

Missing Pieces: The Stunting Challenges by Single Mothers in Indonesia

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Abstract — Child stunting remains a significant health issue in Indonesia, particularly within single-mother households facing socioeconomic challenges. This study aims to analyze the impact of single-mother status on child stunting prevalence while evaluating other socioeconomic factors such as educational level, poverty status, and access to basic facilities. The research employs descriptive statistics, multinomial logistic regression, and binary logistic regression methods with SUSENAS 2022. The findings reveal that single-mother status, especially in the divorced while living and divorced due to death categories, significantly increases the risk of child stunting. Additionally, factors such as low maternal education, employment in informal sectors, and limited access to proper sanitation increase stunting prevalence. This study highlights the urgency of integrated policies to support single mothers through improved education, access to stable employment, and enhanced infrastructure to reduce stunting and improve the quality of life for children in vulnerable households. Furthermore, to improve the quality of life of children in each household, debriefing related to nutrition can be carried out for mothers. Thus, problems related to the prevalence of stunting can be minimized, especially from single mothers.

Keywords: Single Mother, Stunting, Basic Facilities, SUSENAS 2022

Abstrak — Stunting pada anak merupakan salah satu masalah kesehatan yang signifikan di Indonesia, terutama dalam rumah tangga ibu tunggal yang menghadapi tantangan sosial dan ekonomi. Penelitian ini bertujuan untuk menganalisis pengaruh status ibu tunggal terhadap prevalensi stunting pada anak, serta mengevaluasi faktor-faktor sosial ekonomi lainnya seperti tingkat pendidikan, status kemiskinan, dan akses terhadap fasilitas dasar. Menggunakan data SUSENAS 2022, penelitian ini mengadopsi metode analisis statistik deskriptif, regresi logistik multinomial, dan regresi logistik biner. Hasil penelitian menunjukkan bahwa status ibu tunggal, khususnya kategori cerai hidup dan cerai mati, secara signifikan meningkatkan risiko stunting pada anak. Selain itu, faktor lain seperti pendidikan ibu yang rendah, pekerjaan di sektor informal, dan keterbatasan akses terhadap sanitasi layak juga memperburuk prevalensi stunting. Penelitian ini menggarisbawahi urgensi kebijakan yang terintegrasi untuk mendukung ibu tunggal melalui peningkatan pendidikan, akses pekerjaan stabil, serta perbaikan infrastruktur dasar guna mengurangi dampak stunting dan meningkatkan kualitas hidup anak-anak di rumah tangga rentan. Selanjutnya, untuk meningkatkan kualitas hidup anak di setiap rumah tangga, dapat dilakukan pembekalan terkait gizi pada ibu. Dengan demikian, permasalahan terkait prevalensi stunting dapat diminimalisir, terutama pada ibu tunggal.

Kata Kunci: Ibu Tunggal, Stunting, Fasilitas Dasar, SUSENAS 2022

INTRODUCTION

Policies in achieving development goals are expected to focus on efforts to overcome poverty and improve human resources' quality through the fulfillment of basic daily needs. To achieve economic development, we have tried to focus on improving the nutritional status of children, as evidenced by the existence of household nutrition fulfillment programs and the provision of sanitation (Urgell-Lahuerta et al.,

2021; Zavala et al., 2021). However, facts on the ground show that some households still tend to be vulnerable to food, increasing the chance of stunting in children. This research is essential to find out the socioeconomic factors that affect the status of single moms in the household and analyze the impact of single mom status on stunting in children.

Changes in family structure, significantly the increase in the number of single mothers, have

become a global phenomenon that has a significant impact on children's welfare. Single mothers often face severe economic and psychological challenges, such as dual roles as the primary breadwinner and caregiver, which can affect the quality of parenting and the overall well-being of the child (Ayllón & Ferreira-Batista, 2015). Research shows that children raised by single mothers are more likely to experience health and developmental disorders, such as stunting, than children from full families (Laksono et al., 2024; Haque et al., 2022). The threat of stunting as a form of chronic malnutrition can inhibit children's physical and cognitive growth, as well as affect economic productivity in adulthood (Akseer et al., 2022; Black et al., 2008). This condition is exacerbated by the limited access to resources and social support that single mothers often experience. Studies in various developing countries, including Brazil and Tanzania, show a close relationship between family structure, food insecurity, and the risk of stunting in children (Ayllón & Ferreira-Batista, 2015; DiClemente et al., 2021).

In the Indonesian context, the role of single mothers is becoming increasingly important to be examined, given the increasing number of families with female heads of households and multidimensional challenges in overcoming the threat of stunting. Stunting is malnutrition characterized by height growth that tends to be lower than age (Roediger et al., 2020). Sulistyoningsih, in 2020, with the title *The Role of Health Workers in Reducing the Incidence of Stunting* with an Indonesian Case Study, stated that there are seven main determinants of stunting. The seven determinants include (i) Breastfeeding that is not exclusive in the first six months after birth; (ii) The economic status of the family that is below the poverty line so that it cannot meet the basic needs of the individual; (iii) Premature birth; (iv) Height at birth tends to be shorter; (v) The mother's height is below average; (vi) The low level of parental education can affect parenting and; (vii) Geographically, both urban and rural areas are slums occupied by people who are classified as poor. As a result, stunting affects lifelong health, social and economic development (Supriatin et al., 2020), learning outcomes in school, and individual productivity and income potential in adulthood or the future.

While considerable research has explored stunting and its determinants, particularly in low- and middle-income countries, there remains a notable gap in understanding the specific role of single motherhood in influencing child nutrition and health outcomes in Indonesia. Much of the existing literature, such as studies by Headey et al. (2018) and Smith & Haddad (2015), has focused broadly on socioeconomic and environmental factors, including income, sanitation, and education. However, these studies often overlook the intersection of household structure and child health. Single mothers in Indonesia face unique

vulnerabilities, including economic hardships, limited access to healthcare services, and social stigma, all of which exacerbate risks for child stunting. Despite global evidence suggesting that children in single-mother households are at higher risk of poor health outcomes (Chung et al., 2020; Wrottesley et al., 2019), there is limited empirical research contextualizing these findings within Indonesia's cultural and policy environment.

The Government of Indonesia is committed to reducing the prevalence of stunting as a strategic effort to improve the quality of human resources. Stunting, which is a result of chronic malnutrition and limited access to health services and sanitation facilities, remains a significant challenge, especially in rural and remote areas (Shresta et al., 2022; Kikafunda et al., 2014; Prendergast & Humphrey, 2014). To deal with this problem, the government has initiated various strategic programs through the National Movement for the Acceleration of Nutrition Improvement contained in Presidential Regulation 42 of 2013. This program aims to increase public access to proper sanitation, improve housing quality, and expand community-based health services. Based on data from the Indonesian Nutrition Status Study or SSGI, the prevalence of stunting shows a downward trend, although some regions still record relatively high numbers. Therefore, evaluation of program implementation and policy effectiveness is crucial to ensure that vulnerable groups are optimally reached and that their impact on reducing stunting rates can be sustainable.

Moreover, while government initiatives have shown promise in reducing stunting rates nationwide, the extent to which these programs address the needs of vulnerable groups such as single mothers remain unclear. Existing evaluations, such as those by Rah et al. (2015) and De Onis et al. (2019), rarely disaggregate data to explore the impact on specific demographic groups, limiting their utility in tailoring interventions. This study addresses this research gap by providing a focused analysis of the socioeconomic determinants of single motherhood and its implications for child stunting in Indonesia. This research seeks to advance the understanding of how family structure intersects with other determinants to influence child health outcomes. The findings will inform targeted policy measures to improve the welfare of single-mother households and reduce stunting prevalence in vulnerable populations.

METHOD

This study uses data from the 2022 National Socioeconomic Survey (SUSENAS). Susenas collects individual data on several indicators such as demographics, education, and social and economic. This survey is conducted annually by the Central Bureau of Statistics (BPS). The number of observations in this study is 1,237,946 individuals throughout Indonesia. Then, this study was classified

into two types of research samples, especially women as single mothers in their households 616,341. The multinomial logit regression was used to analyze the impact of socioeconomic factors in households on the prevalence of being a single mom. The logit regression was used to empirically analyze the impact of single mom status on the prevalence of stunting.

These methods were best suited for the study because they could model categorical dependent variables and explore complex relationships between multiple socioeconomic factors and outcomes. Multinomial logit regression allows the classification of single motherhood into multiple categories (not single, divorced while living, divorced due to death), capturing the nuanced distinctions within household structures. Logit regression, on the other hand, is practical for examining binary outcomes such as stunting. It is a robust tool for analyzing the likelihood of stunting in children based on predictors. These statistical techniques ensure a comprehensive understanding of the multifaceted relationships between socioeconomic conditions, single motherhood, and child health outcomes.

This study uses two stages of analysis, namely (i) to find out socioeconomic factors that affect the status of single moms in the household and (ii) to analyze the impact of single mom status on stunting in children. The first stage aims to disentangle the

specific socioeconomic conditions that lead to single motherhood. Understanding these determinants is essential to contextualize the second stage, which focuses on how the status of being a single mom impacts child health outcomes like stunting. By separating these analyses, the study ensures a clearer, more precise understanding of the pathways through which socioeconomic conditions and family structure influence child nutrition. Therefore, the two-stage approach provides a systematic and comprehensive framework in this complex phenomenon.

There are two dependent variables, namely (i) single mom status categories, namely not single moms, divorced while alive, and divorced due to death, and (ii) the category of stunting in children. The independent variables are socio-economic factors (Table 1 & Table 2). Stunting categories are derived from the SUSENAS questionnaire, which assesses children's birth weight. Children are classified as "stunted" if their birth weight is below 2.5 kilograms, indicating a risk of chronic malnutrition and developmental issues. Conversely, children with a birth weight of 2.5 kilograms or more are categorized as "not stunted." Meanwhile, the variables used in this study, include education levels, employment status, financial facilities, and the fulfillment of facilities, such as houses, water, and proper sanitation.

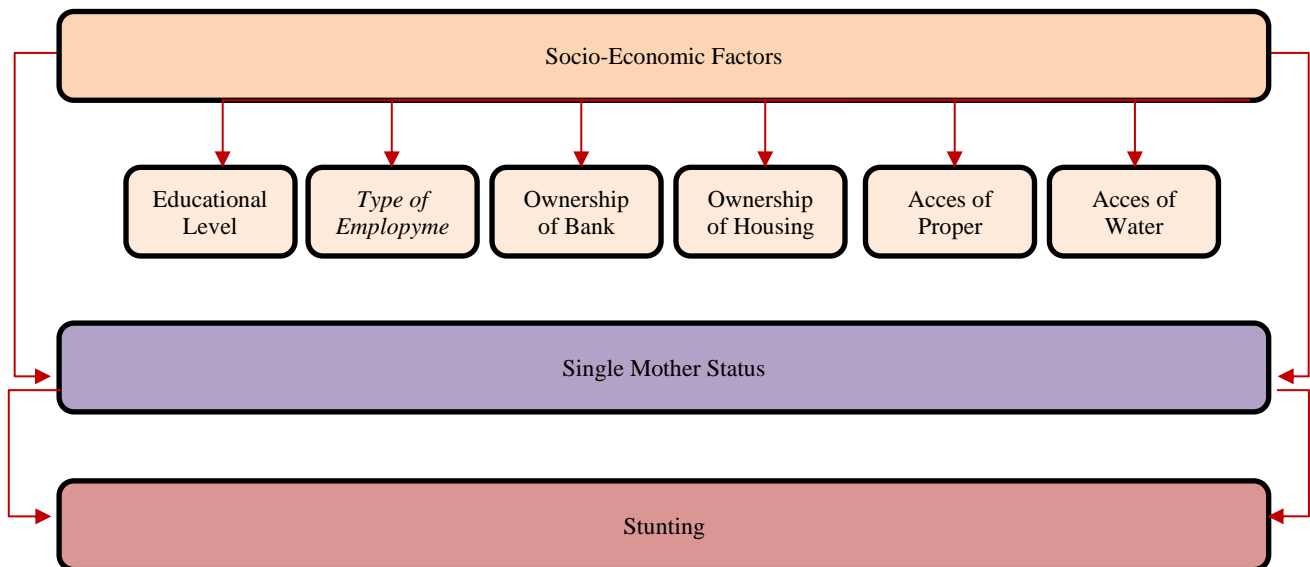


Figure 1. Research Framework

RESULT AND DISCUSSION

In the results of descriptive statistical analysis, it can be seen that there are two different groups of data. The first descriptive statistical results aim to determine the data used in analyzing socio-economic factors that affect the status of single moms in the household. Table 1 shows that the total number of research samples is 1,237,946 individuals, which are grouped based on the status of not a single parent,

divorced alive, and divorced dead. Most of the sample, 93.08 percent, is in the category of not a single parent. Meanwhile, 1.65 percent are included in the category of divorce, and 5.27 percent are in the category of divorce death.

Characteristics based on education level, type of work, ownership of savings, and access to basic infrastructure tend to have differences between marital statuses in households. Households with complete parents have characteristics of education

level to higher education and tend to be able to meet basic needs compared to households with single parents. In households with parents who are divorced while living, they tend to have the characteristics of an education level dominated by secondary education. The majority do not have access to savings and basic

infrastructure. Meanwhile, in the category of households with parents divorced to death, there are characteristics of various levels of education, from no education to higher education levels. In this category, households tend to have access to basic infrastructure compared to divorced households while living

Table 1. Descriptive Statistics of All the Samples

	Description	Not a Single Parents	Divorced while living	Divorced due to Death	Total
Obs		1.152.268 93.08%	20.444 1.65%	65.234 5.27%	1.237.946 100%
Gender					
Men	Dummy (0)	600.275	7.357	13.973	621.605
Women	Dummy (1)	551.993	13.087	51.621	616.341
Educational Level					
No Educated	(0)	165.854	1.074	9.678	176.606
Primary Education	(1)	246.489	5.500	20.065	272.054
Secondary Education	(2)	425.998	9.093	14.677	449.768
Higher Education	(3)	313.927	4.777	20.814	339.518
Type of Employment					
Formal Workers	Dummy (1)	206.934	6.477	7.654	221.065
Informal Workers	Dummy (0)	945.334	13.967	57.580	1.061.881
Ownership of Bank Accounts					
Yes	Dummy (1)	45.307	584	1.585	47.476
No	Dummy (0)	1.106.961	19.860	63.649	1.190.470
Acces of Water					
Yes	Dummy (1)	1.105.550	19.720	62.761	1.188.031
No	Dummy (0)	46.718	724	2.473	49.915
Acces of Proper Sanitation					
Yes	Dummy (1)	1.026.298	18.012	58.012	1.102.322
No	Dummy (0)	125.970	2.432	7.222	135.624
Ownership of Housing					
Yes	Dummy (1)	979.039	16.738	58.445	1.054.222
No	Dummy (0)	173.229	3.706	6.789	183.724

Source: SUSENAS (Processed Data), 2022

Furthermore, the results of the second descriptive statistical analysis more specifically analyzed the characteristics of single mother status. Based on Table 2, it can be seen that the number of samples is 616,341, then classified as not a single mother as many as 89.56 percent, divorced while living as much as 2.12 percent, and divorced due to death as much as 8.32 percent. Other characteristics can be known based on poverty level, stunted children, education level, type of work, ownership of savings, and access to basic infrastructure. Data shows that each category tends not to be below the poverty line but has a high prevalence of stunting as many as 12,901 children in

divorced while-living households and as many as 50,577 children in divorced households due to death. Other socio-economic characteristics tend to have differences between the categories of single mothers who divorced while living and divorced due to death. The level of education in divorced mothers while living tends to be dominated by secondary education. Meanwhile, mothers who divorced due to death tend to be dominated by higher education. Meanwhile, the ownership of savings and access to basic infrastructure showed data that varied between single mothers who divorced while living and those who divorced due to death.

Table 2. Descriptive Statistics of Single Mother’s Samples

	Description	Not a Single Mom	Divorced while living	Divorced due to Death	Total
Obs		551.993 89.56%	13.087 2.12%	51.261 8.32%	616.341 100%

	Description	Not a Single Mom	Divorced while living	Divorced due to Death	Total
Stunting					
Yes	Dummy (1)	536.432	12.901	50.577	599.910
No	Dummy (0)	15.561	186	684	16.431
Poverty Status					
No	(0)	507.905	12.323	48.776	569.004
Poverty	(1)	39.505	665	2.243	42.413
Extreme Poverty	(2)	4.583	99	242	4.924
Educational Level					
No Educated	(0)	81.447	756	8.144	90.347
Primary Education	(1)	118.088	3.455	15.461	137.004
Secondary Education	(2)	197.998	5.655	10.987	214.640
Higher Education	(3)	154.460	3.221	16.669	174.350
Type of Employment					
Formal Workers	Dummy (1)	64.102	3.953	5.279	73.344
Informal Workers	Dummy (0)	487.891	9.134	45.982	543.007
Ownership of Bank Accounts					
Yes	Dummy (1)	22.421	462	1.931	24.814
No	Dummy (0)	59.464	1.411	5.402	66.277
Acces of Water					
Yes	Dummy (1)	529.572	12.625	49.330	591.527
No	Dummy (0)	22.421	462	1.931	24.814
Acces of Proper Sanitation					
Yes	Dummy (1)	492.529	11.676	45.859	550.064
No	Dummy (0)	59.464	1.411	5.402	66.277
Ownership of Housing					
Yes	Dummy (1)	468.191	10.631	45.892	524.714
No	Dummy (0)	83.802	2.456	5.369	91.627

Source: SUSENAS (Processed Data), 2022

The results of this study show that the status of single mothers, both divorced, alive, and divorced, is influenced by various socio-economic factors, such as working in the formal sector, having savings, and access to basic infrastructure (Table 3). Mothers who work in the formal sector tend to be more economically independent and can decide on the level of welfare, especially related to unhealthy family relationships, so that can increase the chances of becoming a single mother, especially divorced while living. However, on the other hand, this independence can also increase the challenge of maintaining a balance between work and household responsibilities, which can trigger conflict or stress in relationships. However, women who work in the formal sector have a higher likelihood of access to labor welfare facilities, such as insurance or social support, which can help them survive after becoming single mothers (Waring & Meyer, 2020; Knoef & Ours, 2016).

In the context of divorce due to death, work can provide stable economic support to meet the needs of the family after losing a spouse, thus showing the importance of formal work in supporting women who are heads of households. Labor force participation may help women buffer the worst economic consequences of single motherhood, including the risk of poverty (Harkness, 2022; Nonoyama-Tarumi, 2017). Becoming a parent leads to a decrease in family income for all households, as mothers' earnings tend to drop while financial demands increase. For married women, income composition shifts with specialization, leading families to depend more on male earnings after the birth of children, which increases women's economic vulnerability in cases of divorce or separation (Gonalons-Pons et al., 2021; Endeweld et al., 2022; Kaplan & Herbs, 2015). However, divorce often results in higher earnings for mothers.

Table 3. Multinomial Logistic Estimation Results on Single Mother's Sample

Single Mother Status			
Not a Single Mother			
Independent Variables	Coefficient	z	Prob
(No)		Base Outcome	
Divorced while living			
Independent Variables	Coefficient	z	Prob
C	-3.685	-101.41	0.000
Educational Level	-0.003	-0.39	0.697
Type of Employment	1.201	59.22	0.000*
Ownership of Bank Account	-0.370	-7.25	0.000*
Ownership of Housing	-0.192	-8.44	0.000*
Acces of Proper Sanitation	-0.125	-4.34	0.000*
Acces of Water	-0.091	-1.91	0.056**
Divorced due to Death			
Independent Variables	Coefficient	z	Prob
C	-3.905	-103.52	0.000
Educational Level	-0.003	-0.39	0.697
Type of Employment	1.201	59.22	0.000*
Ownership of Bank Account	-0.370	-7.25	0.000*
Ownership of Housing	-0.192	-8.44	0.000*
Acces of Proper Sanitation	-0.125	-4.34	0.000*
Acces of Water	-0.091	-1.91	0.056**
Observation		616.341	
Prob > chi2		0.000	
Pseudo R2		0.0101	

Source: SUSENAS (Processed Data), 2022

Furthermore, good access to the economy, such as finance, home ownership, access to water, and proper sanitation, can improve the quality of life of households so that it hurts the possibility of divorce while living and divorce due date. In the context of divorce while living, good economic access, such as bank account ownership, home ownership, and access to clean water and proper sanitation, hurts the likelihood of divorce. This access reflects higher household economic stability, which can reduce financial stress, one of the main causes of household conflict. Owning a bank account allows for better financial management, reduces the risk of financial dependence on the partner, and provides security in the face of daily needs. Home ownership and access to basic needs can impact a sense of stability and protection that can reduce social and psychological pressures within the family. Combining these factors increases harmony in the household, ultimately lowering the likelihood of divorce as long as the couple is alive. Meanwhile, in the context of divorced due dates, good access to the economy and basic needs can increase happiness and life expectancy in each family member.

Based on the factors that can influence the decision to become a single mom, it can be further known that the single mother variable significantly affects the likelihood of the child becoming stunted. It means that the status of mothers as single mothers tends to increase the likelihood of children experiencing stunting. In line with previous research conducted by Laksono et al. (2022), maternal marital status was associated with stunting in this study. Children with married parents have a lower risk of stunting, while those with parents who are never married or divorced/widowed are at a higher risk. Family structure plays a crucial role in influencing children's health, including the likelihood of stunting. Research conducted by Ayllón and Ferreira-Batista (2015) indicates that children raised by single mothers tend to have lower height-for-age z-scores compared to those living with both parents. This can be attributed to the greater challenges faced by single mothers, such as limited time and resources to fulfill their children's nutritional needs. Being a single mother can impact the ability to provide balanced nutrition and ensure adequate access to healthcare, ultimately increasing the risk of stunting in children.

Table 4. Logistic Estimation Results on Single Mother's Sample

Stunting			
Independent Variables	Coefficient	z	Prob
C	-3.685	-101.41	0.000
Mother Status	0.389	20.15	0.000
Educational Level	0.215	27.81	0.000
Type of Employment	0.137	5.01	0.000
Ownership of Bank Account	-0.104	-2.61	0.009
Ownership of Housing	0.523	27.37	0.000
Acces of Proper Sanitation	-0.128	-4.84	0.000
Acces of Water	-0.004	-0.12	0.904

Source: SUSENAS (Processed Data), 2022

Single mothers, particularly those divorced while living or divorced due to death, significantly contribute to the prevalence of stunting among children. The findings emphasize that single mothers, whether divorced while living or divorced due to death, face disproportionate socioeconomic challenges compared to their married counterparts. Single mothers encounter multidimensional challenges, including limited access to education, healthcare, sanitation, and financial resources. These factors not only deteriorate children's nutritional status but also exacerbate long-term social and economic inequalities. Addressing stunting in single-mother households requires a multi-sectoral approach, focusing on enhancing women's social and economic conditions through improved access to education, employment opportunities, and essential infrastructure (Darling et al., 2020; Ruel et al., 2013).

Family structure and children's health outcomes are influenced by contextual factors such as maternal education levels and social environments. Improving maternal education emerges as a critical factor in enhancing child growth, as it is associated with better access to healthcare services such as antenatal care, skilled childbirth assistance, and health facilities (Burgard, 2016; Ganchimeg et al., 2014). These interventions are key determinants in reducing stunting, although their impact varies across countries (Leroy et al., 2015). Other maternal characteristics, such as shorter intervals between pregnancies, maternal height, parity, household socio-economic status, and sanitation conditions, also play substantial roles in mitigating stunting (Headey & Hoddinott, 2015; Choudhury et al., 2020). Empowering women, particularly in socio-economic domains, is essential in addressing stunting. However, empowerment without supportive cultural environments may limit its effectiveness. Cultural factors, including dietary restrictions and traditional beliefs, can impact pregnant women's nutritional intake, potentially leading to fetal malnutrition and increased stunting risk in children (Pelto et al., 2017).

The economic well-being of women in the labor market, particularly after becoming single

mothers, is a critical determinant of their ability to support their families. Unlike men, women face significant labor market penalties related to parenthood, which often leads to poverty among single mothers. Studies indicate that the absence of a male breadwinner remains a primary driver of low income for single mothers, with substantial implications for welfare policies (Crittenden, 2010). Policies that support female employment, such as job-protected family leave and childcare services, have been found to be more effective in reducing poverty and inequality than direct social transfers (Nieuwenhuis & Maldonado, 2018). These findings underscore the importance of creating policy frameworks that address the unique challenges faced by single mothers while promoting economic and social equity.

CONCLUSION

The results of this study show that the status of single mothers, both divorced alive and divorced, is influenced by various socio-economic factors, such as working in the formal sector, having savings, and access to basic infrastructure. Mothers who work in the formal sector tend to be more economically independent and can decide on the level of welfare, especially related to unhealthy family relationships, so that it can increase the chances of becoming a single mother, especially divorced while living. In the context of divorced due to death, work can provide stable economic support to meet the needs of the family after losing a spouse, thus showing the importance of formal work in supporting women who are heads of households. Furthermore, good access to the economy such as finance, home ownership, access to water, and proper sanitation can improve the quality of life of households so that it has a negative effect on the possibility of divorced while living and divorced due date.

Based on the factors that can influence the decision to become a single mom, it can be further known that the single mother variable has a significant effect on the likelihood of the child becoming stunted. This means that the status of mothers as single mothers tends to increase the likelihood of children experiencing stunting. Strategies that can be carried

out are to improve the social and economic aspects of women, such as increasing access to education, increasing access to work, and meeting basic infrastructure needs. Furthermore, to improve the quality of life of children in each household, debriefing related to nutrition can be carried out for mothers. Thus, problems related to the prevalence of stunting can be minimized, especially from single mothers.

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