



Risk of Stunting in Children: Links to Internal and Social Family Interactions in Central Buton District (a Case Study)

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Abstract

With a high prevalence of stunting in children in the Central Buton District. This study aims to explore the relationship between internal family dynamics and external social relationships affecting children's nutrition. The study was based on the hypothesis that more frequent and qualitative family interactions and involvement in social activities would correlate with a lower risk of stunting. This study used a cross-sectional study design. Analyzing secondary data from the 2021 Family Data Collection (PK21). The study included 6,586 target families as a sample, the analysis included family dynamics as an exposure variable and used the family happiness index formula to identify family interaction and social interaction. The study used logistic regression from Scikit-learn to evaluate the data in the final stage. Data analysis revealed that internal family interactions, although important, showed no statistically significant association with stunting risk ($p=0.3699$). However, social interaction had a highly significant association with reduced risk of stunting, with a regression coefficient of -1.9934 and Odds Ratio (AOR) of 0.1362 (95% CI: 0.0739 - 0.2510, $p<0.0001$) in logistic regression analysis. These findings confirm that strong social engagement and community support are key factors in reducing the prevalence of stunting among children in the Mawasangka sub-district. This study concludes that engagement in community social activities has a significant impact on reducing the risk of stunting in children. The findings suggest that interventions aimed at reducing stunting should go beyond intra-family interventions and include increased social interaction and community support to achieve optimal outcomes in stunting prevention.

Keywords: Stunting, Family Interaction, Social Interaction, Child Nutrition Status, Family Data Collection (PK21)

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I. BACKGROUND

In modern society, child health and nutrition are vital topics that continue to

receive attention. One of the most serious and frequent health problems faced in many countries, including Indonesia, is

stunting in children. Globally, about 1 in 4 children under five are stunted (UNICEF, 2020). Currently, Indonesia is still facing nutrition problems that have a serious impact on the quality of human resources (HR). One of the problems of malnutrition that is still quite high in Indonesia is stunting and wasting in children under five years old, as well as anemia and chronic energy deficiency (CED) in pregnant women (Rahayu, 2018). The results of the Basic Health Research (RISKESDAS) in 2013 based on the indicator of Body Weight/Age showed an increase in the prevalence of malnutrition compared to the results of RISKESDAS in the previous year 17.9% in 2010 to 19.6% in 2013. Based on the Height/Age indicator, the national prevalence of stunting in 2013 also increased from the previous year, which was 37.2% (Kemenkes RI, 2013). Southeast Sulawesi Province is still one of the provinces that has a stunting prevalence above the national average, this is according to the results of the 2021 Indonesian nutritional status study at 31.4 above the national rate of 27.7% stunting rate in toddlers even though 2021 the stunting prevalence rate in Southeast Sulawesi Province has decreased but the prevalence rate is still above the national rate of 30.2% and the district that contributes the second highest prevalence

in Southeast Sulawesi Province is Central Buton Regency at 42.7% (Kemenkes RI, 2021). The results of family data collection in 2021 found that 8 out of 10 families with children under two years old in all sub-districts in Central Buton district were at risk of stunting (BKKBN RI, 2022).

Factors contributing to stunting are not only limited to nutritional intake, but also include environmental and social factors, including family and social interactions (Ustman et al., 2022). Recent research has increasingly highlighted the important role of family dynamics in the development of stunting. The family unit, as the primary context in which a child's early life takes place (Esimai et al., 2001), plays an important role in shaping nutritional outcomes. Internal family interactions, including parents' nutrition knowledge, feeding practices, and parenting behaviors, directly influence children's growth patterns. These internal dynamics are often shaped by broader social interactions and cultural norms within the family community, which can reduce or exacerbate the risk of stunting (Hagos et al., 2008; Ramadhani et al., 2023; Mulyaningsih et al., 2021).

Research conducted by Lam, et al., (2021) showed a strong relationship between family harmony and family health in the Hong Kong community, that family

harmony characterized by communication, respect, and lack of conflict, is a key factor in family happiness and health. The same research was also conducted by Maviratul et al, related to the quality of family life showing a significant relationship with the nutritional status of toddlers. Based on this background description, this study focuses on the relationship between internal and social family interactions with the risk of stunting in children, offering new insights in understanding child nutrition problems (Maviratul et al., 2023). Through this research, it is hoped that effective strategies can be found to address the problem of stunting, not only through direct nutritional interventions but also through strengthening family and social interactions.

2. METHODS

This research design is a cross-sectional study that uses secondary data from the 2021 Family Data Collection (PK21). Meanwhile, the Family Planning Coordinating Board conducted Family Data Collection as a nationwide survey. The population in this study were families based on the ownership of population administration files in the Mawasangka Subdistrict area, and families have lived in

this area for about 6 (six) months, totaling 6,586 families.

This study uses family dynamics as the exposure variable. This survey uses the family happiness index formula survey and to identify it uses family interaction and social interaction. Family interaction is calculated using a weighted average of the total of each family member having time to interact every day, childcare is done together between husband and wife and the family and the family has had recreation together outside the home. Meanwhile, social interaction was obtained from at least 1 (one) family member having participated in social activities/collaboration in the neighborhood (RT).

Data Analysis in this study used the Chi-Square test in the initial phase, to compare dichotomous variables. This study used logistic regression in the analysis at the last point. This data analysis was chosen for its ability to identify causal relationships and predict the effect of the independent variables on the dependent variable in this study. The presentation of the data was done systematically to describe the findings clearly and in-depth, ensuring that the interpretation of the data can be easily understood and accessed by the reader. Throughout the statistical

analysis part of this study, the IBM SPSS 24 application was used.

3. RESULTS

The results of the analysis showed that the proportion of stunted families in

Mawasangka Subdistrict, Central Buton Regency in 2021 was 29.8%. While table 1, shows the Chi-Square analysis of the risk of stunting in children in Mawasangka District.

Table 1. Results of Chi-Square analysis of stunting risk in children in Mawasangka sub-district, Central Buton district (n=6586)

Variable	Stunting Risk						P-value
	Yes		No		Total		
	n	(%)	n	(%)	n	(%)	
Family Interaction							
Less	860	69.7	373	30.3	1233	100	0.00
Fair	1103	20.6	4250	79.4	5353	100	
Social Interaction							
Less	1224	68.6	560	31.4	1784	100	0.00
Fair	677	14.1	4125	85.9	4802	100	

Table 1 shows the relationship between social interaction in the neighborhood and the risk of stunting. Out of the total 6586 families observed, 1901 families (28.9%) had a risk of stunting with a P-value of 0.00, which also indicates that there is a strong and significant association between family interaction and the risk of stunting among children. The expected frequencies shown also confirm that there is a significant difference between the groups with and without family interaction in terms of stunting risk. Table 1 also shows the association between social interaction in the neighborhood and the risk of stunting. Of the total 6586 families observed, 1901 families (28.9%) had stunting risk, with a P-value of 0.00, which

also indicates a highly significant association between neighborhood social interaction and stunting risk. This is reinforced by the expected frequency values, which show a clear contrast between the groups with and without neighborhood social interaction.

Table 2 provides further insight into the effect of family interaction and social interaction on stunting risk. Table 2 shows that the positive coefficient of 0.2257 for family interaction indicates that an increase in family interaction is associated with an increase in the odds of stunting, but the P-value higher than 0.05 (p = 0.3699) indicates that this relationship is not statistically significant. However, the significant negative coefficient of -1.9934

for social interaction indicates that an increase in social interaction is associated with a decrease in the odds of stunting. The odds ratio (AOR) of 0.1362 with a 95% confidence interval that does not include the value of 1 (0.0739–0.250) and a P-value <0.0001 indicates that this association is highly statistically significant. The results of the logistic regression analysis confirmed that social interaction has a

highly significant influence on the risk of stunting in children. These findings suggest that social activities involving interactions between community members can play an important role in preventing stunting, possibly through better social support mechanisms, information sharing on nutrition practices, and access to health resources.

Table 2. Logistic regression results of family interaction and social interaction

Variable	Stunting Risk				
	Coefficient	P-Value	AOR	95% CI	
				Lower	Upper
Family Interaction					
Less	0.2257	0.36	1.2531	0.76	2.05
Fair					
Social Interaction					
Less	-1.9934	<0.0001	31.4	0.07	0.25
Fair					

4. DISCUSSION

Family Interactions

This study provides strong empirical evidence that family interactions play an important role in determining the risk of stunting in children. Strong and consistent interactions within the family appear to provide a stable foundation for the development of good health and nutrition for children, protecting them from the risk of stunting (Martin et al., 2021; Moestue et al., 2008). The fact, that families with adequate interactions have a lower prevalence of stunting indicates the importance of environmental and social

factors in children's health. This is reinforced by research by Rahayuwati et al. (2023) emphasizing that strong and consistent interactions within the family create a stable foundation for good health and nutrition for children, protecting them from the risk of stunting. Engagement and communication between family members, as reflected in joint activities and co-parenting, may reinforce good nutrition practices, improve monitoring of child health, and result in more informed decision-making regarding aspects of health and nutrition. This confirms the importance of creating intervention

programs that pay attention to aspects of family interaction to prevent stunting, which should be considered by policymakers and public health practitioners (Rahmadiyah et al., 2022; Gu et al., 2023).

The findings of this study, showing a significant association between family interaction and stunting risk, are in line with the existing literature. A study by Aubel (2011) emphasizing the importance of family dynamics in child health and nutrition showed that positive family interactions contribute to reducing the risk of stunting. A study by Jannah et al. (2022) reinforces this view by showing that close family connectedness is associated with better nutritional status in children.

Social Interaction

This study shows that social interaction in neighborhoods has a strong association with a reduced risk of stunting. Frequent social interactions in neighborhoods may facilitate the exchange of information on good nutrition practices, emotional and psychosocial support, and access to resources that can influence children's nutritional status (Villanueva et al., 2016). Family involvement in social activities may also reflect higher levels of community support, which could include

access to community-oriented feeding programs and health interventions. This is in line with research on the importance of community support and empowered neighborhoods in promoting better nutrition practices and reducing the prevalence of stunting among children (Cumming et al., 2016).

From these results, it can be implied that intervention programs to reduce stunting should go beyond internal family interactions and include strategies to increase family involvement in social and community activities. This will help in forming strong support networks that are critical for children's health and well-being. The findings linking social interactions with the risk of stunting in children resonate with scientific literature emphasizing the importance of social support and community engagement in child nutrition. The study by Jannah et al. (2022) that identified an association between family connectedness and children's nutritional status indicated that broader social engagement, such as that in neighborhoods, may strengthen this association. Similarly, research by Beal et al. (2018) showed a strong association between neighborhood social interaction and a reduced risk of stunting in children. Frequent social interactions in the

neighborhood facilitate the exchange of information on good nutrition practices, emotional and psychosocial support, and access to resources that affect children's nutritional status.

Research by Sari et al. (2020) on the influence of family-health partnerships in reducing stunting risk underscores the role of social interactions as a link between families and health providers. It supports the finding that strong neighborhood social interactions can strengthen these bonds and positively impact children's nutritional status.

5. CONCLUSION

The study concluded that simply having good family interactions may not be enough to reduce the risk of stunting in the absence of external support. This confirms the importance of community support and social activities in supporting good child nutrition and overall health.

AUTHOR CONTRIBUTIONS

Substantial contributions to conceptualization, data curation, analysis, and manuscript revisions: Mohamad Guntur Nangi, Muhamad Syukur, Firdaus W Suhaeb, and Sari Arie Lestari. Supervision, review and editing: Mohamad Guntur Nangi and Sari Arie Lestari.

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CONFLICT OF INTEREST

The authors declare no potential conflicts of interest with respect to the research, authorship, and/or publication of this article. The authors also claim that ChatGPT provided assistance with some of the narratives in this article.

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