)
	n	%		
Given for 2 days	46	47		
Given for 3 days	21	22	0,001	15,045
Given for 6 days	30	31		
Amount	97	100		

The results of this study were in line with research (Irma Wiherlina, Hendriani, and Firdaus, 2023), It demonstrated that the incidence of stunting was significantly affected by the administration of colostrum. The results of this study were also in line with Yuliani and

Irwan (2020) It demonstrated a strong correlation between the occurrence of stunting and the administration of colostrum (Windasari, Syam, and Kamal, 2020) additionally disclosed the findings of the same study, indicating that colostrum administration affected the prevalence of stunting.

The incidence of stunting was correlated with the administration of colostrum because it contained a variety of proteins, including immunoglobulins, which functioned as antibodies to ward off and neutralize germs, viruses, fungi, and parasites. Colostrum also had immunological components, particularly ribs, which served to shield the newborn during the early postpartum period. It was sufficient to suit the baby's nutritional demands despite its modest size. Colostrum, therefore, had to be administered to babies in order to prevent stunting because it included nutrients necessary for growth and development, including the development of baby intelligence. (Cahyani, 2019; Yuliani and Irwan, 2020).

Moreover, colostrum was the best food that could ensure a baby's growth. Because they lacked immunity, babies who did not receive colostrum were more susceptible to illness, and frequent illness attacks could hinder a baby's growth and increase the risk of stunting. In addition, providing colostrum to infants can lower their risk of several morbidities, including stunting. (Cahyani, 2019; Yuliani and Irwan, 2020; Budiartiningsih et al., 2023).

The Relationship between Exclusive Breastfeeding and Stunting

Table 3 showed the correlation between the incidence of stunting and exclusive breastfeeding. Table 3 demonstrated a strong correlation between the incidence of stunting and exclusive breastfeeding. The ρ-value was 0.000, apparently. Aside from that, data revealed the LR value to be 18.226. Stated differently, the risk of stunting was 18.226 times higher for mothers who gave their babies MPASI from birth and for mothers who started giving their babies complementary foods with breast milk when the babies were younger than 6 months old than for mothers who gave their babies only breast milk for the first six months of life.

Table 3. Crosstab Analysis Results 3

Exclusive Breastfeeding	Total		*ρ-value*	LR (95%CI)
	n	%		
Given complementary breast milk food from birth	33	34		
Given complementary foods from 6 months of age	28	29	0,000	18,226
Only given breast milk for 6 months	36	37		
Amount	97	100		

The findings of this study were consistent with those of studies carried out by Agus, Putri, and Lake (2020), which revealed that there was an influence of The impact of exclusive breastfeeding on stunting incidence with a ρ-value of less than 0.01, specifically 0.003. This research was also in line with SJMJ, Toban, and Madi (2020) It showed a 0.000 ρ-value correlation between the frequency of stunting in children and exclusive breastfeeding. Consistent with earlier studies, the results of this study were also in line with Asmin and Abdullah (2021) It demonstrated a 0.001 ρ-value correlation between the frequency of stunting and exclusive breastfeeding. A number of further earlier research (Hasanah and Purnomo, 2020; Asprika, 2023) also revealed results that were in line with this research.

The quantity of breast milk a baby received, as well as the energy and other nutrients it contained, had a significant impact on their growth and development. A infant could get all the growth they needed from breast milk alone until they were six months old. After that, newborns who received more food relied solely on breast milk as their primary supply of protein, vitamins, and minerals. Mother's milk is an unparalleled beverage that was bestowed to newborns by Allah SWT to fulfill their nutritional requirements and shield them from potential illnesses. Mother's milk possessed the ideal nutritional balance and was the ideal consistency for a newborn's developing body. Simultaneously, breast milk was also incredibly rich in dietary essences, which sped up the development of the nervous system and brain

cells (Maryunani, 2012; Hasanah and Purnomo, 2020).

Breast milk had a unique and ideal nutritional composition that met all of the baby's demands for growth and development. In addition to having the right nutrients, breast milk also had the enzymes needed to break down those nutrients, making it simple to digest. High-quality nutrients included in breast milk were beneficial to a baby's growth and intellectual development. Colostrum, transitional milk, and mature milk are the three stages of breast milk. Mature breast milk and breast milk days 6–10 (transition) have different compositions than breast milk days 1-6 (colostrum). Breast milk was so beneficial to a baby's growth and development that mothers were strongly advised to feed their infant nothing but breast milk. (Maryunani, 2012; SJMJ, Toban, and Madi, 2020; Asprika, 2023).

Giving exclusively breast milk to a newborn until they were six months old was known as exclusive nursing. It was not anticipated that the infant would be given any more fluids during this period, including water, formula milk, orange juice, tea, honey, or tea. Additionally, kids who were exclusively breastfed were not given any supplementary foods like bananas, cookies, rice porridge, or tim. It was hoped that supplemental foods might be avoided and exclusive breastfeeding could continue until the infant reached six months of age. Breast milk was crucial for the baby's survival, growth, and development, hence it was strongly advised to breastfeed exclusively for six months. For the first six months of life, breast milk supplied all the energy and nourishment a newborn required. Breast milk has the highest level of antibodies of any food. Consequently, compared to babies who did not receive exclusive breast milk, those who did were healthier and stronger. (Maryunani, 2012; Hasanah and Purnomo, 2020).

The Relationship between Providing Complementary Food and Stunting

Table 4 revealed a substantial correlation between the occurrence of stunting and the provision of supplemental nutrients to breast milk, as indicated by the 0.000 ρ-value. Furthermore, data revealed that mothers who fed their infants supplemental breast milk foods prior to the age of six months and those who did so between the ages of six months and a year had a 16,748-fold increased risk of stunting their offspring relative to mothers who fed their infants only supplemental breast milk foods between the ages of six months and two years.

Table 4. Crosstab Analysis Results 4

Providing complementary foods for breast milk	Total		*ρ-value*	LR (95%CI)
	n	%		
Given before 6 months of age	39	40	0,000	16,748
Given after 6 months to 1 year	17	18		
Given after 6 months to 2 years	41	42		
Amount	97	100		

The results of this research were in line with Laily Himawati, Wigati, and Azizah (2022) It demonstrated a connection between the occurrence of stunting and the history of providing MPASI. (Hasanah and Purnomo, 2020) additionally demonstrated findings consistent with this study, namely that there was a substantial correlation between the incidence of stunting and the administration of MPASI (ρ-value = 0.002). Several other earlier investigations also provided support for the findings of this investigation (Amalia et al., 2021; Erliwati et al., 2022), which revealed results that were in line with this research.

Food or drink containing nutrients that is given to babies or children aged 6-24 months to meet their nutritional needs is known as complementary breast milk food (MP-ASI). Complementary foods were introduced with the intention of meeting the baby's nutritional needs as well as acclimating him or her to the family diet. It was better to continue administering breast milk before the baby turned 24 months old, with the breast milk coming first, followed by supplementary foods. There was no place for complementary foods to replace breast milk. They served only as a supplement or accompaniment to breast milk, which was given until the child was at least two years old.

MP-ASI served as a food in between breast milk and family meals. Depending on the baby's age and digestive capacity, the type, portion, frequency, form, and quantity of MP-ASI had to be introduced and administered progressively. Some things that go well with breast milk are oatmeal, tea, biscuits, and fruit

juice. During this time, children's extremely rapid physical growth and intellectual development depended on the provision of supplemental breast milk feeding that was both sufficient in quality and quantity. Breast milk was usually insufficient to meet the infant's nutritional needs at a certain point when the baby grew and gained weight. At this point, the baby also became more active. As a result, MPASI was required to bridge the difference between the baby's overall requirements and what breast milk could provide (Hasanah and Purnomo, 2020).

Since breast milk was insufficient to continually meet the baby's needs, the purpose of MPASI itself was to boost the baby's energy and nutritional intake (Hasanah and Purnomo, 2020). In this sense, the purpose of MPASI was to bridge the nutritional gap that exists between a child's overall requirements and what they get from breast milk. Since the frequency of infections, micronutrient deficiencies, and growth failure was highest between the ages of 6 and 23 months, it was crucial to administer MPASI at that period. Failure to do so could result in malnutrition, iron deficiency, and delayed growth and development in neonates. (Wahyuni, Ihsan, and Mayangsari, 2019).

The Relationship between Stunting and the Frequency of Pregnancy Check-ups, How to Give Colostrum, How to Give Exclusive Breast Milk, and How and When to Give Complementary Foods for Breast Milk

The incidence of stunting in toddlers was found to be positively correlated with the exclusive breastfeeding variable when compared to other variables, as indicated by the multivariate analysis results. This result could be seen from the ρ-value being smaller than 0.01, namely 0.000. Complete results can be seen in Table 5. Multivariate Analysis Results

Table 5. Multivariate Analysis Results

Variable	B	ρ	C.I 95%	
			Lower Bound	Upper Bound
ANC Visit Equipment	0,488	0,126	0,872	3,045
Giving Colostrum	0,748	0,022	1,113	4,012
Exclusive breastfeeding	1,243	0,000	1,753	6,851
Providing complementary foods for breast milk	0,854	0,005	1,297	4,252

The study's findings were consistent with earlier research by Al-Rahmad, Miko, and Hadi (2013) which reported that information was discovered indicating newborns who did not receive exclusive breast milk likely to develop stunting with an OR value of 4.9. Research conducted by Rayhana and Amalia (2021) further demonstrated that exclusive breastfeeding was the primary factor determining the prevalence of stunting in toddlers. (Juliandika, Nababan, and Tarigan, 2022) additionally demonstrated that a history of exclusive breastfeeding was the main variable linked to the frequency of stunting based on multivariate analysis, with an OR value of 0.235 and a 95% CI of 0.088–0.630. Exclusive breastfeeding was consistently found to be the main factor linked to stunting in a number of earlier investigations. (Sulistianingsih and Sari, 2018; Istiani, Yusuf, and Genisa, 2021; Wahyuni and Diansabila, 2021).

CONCLUSION AND SUGGESTION

Conclusions

There was a correlation between the number of ANC visits and the number of stunted babies, according to the research findings, analysis, and discussion (ρ-value of 0.001), the amount of colostrum given (ρ-value of 0.001), the amount of exclusive breastfeeding (ρ-value of 0.000), and the amount of foods given in addition to breast milk (ρ-value of 0.000). A history of exclusive breastfeeding was the main factor linked to the incidence of stunting in toddlers in the operating area of one of the community health centers in Central Lombok Regency. (ρ-value of 0.000).

Suggestion

Several suggestions that may be made based on the previous description were as follows: mothers of toddlers should give their babies just breast milk; In order to learn about the health of pregnant women, expectant moms and mothers of young children were expected to comply with the ANC visitation schedule and

prenatal babies; moms of toddlers with typical body types were counseled to keep their toddlers' bodies in good condition by consistently adopting hygienic and healthful lifestyle practices; It was advised that moms of short-framed, stunted toddlers who were at risk of chronic malnutrition feed their children a healthy, balanced diet and to contact health professionals right away if the child's growth and development was disrupted. One of the research's shortcomings was that no interventions could be made by researchers while the study was being conducted. In order to reduce stunting, it was hoped that future study will be able to pinpoint the impact of socialization on exclusive breastfeeding and provide interventions for the sample. This was done in an effort to keep the rate of stunting in Indonesia from rising year after year.

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