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Determinants of Food Insecurity: The Role of Child Marriage and Socioeconomic Factors in Indonesia

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Abstract

This research aims to empirically analyze the impact of child marriage on household food insecurity using detailed microdata from Indonesia. Specifically, the study examines the relationship between age at marriage and various indicators of food insecurity, including food availability, access, and stability within households. Child marriage, defined as marriage before the age of 18, remains prevalent in many developing countries, including Indonesia. Early marriage often leads to early childbearing and increased dependency ratios, which can strain household resources and undermine food security. This study uses data from the 2022 National Socioeconomic Survey (SUSENAS), conducted by the Statistics Indonesia (BPS). The study classifies the research sample into three groups: (i) individuals who engaged in child marriage, (ii) women who engaged in child marriage, and (iii) men who engaged in child marriage. The results of the logit regression analysis show that child marriage is positively associated with household food insecurity. Moreover, the risk of food insecurity tends to be greater among men who marry as children compared to women in similar circumstances, even after controlling for socioeconomic factors. By providing empirical evidence on how child marriage contributes to household food insecurity, the findings of this study can inform targeted policies and interventions to address both child marriage and food insecurity, thereby promoting improved socioeconomic outcomes for affected households.

Keywords: Child marriage, Food insecurity, SUSENAS 2022, Indonesia.
JEL classification: A12, A13, O12

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1. INTRODUCTION

Child marriage, defined as marriage before the age of 18, remains a widespread problem in many developing countries, including Indonesia. Despite legal efforts to curb this practice, it persists due to socioeconomic, cultural, and educational factors. Law No. 16 of 2019, which amends Law No. 1 of 1974 on Marriage, establishes the minimum legal age for

marriage at 19 for both women and men. According to UNICEF (2023) and in Ayuandini et al., (2023) approximately one in nine women in Indonesia aged 20–24 was married before the age of 18, with two-thirds of these women becoming pregnant by that age. This has significant implications for their health, education, and economic opportunities.

Household food insecurity, characterized by limited or uncertain access to sufficient, safe, and nutritious food, also remains a pressing issue in Indonesia. According to Sjahrir and Wibisono (2021) in the World Bank Policy Note, the COVID-19 pandemic further exacerbated this problem. By May 2020, 37.7 percent of households reported eating less than usual in the previous week due to financial or resource constraints, up from 22 percent in 2019. The proportion of households experiencing food shortages due to insufficient resources also rose from 19 percent to 31.2 percent.

Child marriage disrupts education, economic opportunities, and social stability (Msuya, 2020), all of which are critical to household resilience and food security. This study examines the link between child marriage and household food insecurity in Indonesia, utilizing microdata for a more comprehensive analysis.

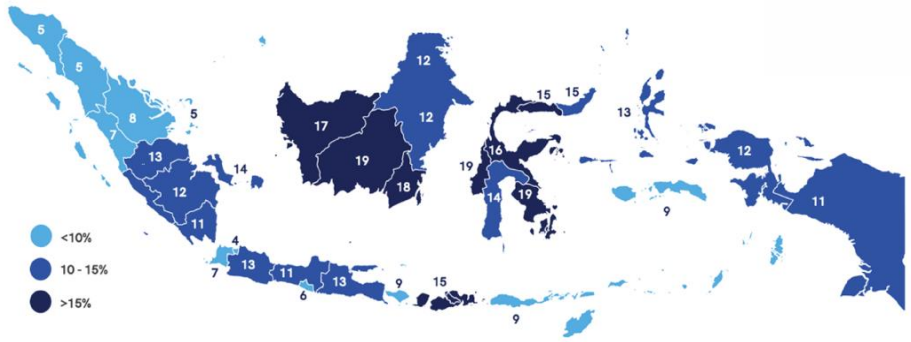

Figure 1. Geographical Spread of Child Marriage Prevalence Under Age 18
Source: UNICEF (2020)

The link between child marriage and food insecurity represents a critical yet understudied challenge in Indonesia. While the adverse effects of child marriage on education and health have been extensively documented (Aditya & Waddington, 2021; Cameron et al., 2023), its implications for food security remain less explored. Child marriage often leads to early childbearing and increased dependency ratios, which can strain household resources and undermine food security.

This research is framed within the theoretical perspectives of Human Capital Theory and Household Resource Allocation Theory. Human Capital Theory, as articulated by Becker (1964), posits that investments in education and health enhance individual productivity and economic outcomes. Child marriage disrupts these investments, reducing economic opportunities and increasing the risk of food insecurity. Household Resource Allocation Theory (Browning, 1998) emphasizes that intra-household decisions regarding resource distribution directly affect well-being. Child marriage can distort these dynamics by shifting

resources toward early childbearing and caregiving responsibilities, potentially exacerbating food insecurity. These theories provide a foundation for examining how child marriage influences household food security dynamics.

Previous studies have extensively examined the consequences of child marriage for educational attainment, health, and economic participation (Fan & Koski, 2022; Paul, 2020; Psaki et al., 2021). The evidence consistently indicates that child marriage restricts access to education and employment opportunities, resulting in unfavorable socio-economic outcomes. However, research specifically addressing the link between child marriage and household food insecurity remains limited. Studies by Kansiime et al. Kansiime et al. (2021) and Béné et al. (2021) show that disruptions to household economic stability significantly contribute to food insecurity, suggesting that child marriage, through its impact on economic stability, may also influence food security. In addition, Scott et al. (2021) find that early marriage is associated with adverse nutritional outcomes, further underscoring a possible connection to food insecurity that requires deeper investigation.

Most existing studies focus on the educational, health, and economic consequences of child marriage, with limited attention to its relationship with household food insecurity, particularly in the Indonesian context. Additionally, much of the existing research relies on macro-level or qualitative analyses that do not fully capture household-level dynamics (Martinez, 2021;Mohajan, 2022). Quantitative studies utilizing microdata are needed to better understand how child marriage affects food security, accounting for factors such as household composition, income, and regional variations.

This study addresses this gap by analyzing microdata to investigate how child marriage influences household food insecurity in Indonesia. Specifically, it examines the relationship between age at marriage and various indicators of food insecurity, including food availability, access, and stability within households. The findings of this research are expected to provide empirical evidence to inform policies and interventions aimed at addressing both child marriage and food insecurity, thereby improving socioeconomic outcomes for affected households.

2. METHODS

Child marriage, defined as a formal or informal union before the age of 18, remains a widespread practice, particularly in developing countries. This practice is deeply rooted in socioeconomic, cultural, and traditional norms that often regard early marriage as a strategy for economic stability, family honor, or protection against perceived social risk (Efevbera & Bhabha, 2020). It reflects entrenched gender inequalities, disproportionately affecting girls, who are often compelled to abandon education and assume domestic responsibilities prematurely (Fan & Koski, 2022; Paul, 2020). As a member of the United Nations, Indonesia has committed to the Sustainable Development Goals (SDGs), which include eliminating child marriage by 2030 as part of efforts to achieve gender equality and empower women and girls (Judiasih, 2020; UNICEF, 2021).

Child marriage has significant consequences for health, education, and economic opportunities, particularly for girls. It restricts personal development and exposes young

individuals to heightened risks of health complications, violence, and poverty (Fan & Koski, 2022). Although global efforts aim to reduce its prevalence, child marriage persists due to a combination of legal, economic, and cultural factors.

Educational attainment, a key determinant of human capital development, is significantly hindered by child marriage. Numerous studies have demonstrated that early marriage disrupts schooling, resulting in lower educational outcomes and limited skill acquisition (Soler-Hampejsek et al., 2021). According to the United Nations (2023), girls who marry before the age of 18 are less likely to complete secondary education, restricting their future economic independence and perpetuating cycles of poverty, as these young women are less equipped to secure stable employment and contribute to the economic development of their households and communities.

In addition, child marriage increases health risks for young brides. Early childbearing, commonly associated with child marriage, is linked to higher rates of maternal and infant mortality (United Nations, 2023). Complications from pregnancy and childbirth are among the leading causes of death for adolescent girls in developing countries (Nour, 2009). Young brides are also more vulnerable to gender-based violence and possess limited autonomy over reproductive decisions, with adverse consequences for both physical and mental health. In particular, such poor conditions not only affect the individuals directly involved but also pose broader socio-economic consequences, such as increased healthcare costs and reduced workforce participation.

The economic implications of child marriage are profound, affecting both individual economic participation and household income. Early marriage curtails women's ability to participate in the labor market, thereby limiting their economic contributions (Carpena & Jensenius, 2019) The International Center for Research on Women (International Center for Research on Women (ICRW), 2017) found that women who marry early are less likely to be employed and earn significantly less than those who marry later. This reduction in economic participation and earnings potential also affects household income, as families with child brides often face increased economic strain due to early childbearing and the inability of the young wives to contribute financially. Consequently, child marriage perpetuates poverty within households and communities, limiting overall economic growth and development.

Child marriage alters household dynamics in ways that can intensify food insecurity. The early onset of family responsibilities and childbearing increases household size without a proportional rise in economic resources, thereby straining food availability and access (Gambir et al., 2024). Households with young brides often experience greater food insecurity due to their limited economic contributions and higher dependency ratios resulting from early childbearing. Furthermore, child marriage can disrupt intra-household resource allocation, as young wives typically have less bargaining power in decisions related to food and nutrition. This imbalance can lead to inefficient distribution of food resources, further exacerbating food insecurity within these households.

The persistence of child marriage is reinforced by socio-cultural norms that present challenges for policy intervention (Baraie et al., 2023). Traditional beliefs often regard early marriage as a means to achieve economic security or preserve family honor. Addressing child

marriage requires comprehensive strategies that confront these underlying norms while promoting access to education and economic opportunities for girls. Programs focusing on awareness-raising, improving access to education, and providing economic incentives to delay marriage have shown promise (UNICEF, 2021). Legal frameworks and enforcement mechanisms are also essential to protect girls' rights and ensure their access to education and economic opportunities.

Household food insecurity refers to the inability to secure adequate food due to insufficient financial or other resources. It encompasses a range of experiences, from anxiety about food supply to hunger and malnutrition (FAO et al., 2023). Food insecurity is multifaceted, involving not only food quantity but also quality and the social acceptability of food acquisition practices. According to Ashby et al. (Ashby et al., 2016) identify three core dimensions of food insecurity: availability (adequate food supply), access (affordable, appropriate food), and utilization (proper dietary intake). These dimensions reflect the complex socioeconomic and environmental factors that influence a household's ability to maintain consistent, nutritious, and culturally acceptable food consumption.

Various factors contribute to food insecurity, including economic conditions such as poverty and unemployment, which directly reduce household purchasing power (Enakhe & Tamuno, 2021). Social factors, such as education, household composition, and social capital, also play a role. Households with lower educational attainment or single-parent households face higher risks of food insecurity (Kara & Kithu, 2020). These systemic factors highlight the need for integrated policies to address the root causes of food insecurity.

Household food insecurity has serious health and socioeconomic consequences. It is linked to malnutrition, obesity, and chronic illnesses such as diabetes and hypertension (Mosadeghrad et al., 2019). Malnutrition arises due to the consumption of inadequate or low-quality food, leading to deficiencies in essential nutrients. Food-insecure households often resort to consuming low-quality, calorie-dense foods, contributing to both undernutrition and obesity. Moreover, food insecurity adversely affects mental health, increasing the prevalence of stress, anxiety, and depression due to the uncertainty and stigma associated with food scarcity (Pourmotabbed et al., 2020). The health impacts of food insecurity create a vicious cycle, as poor health further exacerbates financial constraints and reduces the ability to achieve food security.

The impacts of food insecurity extend beyond immediate health concerns to significantly impact children's development and educational outcomes. Children from food-insecure households are at greater risk of experiencing developmental delays, poor academic performance, and emotional difficulties (Gallegos et al., 2021; Shankar et al., 2017). Nutritional deficiencies during critical growth periods can impair cognitive development and hinder learning abilities, resulting in lower academic achievement and reduced school attendance. Food insecurity also affects children's social interactions and emotional well-being, contributing to higher rates of absenteeism, attention problems, and social withdrawal. These developmental and educational setbacks have long-term consequences, limiting future economic opportunities and perpetuating cycles of poverty and food insecurity across generations. Therefore, addressing household food insecurity is not only crucial for

safeguarding health but also for supporting children's overall well-being and long-term socio-economic prospects.

The socio-economic implications of household food insecurity extend beyond individual health to broader societal challenges. Food insecurity undermines economic stability by driving up healthcare costs, reducing labor productivity, and constraining economic development. Individuals from food-insecure households are more likely to experience illness and disability, resulting in higher healthcare expenditures (Berkowitz et al., 2018) and income loss due to reduced work capacity or absenteeism. These conditions ultimately weaken overall economic productivity and growth. In addition, food insecurity reinforces social inequality, disproportionately affecting marginalized and vulnerable groups (Berry, 2020) and contributing to persistent disparities in health, education, and economic outcomes. Addressing food insecurity is therefore essential not only for improving individual and household welfare but also for fostering inclusive and sustainable socio-economic development.

This study uses data from the 2022 National Socioeconomic Survey (SUSENAS), conducted annually by the Statistics Indonesia (BPS). SUSENAS collects individual-level data on demographic, educational, social, and economic indicators and serves as a key source for monitoring socioeconomic dynamics in Indonesia. The dataset comprises 1,233,933 individuals nationwide. The study classifies the sample into three groups: (i) individuals who engaged in child marriage (130,098 individuals), (ii) women who engaged in child marriage (112,470 individuals), and (iii) men who engaged in child marriage (17,628 individuals).

A logit regression model is employed to analyze the relationship between child marriage and household food insecurity using this detailed microdata. The model is suitable for examining the probability of food insecurity based on various individual and household characteristics, given its ability to capture non-linear relationships, its minimal distributional assumptions, and its flexibility in incorporating multiple independent variables (Amalina et al., 2023; Gujarati, 2003).

$$Log\left(\frac{P(Y=1)}{1-P(Y=1)}\right) = \beta_0 + \beta_1\, ChildMarriage_i + \beta_2 Education_i + \beta_3 Employment_i + \beta_4 Savings_i + \beta_5 Internet_i + e \quad (1)$$

The dependent variable is a binary indicator, coded as 1 if an individual resides in a food insecure household and 0 otherwise. The main independent variable is a binary indicator for child marriage, coded as 1 for individuals who married before the legal age and 0 for those who married at or above the legal age. Control variables include individual and household characteristics such as gender, education level, employment type, savings ownership, and internet use. Gender is coded as 1 for females and 0 for males. Education level is categorized as primary (no schooling or elementary education), secondary (junior or senior high school), and higher (diploma, undergraduate, or higher education). Employment type is coded as formal (1) for individuals working in regulated sectors and informal (0) for those in unregulated sectors. Savings ownership is a binary variable, with 1 indicating formal savings

and 0 otherwise. Internet use is coded as 1 for individuals who used the internet in the past three months and 0 otherwise.

Detailed definitions of variables and descriptive statistics for the study sample are presented in Table 1.

Table 1. Operational Variables

Variable Name	Type	Scale	Measurement
Food Insecurity	**Dependent Variables**	Food Insecurity	(1)
		Food Security	(0)
Child Marriage	**Independent Variables**	Child Marriage	(1)
		Marry at a Sufficient Age	(0)
Educational Level		Primary Education	(1)
		Secondary Education	(2)
		Higher Education	(3)
Type of Employment		Formal Workers	(1)
		Informal Workers	(0)
Ownership of Savings Accounts		Yes	(1)
		No	(0)
Internet Usage		Yes	(1)
		No	(0)

3. RESULTS AND DISCUSSIONS

Child marriage remains a significant social problem with implications for household food insecurity. Based on the descriptive statistics presented in Table 1, the prevalence of child marriage in Indonesia remains high, with 130,098 individuals in the sample classified as having engaged in child marriage. These individuals are generally characterized by low educational attainment, concentrated at the primary education level, and employment in the informal sector. Additionally, many lack access to financial services and technological resources, as indicated by low rates of savings account ownership and internet use. Access to financial services and technology, including the Internet, plays an increasingly important role in enhancing individual well-being through improved access to information and economic opportunities(Heponiemi et al., 2020; Ma et al., 2020).

Table 2. Descriptive Statistics of the Samples

	Description	Child Marriage	Non-Child Marriage	Total
Obs		130,098	1,093,835	1,223,933
		10,63%	89,37%	100%
Gender				
Men	Dummy (0)	17,628	596,845	614,473
Women	Dummy (1)	112,470	496,990	609,460

Table 2. (continued)

	Description	Child Marriage	Non-Child Marriage	Total
Educational Level				
Primary Education	(1)	60,883	382,066	442,949
Secondary Education	(2)	39,668	405,438	445,106
Higher Education	(3)	29,547	306,331	335,878
Type of Employment				
Formal Workers	Dummy (1)	25,810	270,786	296,596
Informal Workers	Dummy (0)	104,282	823,049	927,337
Ownership of Savings Accounts				
Yes	Dummy (1)	41,444	369,133	410,557
No	Dummy (0)	88,654	724,702	813,356
Internet Usage				
Yes	Dummy (1)	47,448	640,973	688,421
No	Dummy (0)	82,650	452,862	535,512

Source: SUSENAS (Processed Data), 2022

Based on the characteristics of individuals who engage in child marriage, as presented in Table 2, along with the logistic regression estimation results for the full sample, it is evident that child marriage significantly increases the risk of household food insecurity. Individuals who marry before reaching the legal age are more likely to experience food insecurity compared to those who marry at an appropriate age, in accordance with government regulations. This finding is consistent with previous research highlighting that child marriage adversely affects individual welfare by increasing vulnerability to poverty and food insecurity (Bartels et al., 2021; Olarewaju, 2021). Moreover, child marriage has been linked to heightened risks of reproductive health complications and maternal mortality (Nguyen & Wodon, 2014; Nove et al., 2014). It also elevates the risk of contracting sexually transmitted infections, including HIV/AIDS, as well as cervical cancer (Pourtaheri et al., 2023).

Beyond child marriage, individuals with certain socio-economic characteristics are generally more susceptible to food insecurity. These characteristics include (i) low educational attainment, (ii) employment in the informal sector, (iii) lack of access to financial services, as indicated by the absence of formal bank account ownership, and (iv) limited internet access. Individuals with lower levels of education are significantly more likely to experience food insecurity than those with secondary or higher education (Adams et al., 2020; Kent et al., 2020; Polsky & Garriguet, 2022). Limited educational attainment restricts skill development, reducing individuals' competitiveness in the labor market. As a result,

individuals with low education levels are more likely to engage in informal sector employment and depend heavily on natural resources for their livelihoods.

Access to financial services, along with advancements in technology, information, and communication, plays a critical role in reducing food insecurity. Individuals with limited access to financial services face higher food insecurity risks due to constrained capital, restricted income-generating opportunities, and reduced access to nutritious food (Penne & Goedemé, 2020; Sisha, 2020). Likewise, technological development and access to information and communication channels enhance food security by improving access to knowledge, expanding food networks, and facilitating resource distribution. Consequently, individuals with poor internet access or limited technological exposure are more vulnerable to food insecurity. These findings are in line with previous research demonstrating the role of technology in improving food security outcomes (Brander et al., 2021; Hasegawa et al., 2021; Kousar et al., 2021).

Table 3. Logistic Estimation Results on All Samples

	Food Insecurity		
Independent Variables	**Coefficient**	**z**	**Prob**
C	-0.8941976	-94.46	0.000
Child Marriage	0.0233062	2.73	0.006
Educational Level	-0.030016	-6.63	0.000
Type of Employment (Formal or Informal)	-0.0691383	-9.76	0.000
Ownership of Savings Accounts	-0.3325153	-45.73	0.000
Internet Usage	-0.4557176	-64.46	0.000
Prob > chi2		**0.000**	
Pseudo R2		**0.0183**	

Source: SUSENAS (Processed Data), 2022

The regression results presented in Table 3 indicate that men who marry as children exhibit a higher likelihood of experiencing food insecurity compared to women in similar circumstances. The coefficient for the child marriage variable is larger for men, suggesting that early marriage disproportionately increases food insecurity risk among men. One plausible explanation is the traditional expectation for men to serve as primary income earners within households. Early marriage may curtail their educational attainment and skill development, limiting their ability to secure stable employment and adequately provide for household needs. These findings contrast with much of the existing literature, which emphasizes the negative consequences of child marriage primarily for women, such as heightened exposure to intimate partner violence and reduced access to education and economic opportunities (Fan & Koski, 2022; Nguyen & Wodon, 2014; Pourtaheri et al., 2023). Despite these gender-specific findings, the characteristics of men and women experiencing food insecurity show substantial similarities. Individuals facing food insecurity, regardless of gender, tend to (i) have low educational attainment, (ii) work in the informal sector, (iii) lack access to financial services, and (iv) have limited internet use. These shared

characteristics highlight the importance of promoting education and enhancing access to financial and technological resources for both men and women. Improving these factors can strengthen individuals' labor market competitiveness, increase access to nutritious food, and reduce vulnerability to food insecurity.

Table 4. Logistic Estimation Results Based on Gender

	Food Insecurity for Women			Food Insecurity for Men		
Independent Variables	**Coefficient**	**z**	**Prob**	**Coefficient**	**z**	**Prob**
C	-0.9443667	-70.16	0.000	-0.8480266	-62.55	0.000
Child Marriage	0.0367461	3.63	0.000	0.1115267	5.77	0.000
Educational Level	-0.0358681	-5.58	0.000	-0.020298	-3.17	0.002
Type of Employment (Formal or Informal)	-0.1118798	-9.02	0.000	-0.0871023	-9.21	0.000
Ownership of Savings Accounts	-0.1592485	-15.55	0.000	-0.5075442	-49.02	0.000
Internet Usage	-0.508637	-51.29	0.000	-0.3776446	-37.38	0.000
Prob > chi2			**0.000**			
Pseudo R2			**0.0233**			

Source: SUSENAS (Processed Data), 2022

The relationship between child marriage and food insecurity underscores the broader socioeconomic consequences of early marriage. Food insecurity contributes to inadequate nutrition, which in turn affects child growth and development and exacerbates high stunting rates. Efforts to address child marriage and its socioeconomic impacts require coordinated action from various stakeholders, targeting both the internal and external dimensions of individual resilience. Internally, improving educational attainment is crucial. Externally, expanding access to labor markets, financial services, and technology can enhance individuals' socioeconomic standing and reduce food insecurity.

Promoting higher education is a fundamental strategy to reduce child marriage rates and mitigate its adverse effects. Educational interventions should encompass both formal education, which provides foundational knowledge, and informal education, which enhances practical skills and competencies. Individuals with higher educational attainment are more likely to secure stable employment, achieve higher income levels, and access adequate nutrition. Education also increases awareness of the risks associated with child marriage and the importance of delaying marriage to improve long-term welfare outcomes.

In addition to education, expanding access to financial services and promoting technological literacy are essential for reducing the socioeconomic consequences of child marriage. Access to financial services can enable individuals to engage in income-generating activities and improve household food security. Similarly, access to information and communication technologies can enhance knowledge and awareness, particularly regarding the importance of nutritious food. Policymakers, particularly at the national and local government levels, must prioritize human capital development while ensuring equitable access to financial services and technology. Such integrated approaches can help reduce child

marriage rates, mitigate food insecurity, and promote sustainable socioeconomic development.

While this study provides valuable empirical evidence on the relationship between child marriage and household food insecurity in Indonesia, it is important to acknowledge certain limitations related to its population scope. The findings are based on data from the 2022 National Socioeconomic Survey (SUSENAS), which, although extensive, primarily captures conditions within Indonesia. As such, the results may not be directly generalizable to other countries or cultural contexts where the determinants and implications of child marriage and food insecurity may differ due to distinct social norms, economic structures, and policy environments. Furthermore, while the study highlights important gender differences within the Indonesian context, it does not explore intersectional factors such as ethnicity or regional disparities in depth, which could further nuance the understanding of how child marriage affects household food security. Future studies could expand by comparing diverse settings or by focusing on subnational populations to enrich insights into these dynamics.

4. CONCLUSIONS

Child marriage remains a critical issue in Indonesia, contributing to heightened risks of household food insecurity. The findings of this study confirm a positive association between child marriage and the likelihood of experiencing food insecurity. Individuals who marry before reaching the legal age face a greater probability of food-insecure conditions compared to those who marry at an appropriate age. In addition to child marriage, factors such as (i) low educational attainment, (ii) employment in the informal sector, (iii) limited access to financial services, and (iv) poor internet access also increase vulnerability to food insecurity.

The results further reveal that men who marry as children face a higher risk of food insecurity compared to women in similar circumstances. Nonetheless, the characteristics of individuals experiencing food insecurity are largely consistent across genders, highlighting the importance of comprehensive interventions that target both men and women. Improving access to education is essential to reducing both child marriage and food insecurity. Higher educational attainment enhances individuals' ability to compete in the labor market, secure formal employment, and achieve economic stability. Moreover, access to financial services and digital technology plays a vital role in strengthening household resilience. Utilizing financial resources and technology can expand access to nutritious food and reduce the risk of food insecurity.

Food insecurity not only affects household well-being but also has long-term implications for child growth and development, particularly through its contribution to high stunting rates. Addressing these interconnected challenges requires coordinated efforts among stakeholders to strengthen both internal and external capacities, particularly in rural and urban communities. Internally, initiatives should focus on expanding access to education. Externally, policies must promote job market opportunities, improve access to financial services, and support the use of technology and internet connectivity. Such

integrated approaches are essential for improving overall welfare and reducing food insecurity risks.

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6. REFERENCES

Adams, E. L., Caccavale, L. J., Smith, D., & Bean, M. K. (2020). Food Insecurity, the Home Food Environment, and Parent Feeding Practices in the Era of COVID-19. *Obesity*, *28*(11), 2056–2063. https://doi.org/10.1002/oby.22996

Aditya, R. I., & Waddington, L. (2021). The Legal Protection Against Child Marriage in Indonesia. *Bestuur*, *9*(2), 126–134. https://doi.org/10.20961/bestuur.v9i2.55144

Amalina, D., Pratomo, D., & Pangestuty, F. (2023). The role of working mothers and mothers' education in children's education during the COVID-19 pandemic in Indonesia. *International Journal of Adolescence and Youth*, *28*. https://doi.org/10.1080/02673843.2023.2242464

Ashby, S., Kleve, S., McKechnie, R., & Palermo, C. (2016). Measurement of the dimensions of food insecurity in developed countries: A systematic literature review. In *Public Health Nutrition* (Vol. 19, Issue 16, pp. 2887–2896). Cambridge University Press. https://doi.org/10.1017/S1368980016001166

Ayuandini, S., Habito, M., Ellis, S., Kennedy, E., Akiyama, M., Binder, G., Nanwani, S., Sitanggang, M., Budiono, N., Ramly, A. A., Humphries-Waa, K., Azzopardi, P. S., & Hennegan, J. (2023). Contemporary pathways to adolescent pregnancy in Indonesia: A qualitative investigation with adolescent girls in West Java and Central Sulawesi. *PLOS Global Public Health*, *3*(10), e0001700-. https://doi.org/10.1371/journal.pgph.0001700

Baraie, B., Rezaei, M., Nadrian, H., & Matlabi, H. (2023). What Socio-Cultural Factors Encourage Child Marriage in Sanandaj, Iran? A Qualitative Study. *Child & Youth Services*, *45*. https://doi.org/10.1080/0145935X.2023.2167708

Bartels, S. A., Michael, S., & Bunting, A. (2021). Child Marriage among Syrian Refugees in Lebanon: At the Gendered Intersection of Poverty, Immigration, and Safety. *Journal of Immigrant and Refugee Studies*, *19*(4), 472–487. https://doi.org/10.1080/15562948.2020.1839619

Becker, G. S. (1964). *Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education*. University of Chicago Press.

Béné, C., Bakker, D., Chavarro, M. J., Even, B., Melo, J., & Sonneveld, A. (2021). Global assessment of the impacts of COVID-19 on food security. *Global Food Security*, *31*, 100575. https://doi.org/https://doi.org/10.1016/j.gfs.2021.100575

Berkowitz, S. A., Seligman, H. K., Meigs, J. B., & Basu, S. (2018). Food Insecurity, Healthcare Utilization, and High Cost: A Longitudinal Cohort Study HHS Public Access. In *Am J Manag Care* (Vol. 24, Issue 9).

Berry, E. M. (2020). Food Insecurity, Social Inequity, and Sustainability. *World Review of Nutrition and Dietetics*, *121*, 95–104. https://doi.org/10.1159/000507489

Brander, M., Bernauer, T., & Huss, M. (2021). Improved on-farm storage reduces seasonal food insecurity of smallholder farmer households – Evidence from a randomized control trial in Tanzania. *Food Policy*, *98*. https://doi.org/10.1016/j.foodpol.2020.101891

Browning, M. (1998). Efficient Intra-Household Allocations: A General Characterization and Empirical Tests. *Econometrica*, *66*, 1241–1278. https://doi.org/10.2307/2999616

Cameron, L., Contreras Suarez, D., & Wieczkiewicz, S. (2023). Child marriage: using the Indonesian family life survey to examine the lives of women and men who married at an early age. *Review of Economics of the Household*, *21*(3), 725–756. https://doi.org/10.1007/s11150-022-09616-8

Carpena, F., & Jensenius, F. (2019). Age of Marriage and Women's Political Engagement: Evidence from India. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.3383080

Efevbera, Y., & Bhabha, J. (2020). Defining and deconstructing girl child marriage and applications to global public health. In *BMC Public Health* (Vol. 20, Issue 1). BioMed Central Ltd. https://doi.org/10.1186/s12889-020-09545-0

Enakhe, O. B., & Tamuno, S. (2021). Poverty, Unemployment and Food Insecurity: Empirical Evidence from Nigeria. *Asian Journal of Economics, Business and Accounting*, 107–123. https://doi.org/10.9734/ajeba/2021/v21i630395

Fan, S., & Koski, A. (2022a). The health consequences of child marriage: a systematic review of the evidence. *BMC Public Health*, *22*(1). https://doi.org/10.1186/s12889-022-12707-x

Fan, S., & Koski, A. (2022b). The health consequences of child marriage: a systematic review of the evidence. *BMC Public Health*, *22*(1), 309. https://doi.org/10.1186/s12889-022-12707-x

FAO, OFAD, UNICEF, WFP, & WHO. (2023). The State of Food Security and Nutrition in the World 2023. In *The State of Food Security and Nutrition in the World 2023*. FAO; IFAD; UNICEF; WFP; WHO. https://doi.org/10.4060/cc3017en

Gallegos, D., Eivers, A., Sondergeld, P., & Pattinson, C. (2021). Food insecurity and child development: A state-of-the-art review. In *International Journal of Environmental Research and Public Health* (Vol. 18, Issue 17). MDPI. https://doi.org/10.3390/ijerph18178990

Gambir, K., Matsika, A. B., Panagiotou, A., Snowden, E., Lofthouse, C., & Metzler, J. (2024). Associations between child marriage and food insecurity in Zimbabwe: a participatory mixed methods study. *BMC Public Health*, *24*(1). https://doi.org/10.1186/s12889-023-17408-7

Gujarati, D. N. (2003). *Basic Econometrics* (4th ed.). McGraw-Hill Higher Education. www.mhhe.com

Hasegawa, T., Sakurai, G., Fujimori, S., Takahashi, K., Hijioka, Y., & Masui, T. (2021). Extreme climate events increase risk of global food insecurity and adaptation needs. *Nature Food*, *2*(8), 587–595. https://doi.org/10.1038/s43016-021-00335-4

Heponiemi, T., Jormanainen, V., Leemann, L., Manderbacka, K., Aalto, A.-M., & Hyppönen, H. (2020). Digital Divide in Perceived Benefits of Online Health Care and Social Welfare Services: National Cross-Sectional Survey Study. *Journal of Medical Internet Research*, *22*(7). https://doi.org/https://doi.org/10.2196/17616

International Center for Research on Women (ICRW). (2017). *The economic impacts of child marriage: Global synthesis brief*. https://www.icrw.org/wp-content/uploads/2018/02/ICRW_Brief_GlobalSynthesis.pdf

Judiasih, S. D. (2020). Kontradiksi antara dispensasi kawin dengan upaya meminimalisir perkawinan bawah umur di indonesia. *Jurnal Ilmu Hukum Kenotariatan Fakultas Hukum Unpad*, *3*.

Kansiime, M. K., Tambo, J. A., Mugambi, I., Bundi, M., Kara, A., & Owuor, C. (2021). COVID-19 implications on household income and food security in Kenya and Uganda: Findings from a rapid assessment. *World Development*, *137*. https://doi.org/10.1016/j.worlddev.2020.105199

Kara, A. M., & Kithu, L. (2020). Education attainment of head of household and household food security: A case for Yatta sub-county, Kenya. *American Journal of Educational Research*, *8*(8), 558–566. https://doi.org/10.12691/education-8-8-7

Kent, K., Murray, S., Penrose, B., Auckland, S., Visentin, D., Godrich, S., & Lester, E. (2020). Prevalence and socio-demographic predictors of food insecurity in Australia during the COVID-19 pandemic. *Nutrients*, *12*(9), 1–20. https://doi.org/10.3390/nu12092682

Kousar, S., Ahmed, F., Pervaiz, A., & Bojnec, Š. (2021). Food insecurity, population growth, urbanization and water availability: The role of government stability. *Sustainability (Switzerland)*, *13*(22). https://doi.org/10.3390/su132212336

Ma, W., Nie, P., Zhang, P., & Renwick, A. (2020). Impact of Internet use on economic well-being of rural households: Evidence from China. *Review of Development Economics*, *24*, 503–523. https://doi.org/10.1111/rode.12645

Martinez, E. (2021). Food Insecurity Amid the COVID-19 Lockdowns in Nigeria: Do Impacts on Food Insecurity Persist After Lockdowns End? *Current Developments in Nutrition*, *5*, 235. https://doi.org/10.1093/cdn/nzab029_036

Mohajan, H. (2022). Food Insecurity and Malnutrition of Africa: A Combined Attempt Can Reduce Them. *Journal of Economic Development, Environment and People*, *11*, 2022. https://doi.org/10.26458/jedep.v1i1.716

Mosadeghrad, A. M., Gebru, A. A., Sari, A. A., & Tafesse, T. B. (2019). Impact of food insecurity and malnutrition on the burden of Non-communicable diseases and death in Ethiopia: A situational analysis. *Human Antibodies*, *27*(4), 213–220. https://doi.org/10.3233/HAB-190369

Msuya, N. H. (2020). Child marriage: An obstacle to socio-economic development in sub-Saharan Africa. *Journal for Juridical Science*, *45*(2). https://doi.org/10.18820/24150517/jjs45.i2.2

Nguyen, M. C., & Wodon, Q. (2014). *Impact of child marriage on literacy and education attainment in Africa*. http://allinschool.org/wp-content/uploads/2015/02/ OOSC-2014-QW-Child-Marriage-final.pdf

Nour, N. (2009). Child Marriage: A Silent Health and Human Rights Issue. *Reviews in Obstetrics and Gynecology*, *2*, 51–56.

Nove, A., Matthews, Z., Neal, S., & Camacho, A. V. (2014). Maternal mortality in adolescents compared with women of other ages: evidence from 144 countries. *The Lancet Global Health*, *2*(3), e155–e164. https://doi.org/10.1016/S2214-109X(13)70179-7

Olarewaju, O. (2021). Insecurity in northern Nigeria: Implications for maternal and child health. *Clinical Epidemiology and Global Health*, *12*, 100869. https://doi.org/10.1016/j.cegh.2021.100869

Paul, P. (2020). Child marriage among girls in India: Prevalence, trends and socio-economic correlates. *Indian Journal of Human Development*, *14*(2), 304–319. https://doi.org/10.1177/0973703020950263

Penne, T., & Goedemé, T. (2020). Can low-income households afford a healthy diet? Insufficient income as a driver of food insecurity in Europe. *Food Policy*, *99*. https://doi.org/10.1016/j.foodpol.2020.101978

Polsky, J., & Garriguet, D. (2022). Household food insecurity in Canada early in the COVID-19 pandemic. *Health Reports*, *33*, 15–26. https://doi.org/10.25318/82-003-x202200200002-eng

Pourmotabbed, A., Moradi, S., Babaei, A., Ghavami, A., Mohammadi, H., Jalili, C., Symonds, M. E., & Miraghajani, M. (2020). Food insecurity and mental health: A systematic review and meta-analysis. In *Public Health Nutrition* (Vol. 23, Issue 10, pp. 1778–1790). Cambridge University Press. https://doi.org/10.1017/S136898001900435X

Pourtaheri, A., Sany, S. B. T., Aghaee, M. A., Ahangari, H., & Peyman, N. (2023). Prevalence and factors associated with child marriage, a systematic review. *BMC Women's Health*, *23*(1), 531. https://doi.org/10.1186/s12905-023-02634-3

Psaki, S. R., Melnikas, A. J., Haque, E., Saul, G., Misunas, C., Patel, S. K., Ngo, T., & Amin, S. (2021). What are the drivers of child marriage? A conceptual framework to guide policies and programs. *Journal of Adolescent Health*, *69*(6), S13–S22. https://doi.org/10.1016/j.jadohealth.2021.09.001

Scott, S., Nguyen, P. H., Neupane, S., Pramanik, P., Nanda, P., Bhutta, Z. A., Afsana, K., & Menon, P. (2021). Early marriage and early childbearing in South Asia: trends, inequalities, and drivers from 2005 to 2018. *Annals of the New York Academy of Sciences*, *1491*(1), 60–73. https://doi.org/https://doi.org/10.1111/nyas.14531

Shankar, P., Chung, R., & Frank, D. (2017). Association of food insecurity with children's behavioral, emotional, and academic outcomes: A systematic review. *Journal of Developmental and Behavioral Pediatrics : JDBP*, *38*. https://doi.org/10.1097/DBP.0000000000000383

Sisha, T. A. (2020). Household level food insecurity assessment: Evidence from panel data, Ethiopia. *Scientific African*, *7*. https://doi.org/10.1016/j.sciaf.2019.e00262

Sjahrir, B. S., & Wibisono, I. D. (2021). *Food insecurity in Indonesia during the COVID-19 pandemic: What do we learn from the high-frequency monitoring of households?* https://documents1.worldbank.org/curated/en/099815001042352934/pdf/P17567408b656a0a00afcd0d1f3912dad66.pdf

Soler-Hampejsek, E., Kangwana, B., Austrian, K., Amin, S., & Psaki, S. (2021). Education, child marriage, and work outcomes among young people in rural Malawi. *Journal of Adolescent Health*, *69*, S57–S64. https://doi.org/10.1016/j.jadohealth.2021.09.011

UNICEF. (2020). *Child Marriage in Indonesia*. UNICEF. https://www.unicef.org/indonesia/reports/child-marriage-in-indonesia

UNICEF. (2021). *Towards ending child marriage: Global trends and profiles of progress*.

UNICEF. (2023). *Understanding pathways to adolescent pregnancy in South East Asia: Findings from Indonesia*. UNFPA Asia Pacific Regional Office and UNICEF East Asia and Pacific Regional Office. https://www.unicef.org/eap/media/14161/file/UNICEF.pdf

United Nations. (2023). *The cost of child marriage over the life cycle of girls and women Evidence from Egypt, Iraq, Jordan and Tunisia. ESCWA, United Nations House. Lebanon*. https://www.unicef.org/mena/media/23986/file/The%20cost%20of%20child%20marriage%20over%20the%20life%20cycle%20of%20girls%20and%20women.pdf.