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HOUSEHOLD SOCIAL CONTEXT AND HEALTH BEHAVIORS INFLUENCING CHILD STUNTING: INSIGHTS FROM NORTH SUMATRA, INDONESIA

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ABSTRACT

This study examines how household social context and health behaviors influence child stunting in North Sumatra, Indonesia, where the stunting rate among children under two years reached 21.1% in 2022—still above the national target. Drawing on cross-sectional data from 7,973 children aged 6–23-months collected in the 2022 Indonesian Nutritional Status Study (SSGI), this research explores the relationships between stunting and various structural, behavioral, and health-related variables using multivariate logistic regression. The analysis reveals that non-diverse diet (OR: 1.21; 95% CI: 1.10-1.37), male sex (OR: 1.38; 95% CI: 1.23 - 2.56), low household income (OR: 1.64; 95% CI: 1.45 - 1.87), and rural residence (OR: 1.24 ; 95% CI: 1.09 - 1.40) significantly increase the likelihood of stunting. Health vulnerabilities, such as diarrhea (OR: 1.48; 95% CI: 1.23-1.84) and tuberculosis (OR: 11.53;95% CI: 4.15 - 32.03) (OR: 11.53), also show strong associations with stunted growth. Conversely, vitamin A supplementation (OR: 0.70; 95% CI: 0.63 - 0.79) demonstrates a protective effect, reinforcing the importance of micronutrient interventions. Children aged 6 -11 - months were found to have elevated risk compared to older age groups, highlighting the vulnerability during early complementary feeding stages. Socioeconomic disparities emerged as key determinants. Maternal unemployment (OR: 1.31; 95% CI: 1.15 - 1.47) was associated with increased risk of stunting, likely reflecting reduced income and limited caregiving capacity. Moreover, parental education levels correlated with child nutrition, although maternal education lost statistical significance in the final multivariate model. The findings further demonstrate that dietary diversity, although behaviourally driven, is deeply embedded within socioeconomic structures and access to resources. These results underscore the multifactorial nature of stunting in Indonesia, emphasizing the interdependence between social determinants and health practices. Addressing stunting thus requires multisectoral approaches that integrate nutrition, healthcare, education, and economic empowerment, particularly for disadvantaged populations in rural and low-income settings. Strengthening early childhood health programs, enhancing maternal education, improving sanitation, and ensuring access to affordable nutritious food are essential to reducing stunting prevalence. This study provides actionable evidence for policymakers to design more targeted, equity-oriented public health strategies that consider both behavioral practices and the underlying social vulnerabilities shaping child health outcomes in decentralized contexts like North Sumatra.

Key words: stunting, social determinants, dietary diversity, child nutrition, health behaviour

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INTRODUCTION

Child malnutrition, particularly stunting, remains a persistent public health concern in many developing countries, including Indonesia. Stunting, defined as impaired linear growth due to chronic malnutrition, has profound and long-lasting effects on a child's cognitive development, educational attainment, economic potential, and general well-being [1]. Although the national stunting rate among Indonesian toddlers declined from 24.4% in 2021 to 21.6% in 2022, the figure remains above global targets and reflects ongoing structural disparities [2].

The underlying causes of stunting extend beyond immediate nutritional deficiencies or recurrent infections. A growing body of literature highlights the role of broader social determinants—including parental education, household income, and access to health services—in shaping children's nutritional trajectories [3]. These socioeconomic conditions influence not only the availability of food and healthcare but also the quality of caregiving and the household's capacity to practice healthy behaviours [4].

Maternal education has emerged as one of the most consistently influential factors. Educated mothers are more likely to possess knowledge about appropriate feeding practices, seek timely medical care, and allocate household resources more effectively—all of which directly impact a child’s nutritional status[5]. Similarly, household income determines access to nutrient-rich foods, clean water, and healthcare services. Children from lower-income households face a disproportionate burden of malnutrition due to structural disadvantages and limited resilience to economic shocks [6].

In addition to these structural variables, health-related behaviors within the household play a critical role in preventing stunting. Dietary diversity, proper infant and young child feeding practices, immunization coverage, vitamin A supplementation, and sanitation behaviors have all been shown to positively influence child growth outcomes [7 - 9]. However, the adoption of such practices is often mediated by the household’s educational and economic resources, illustrating the interdependence between behavioral and structural factors.

Indonesia’s unique geographical and cultural heterogeneity offers a valuable context for examining these multifactorial influences. Regional disparities in infrastructure, health service accessibility, and household socioeconomic profiles contribute to uneven progress in addressing stunting. In provinces such as North Sumatra, where urban and rural divides are prominent, understanding the localized dynamics of child nutrition is essential for designing context-appropriate interventions [10].

This study investigates how household social conditions and health behaviors jointly influence the prevalence of stunting among children aged 6–23 months in North

Sumatra Province. By integrating structural and behavioral dimensions, this research aims to provide a nuanced understanding of stunting determinants and inform more effective, equity-focused public health strategies.

METHODS AND MATERIALS

Study Design

This study utilizes data from the 2022 Indonesian Nutritional Status Survey (Survei Status Gizi Indonesia, SSGI), a national survey implemented by the Ministry of Health of the Republic of Indonesia. Employing an observational cross-sectional design, it explores the association between dietary diversity and anthropometric outcomes among children aged 6–23 months in both rural and urban areas of North Sumatra Province at the time of data collection. Data collection was conducted by trained nutritionists, who administered structured interviews and performed standardized anthropometric measurement.

The source population comprised 29,732 children under five in North Sumatra Province, Indonesia. From this population, a sample was drawn according to inclusion criteria, specifically children aged 6 to 23 months, yielding 7,979 subjects. However, six children within this age range were excluded due to incomplete anthropometric measurements. Thus, the final analytical sample consisted of 7,973 subjects meeting the inclusion criteria. The exclusion criteria encompassed children above 23 months and below 6 months of age. Based on these data, variable modifications were performed, including recoding study variables and adapting them to meet analytical requirements. The dependent and independent variables were defined according to their conditions.

The dependent variable was stunting or stunted nutritional status, determined through anthropometric measurements (height-for-age) conducted by trained enumerators. Data included height measurements and infant age, calculated from birth date to interview date. Children whose height-for-age Z (HAZ) score is below minus two standard deviations (-2 SD) from the median of the reference population were considered to be stunted. Independent variables included dietary diversity of consumed foods, first foods introduced to children, infectious diseases, residential location, maternal education, paternal education, paternal employment, household income, breastfeeding status, child age, primary drinking water source.

Sociodemographic variables included maternal and paternal education, categorized into three levels: basic education (completed primary and junior secondary), secondary-higher education (completed senior secondary through diploma/undergraduate), and no schooling or incomplete basic education. Additionally, paternal and maternal employment were classified into two categories: employed (those generating household income) and unemployed/no economic income. Economic status was categorized as upper-middle income, defined as family income equal to or higher than North Sumatra province's 2022 Regional Minimum Wage (RMW), while the lower-middle category comprised family income below or approaching the RMW. The household drinking water source variable was categorized into four groups: packaged beverages (bottled water and refill water), piped water (municipal water supply, public hydrants, water terminals, retail water tanks, drilled wells/pumps), well water (dug wells), and surface water (springs, surface water from rivers, lakes, rainwater collection). The variable for when complementary foods were introduced was categorized into three groups: ≥6 months, 2-6 months, and ≤1 month.

Disease status variables, including ARI (acute respiratory infections), TB, and helminthiasis, were categorized into yes, and no. Immunization status, vitamin A supplementation, and breastfeeding status were also classified into yes and no. Additionally, residential locations were categorized into urban and rural areas.

Statistical Analysis

Statistical analyses were conducted using SPSS software version 25.0. The data analysis comprised three sequential stages. First, univariable analysis was performed using complex sample procedures with appropriate weighting to account for the multistage cluster sampling design employed in the 2022 Indonesian Nutritional Status Survey (SSGI). Categorical variables were presented as percentages. In the second stage, bivariate analyses were conducted using simple logistic regression and chi-square tests to explore associations between categorical variables. Finally, multivariable logistic regression was used to identify dominant risk factors associated with stunting among children aged 6–23 months. Statistical significance was set at an alpha level of 0.05. Confounding was assessed by sequentially removing potential confounders and comparing crude and adjusted odds ratios (ORs). Variables that resulted in a change of more than 10% in the OR were considered confounders and subsequently reintroduced to establish the final multivariate model [12].

Ethical Approval

The SSGI 2022 protocol was approved by relevant Indonesian authorities. The implementation was supported by the Secretariat of the Vice President (Ref: B.470/KSNB/SWP/PKM.00/07/2021) and Bappenas (Ref: 030007/PP.03.02/D.5/T/3/2022), ensuring alignment with national priorities on child nutrition monitoring. As this study used anonymized secondary data, further institutional review board (IRB) approval was not required.

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RESULTS AND DISCUSSION

We analyzed data from 7,973 children aged 6–23 months, categorizing them based on dietary diversity. Among those with adequate dietary diversity, the prevalence of stunting was approximately 18.9%, whereas among those with inadequate dietary diversity, the prevalence was around 16.4%. Children aged 6–23 months with non-diversity are more likely to experience stunting, OR: 1.21 (95% CI: 1.10-1.37), p=0.003, compared to those with diversity diet group.

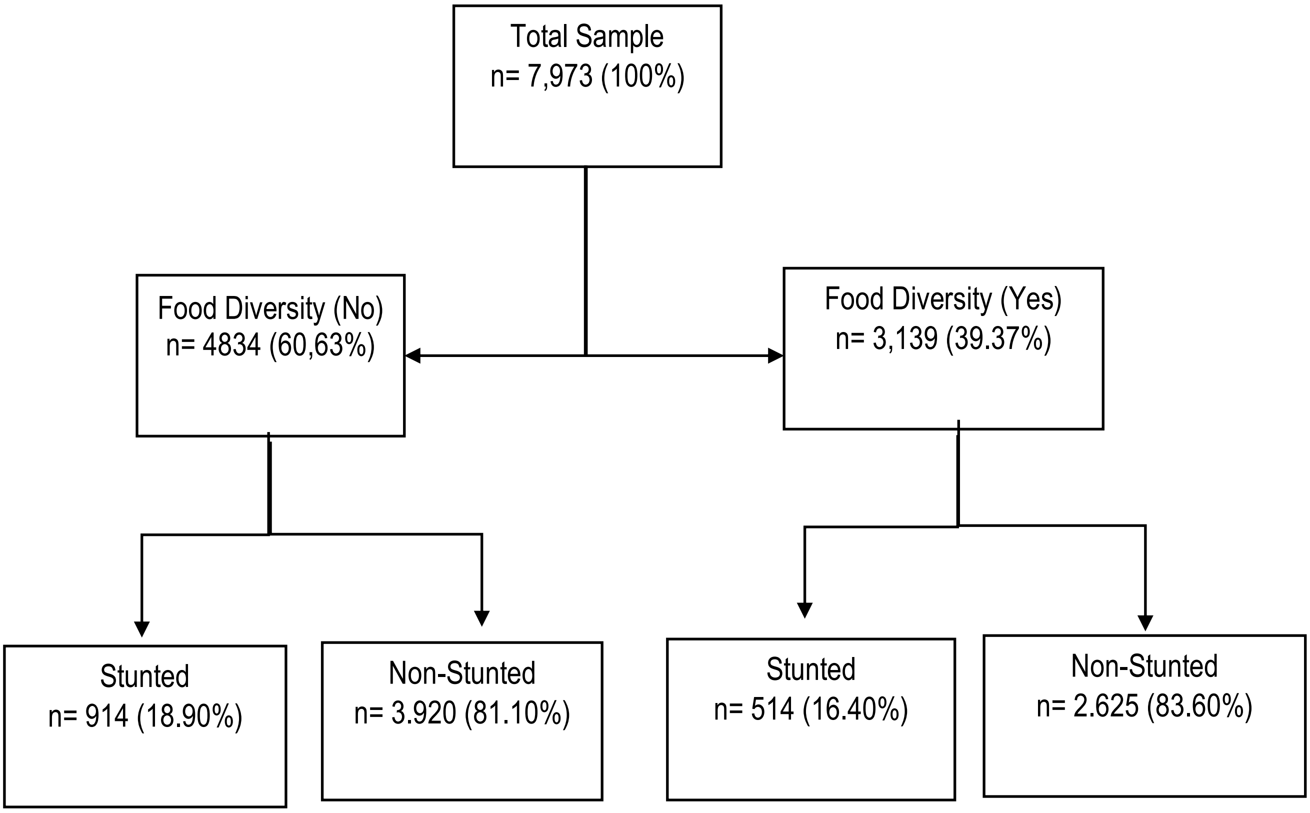

Figure 1: Flow Chart household food diversity and index stunted cases

Household Social Context and Stunting

Among children aged 6–11 months, 430 out of 2,509 (17.10%) were identified as stunted. The logistic regression analysis shows that being in the 6–11 months age group is significantly associated with a higher likelihood of stunting. The odds ratio (OR) is 1.19 (95% CI: 1.10 to 1.36, ($p < 0.01$). Several studies have shown that the risk of stunting increases with age, particularly after 12 months. For example, a study in Ethiopia reported higher stunting prevalence among children aged 12–23 months compared to those aged 6–11 months. This may be due to increased exposure to infections and suboptimal feeding practices. Nevertheless, early life factors—such as the quality and quantity of complementary feeding, feeding frequency, and environmental hygiene—play a crucial role in determining nutritional status. Delayed or inadequate complementary feeding can lead to nutrient deficiencies and impaired linear growth [13,14].

Gender disparities were apparent: male children were significantly ($p < 0.0001$) more likely to experience stunting than female children, with a substantially higher prevalence among males (20%) compared to females (15.7%). This gender difference in stunting Prevalence has been observed in other studies and may be attributed to both biological and social factors [14]. Multivariate analysis showed that male children had 1.38 times higher risk of stunting compared to female children (OR: 1.38, 95% CI: 1.23-2.56, $p<0.001$). This may be attributed to male children being fed more frequently at 0-7 days (51.34%), potentially increasing the risk of gastrointestinal infections and other infections that can impair growth. Research by Khara *et al.* [15] found significantly higher rates among male children by 3.54%, 95% CI [3.47, 3.61], compared to female children, and Tumilowicz *et al.* [16] confirmed healthier growth predictions in indigenous female children than indigenous male children throughout the first year of life, resulting in height differences by sex ($p<0.001$) [15,16].

Household income status was strongly associated with stunting. Children from lower-middle-class families had significantly higher odds of stunting (OR: 1.64, 95% CI: 1.45-1.87, $p<0.001$) compared to children from upper-middle-class families, reaffirming the crucial role of poverty in child malnutrition. Household income also demonstrated a strong relationship with stunting. Children from lower-middle-class families had a higher stunting prevalence (20.75%) compared to children from upper-middle-class families (13.51%). Household income status remained a strong predictor of stunting, reinforcing the need for poverty alleviation as a key strategy in combating child malnutrition. Families with higher economic status likely have better access to nutritious food, healthcare services, and improved sanitation conditions [5,18]. Research in Bangladesh and Ethiopia demonstrate how economic inequality shapes child nutritional status through food security pathways and healthcare access [19, 20].

Maternal unemployment was associated with higher stunting risk (OR: 1.31, 95% CI: 1.15-1.47, $p<0.001$), possibly reflecting the impact of household income and care practices on child nutrition. Unemployed mothers are often associated with lower household income and limited access to resources that support adequate child nutrition, which ultimately affects child growth. Findings from the 2018 Indonesian Basic Health Survey (Riskesdas) indicate that unemployed mothers are 1.15 times more likely to have stunted children under five compared to employed mothers. This association may be explained by reduced household purchasing power and limited access to nutritious food. On the other hand, mothers working in the informal sector may also have a higher likelihood of having stunted children, primarily due to time

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constraints that hinder their ability to provide adequate care and feeding practices [21]. Maternal employment can influence child nutritional status through increased household income and enhanced household food security. Research results showing lower stunting rates among children of employed mothers (15.28%) compared to unemployed mothers (19.70%) reflect the complexity of the relationship between maternal employment and childcare. The results of the study are consistent with previous research findings on the overall higher risk of stunting among children of unemployed mothers, a finding that may be correlated with higher difficulties in childcare as a result of financial problems [22] . Ketema *et al*. [23] explain that working mothers can contribute to family income, potentially improving access to nutritious food and healthcare, as formally employed mothers have higher opportunities to provide more diverse child nutrition, related to sufficient family resources [23, 24].

Parental education levels showed a clear gradient in stunting Prevalence. Children of mothers without formal education had the highest stunting rate (21.42%), compared to 18.93% for those with basic education and 13.60% for those with higher education. The education gradient in stunting risk highlights education's role as a crucial social determinant of child health. Maternal education appears to operate through several mechanisms, including improved health literacy, better childcare practices, and enhanced ability to navigate healthcare systems. Parental education, particularly maternal education, showed a clear gradient in stunting risk. Children of mothers without formal education had the highest odds of stunting (OR: 1.73, 95% CI: 1.27-2.35, p<0.001) compared to those with higher education based on bivariat analysis. These findings align with recent research by Amaha and Woldeamanuel [25], demonstrating how maternal education influences child nutrition through knowledge and empowerment pathways, which shows how maternal education affects child nutrition through knowledge and empowerment pathways, as well as research that children living with mothers or caregivers with no education (OR = 9.9; 95% CI: 2.8, 20.1) are approximately 10 times more likely to be stunted than children with mothers with formal education [25, 26]. However, in the final multivariate model, maternal education level was not included due to its lack of statistical significance, as indicated by a high p-value.

The disparities in stunting patterns between urban and rural residences, with rural children having higher odds of experiencing stunting (OR: 1.24, 95% CI: 1.09-1.40, p=0.001), reflect broader structural inequalities in Indonesian development. The results of the study are in line with Widyaningsih *et al.* [19] that Sociodemographic factors, such as rural residence, play a significant role in Indonesia's high stunting rates. Children in rural areas often face limited access to healthcare and nutrition services due to geographic barriers, inadequate health personnel, poor service quality, and insufficient infrastructure. Addressing stunting requires not only direct nutritional interventions but also improved accessibility and availability of health services, particularly in rural and remote areas. Community-based programs, strengthened roles of local health posts (Posyandu), and equitable distribution of health workers are essential to reducing service disparities. Sserwanjana *et al.* [28] and Tadesse *et al.* [29] documented similar spatial inequalities, attributed to differences in infrastructure, service availability, and economic opportunities between urban and rural areas.

Health Behaviours and Nutritional Status

Dietary diversity showed a significant relationship with stunting risk. Table 2 shows, children with non-diverse diets, 18.90% experienced stunting compared to 16.40% in those with diverse diets. Multivariate analysis (table 4) provided adjusted odds ratios (OR) for factors independently associated with stunting. A non-diverse diet remained a significant risk factor for stunting after adjusting for other variables (OR: 1.21, 95% CI: 1.10-1.37, p=0.003). This underscores the independent effect of dietary diversity on child growth, even when accounting for socioeconomic and health factors.

Analysis reveals how health behaviours are embedded within social contexts. The relationship between dietary diversity and stunting (OR: 1.21 for non-diverse diet) reflects not just individual choices but broader social determinants of food access and nutritional knowledge. Good dietary diversity ensures more comprehensive nutrient intake, supports optimal growth, and improves overall diet quality. Research in East Java Province demonstrate how dietary diversity is shaped by household socioeconomic position and local food environments [7]. Ahmed *et al.* [8] research shows that dietary diversity positively correlates with child nutritional status in Bangladesh. Diverse dietary patterns ensure more comprehensive nutrient intake, supporting optimal growth [30]. The social determinants of dietary diversity in rural areas of Tanzania are maternal literacy, nutritional knowledge, the area of agricultural land owned by the family and the distance of the water source to the house [31].

Vitamin A supplementation was associated with lower odds of stunting (OR: 0.704, 95% CI: 0.63-0.79, p<0.001), highlighting the importance of micronutrient interventions in stunting prevention. Vitamin A supplementation supporting the continued implementation of vitamin A programs in stunting prevention strategies [32]. This finding aligns with the review by Imdad *et al*. [9] demonstrating that vitamin A supplementation can reduce stunting risk in children.

Health Status and Social Vulnerability

Table 3 presents the association between various health-related factors and stunting status among children. The analysis indicates that diarrhea status and TBC (tuberculosis) status are significantly associated with stunting. Children who experienced diarrhea had higher odds of being stunted compared to those who did not (OR = 1.505, 95% CI: 1.23–1.84, p < 0.001). Similarly, children with a history of TBC had a significantly increased risk of stunting, with an odds ratio of 15.314 (95% CI not shown in this table, p < 0.001). TBC and diarrhea reflecting the severe nutritional impact of chronic infection, it has a consistent impact on children's growth and odds of stunting [33]. TBC and diarrhea showed strong independent associations with stunting, highlighting the critical need for integrated health and nutrition interventions [34]. In contrast, ISPA (acute respiratory infection) status and worm infections did not show statistically significant associations with stunting (*p* = 0.669 and *p* = 0.107, respectively).

The strong relationship between communicable diseases and stunting, particularly among disadvantaged groups, illustrates how social vulnerability shapes child infection occurrence (health risks). Frequent childhood infections can deplete energy reserves in the body [35]. Research by Mahudeh *et al.* [36] states that higher child disease history correlates with higher risk of stunting (p=0.000). Stunting is typically associated with increased morbidity and mortality from infections, not only from pneumonia and diarrhea but also from sepsis, tuberculosis, meningitis, and hepatitis, indicating overall immune impairment with severely stunted growth.

A study of the relationship between diarrhea, child growth, and cognitive development outcomes in children living in urban Dhaka, Bangladesh, found that high Prevalence of diarrhea was associated with stunted linear growth and affected cognitive development. These findings emphasize the need for water, sanitation, and hygiene interventions to reduce diarrheal disease in vulnerable childhood populations during their growth period [37]. Several factors associated with diarrhea in five Southeast Asian countries are individual factors, environmental and household factors, health behaviors such as breastfeeding mothers, children's food history and information source factors [38]. Nutritional status is associated with the occurrence of tuberculosis, especially in children under 60 months of age. Poor nutritional status is caused by inadequate food intake. Insufficient nutritional intake can result in low immunity, making them susceptible to tuberculosis germs. Malnourished children are more susceptible to infection due to altered immune responses [39]. Proper sanitation, including the ownership of household latrines, plays a crucial role in the prevention of stunting. Poor sanitation practices, such as open defecation, significantly increase the risk of chronic infectious diseases and a condition known as Environmental Enteric Dysfunction (EED). EED leads to impaired nutrient absorption, which contributes to growth faltering and stunting in children. Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (WASH)).

CONCLUSION AND RECOMMENDATIONS FOR DEVELOPMENT

This research reveals that stunting in North Sumatra is influenced by the complexity of social and health factors. Low dietary diversity, lower-middle economic status, and rural residence emerge as primary risk factors, with male children showing higher vulnerability. Infectious diseases, particularly tuberculosis and diarrhoea, strongly correlate with stunting, whilst vitamin A supplementation provides a protective effect. These findings indicate the need for multi-sectoral strategies that integrate nutritional interventions with poverty alleviation efforts, improved healthcare access, and sanitation improvements, particularly in rural areas.

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Author Contributions

Conceptualization, and A.M.L.; methodology, A.M.L. and T.H.D.; formal analysis and writing—original draft preparation, H.M. and A.M.L.; data cleaning and management, visualization, and validation, H.M., A.M.L., and T.H.D.; writing—review and supervision, H.M. and T.H.D. All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declared that they had no conflict of interest.

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Table 1: Characteristics of children under two years of age and their families

Characteristics	N		Status Gizi Stunted		No		OR (95% CI)	*p*-value
	7,973	S.E	n	%	N	%		
Age group								
> = 12 Bln	5,464	*165*	997	18.20	4,467	81.80	1 (Ref)	**0.232**
6-11 bl	2,509	*115*	430	17.10	2,079	82.90	1.10 (0.95 - 1.22)	
Gender								
Female	3,935	*141*	618	15.70	3,317	84.30	1 (Ref)	**<0.001**
Male	4,038	*124*	809	20.00	3,229	80.00	1.35 (1.19 - 2.51)	
Father's Education level								
High	1,360	*82*	195	14.33	1,165	85.66	1 (Ref)	**0.001**
Basic	6,294	*199*	1,179	18.73	5,115	81.26	1.38 (1.17 - 1.63)	**<0.001**
Not graduated or not in school yet	320	*35*	54	16.87	266	83.12	1.22 (0.87 - 1.69)	**0.243**
Mother's Education level								
High	1,698	*89*	231	13.60	1,467	86.39	1 (Ref)	**<0.001**
Basic	5,967	*187*	1,130	18.93	4,837	81.06	1.48 (1.27 - 1.71)	**<0.001**
Not graduated or not in school yet	308	*25*	66	21.42	242	78.57	1.73 (1.27 - 2.35)	**<0.001**
Father's Work								
Yes	7,728	*220*	1,387	17.94	6,341	82.05	1 (Ref)	**0.542**
No	244	*34*	40	16.39	204	83.60	0.90 (0.64 - 1.30)	
Mother's Work								
Yes	3,246	*107*	496	15.28	2,750	84.71	1 (Ref)	**<0.001**
No	4,727	*194*	931	19.69	3,796	80.30	1.36 (1.21 - 1.53)	
Household Income								
Upper Middle Class	3,131	*147*	423	13.51	2,708	86.48	1 (Ref)	**<0.001**
Lower Middle Class	4,843	*158*	1,005	20.75	3,838	79.24	1.68 (1.48 - 1.89)	
Location								
Urban	4,427	*202*	841	18.99	3,586	81.00	1 (Ref)	**0.004**
Rural	3,546	*87*	587	16.55	2,959	83.44	1.18 (1.05 - 1.32)	

Table 2: Health Behaviour and Nutritional Status

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	Status Gizi							
Characteristics	**N**		**Stunted**		**No**		**OR (95%)**	***p*-value**
	7,973	**S.E**	**n**	**%**	**N**	**%**		
Food Diversity								
Yes	3,139	*164*	514	16.40	2,625	83.60	1 (Ref)	**0.004**
No	4,834	*147*	914	18.90	3,920	81.10	1.91 (1.06 - 1.34)	
Source of Drinking Water								
Bottled Water	4,016	*196*	736	18.32	3,280	81.67	1 (Ref)	**0.069**
Water Piping	2,293	*85*	401	17.48	1,892	82.51	0.946 (0.83-1.08)	**0.418**
Spring Water	1,342	*64*	219	16.31	1,123	83.68	0.869(0.74 - 1.03)	**0.096**
Surface Water	323	*29*	72	22.29	251	77.70	1.273 (0.96-1.67)	**0.085**
Getting to know food Other ASI								
>=6 Month	3,534	*128*	609	17.23	2,925	82.76	1 (Ref)	0.266
<2-6 Months	1,244	*67*	239	19.21	1,005	80.78	1.142 (0.97 - 1.35)	0.118
<= 1 Month	3,196	*165*	580	18.14	2,616	81.85	1.065 (0.94 - 1.21)	0.322
Immunization Status								
No	2,755	*128*	537	19.49	2,218	80.50	1 (Ref)	**0.007**
Yes	5,218	*171*	890	17.05	4,328	52.94	0.849 (0.75 - 0.96)	
Vit. A Status								
No	2,974	*130*	631	21.21	2,343	78.78	1 (Ref)	**<0.001**
Yes	4,999	*181*	796	15.92	4,203	84.07	0.704 (0.63 - 0.79)	

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Table 3: Disease Status and Stunting

Characteristics	N		Status Gizi				OR (95% CI)	*p*-value
			Stunted		No			
	7,973	S.E	n	%	N	%		
ISPA status								
No	7,804	*220*	1,399	17.92	6,405	82.07	1 (Ref)	**0.669**
Yes	169	*76*	28	16.56	141	83.43	0.915 (0.61-1.38)	
Diarrhea status								
No	7,403	*215*	1,290	17.42	6,113	82.57	1 (Ref)	**<0.001**
Yes	571	*44*	138	24.16	433	75.83	1.505 (1.23-1.84)	
TBC status								
No	7,952	*220*	1,411	17.74	6,541	8225	1 (Ref)	**<0.001**
Yes	21	*10*	16	76.19	5	23.80	15.314	
Worms								
No	7,943	*220*	1,419	17.89	6,525	82.14	1 (Ref)	**0.107**
Yes	30	*6*	9	0.3	21	0.7	1.918 (0.75 - 0.96)	

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Table 4: Association between Non-Diversity and Stunting

Characteristics	N		Status Gizi				B	S. E	Wald	OR (95%)	*p*-value
			Stunted		No						
	7,973	S.E	n	%	n	%					
Food is not diverse	4,834	*147*	914	18.90	3,920	81.10	0.188	0.064	8.788	1.21 (1.10-1.37)	0.003
Age group 6-11 month	2,509	*115*	430	17.10	2,079	82.90	0.18	0.066	7.458	1.19 (1.10 - 1.36)	0.006
Gender Male	4,038	*124*	809	20.00	3,229	80.00	0.327	0.06	29.883	1.38 (1.23 - 2.56)	<0.001
Mother doesn't Work	4,727	*194*	931	0.20	3,796	0.80	0.264	0.064	17.279	1.31 (1.15 - 1.47)	<0.001
Lower Middle Class	4,843	*158*	1,005	0.21	3,838	0.79	0.497	0.066	56.953	1.64 (1.45 - 1.87)	<0.001
Diarrhoea status	571	*44*	138	0.24	433	0.76	0.39	0.104	13.977	1.48 (1.23-1.84)	<0.001
TBC statues	21	*10*	16	0.77	5	0.23	2.445	0.521	22.021	11.53 (4.15 - 32.03)	<0.001
Vit. A Status	4,999	*181*	796	0.16	4,203	0.84	-0.351	0.061	32.724	0.70 (0.63 - 0.79)	<0.001
Rural Living	3,546	*87*	587	0.17	2,959	0.84	0.214	0.064	11.24	1.24 (1.09 - 1.40)	0.001

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