Determinant Analysis and Policy Recommendations for Stunting Prevention in West Sulawesi Province

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ABSTRACT

The aim of this research is to analyze root causes and policy recommendations of stunting in West Sulawesi. Stunting is growth failure in children due to inadequate nutrition. Until 2022, West Sulawesi still holds the second highest stunting prevalence rate in Indonesia at 35%. The high rate of stunting becomes a reason to find solutions towards this problem. This research used qualitative research with classification analysis to determine formal problems and used the non-dominated alternative method with effective, efficient and responsiveness criteria to determine policy alternatives. Data sources are secondary data obtained from journals, reports, local government documents and various online information related to the research topic. The results found the high stunting in West Sulawesi caused by various factors including health, economy, education and culture. It was found that cultural factors such as early marriage, contribute to the high stunting prevalence in West Sulawesi. Policy recommendations chosen are microfinance and training programs to increase the income of adolescent girls. This policy aimed at adolescent girls who are vulnerable to early marriage. The hope is through this policy, adolescents are well-informed about the negative impacts of early marriage and by doing so, they would be able to increase their income.

Keywords: Stunting; non-dominated alternative; classification; child marriage

INTRODUCTION

Stunting refers to conditions where children’s height by age is more than two standard deviations below the World Health Organization (WHO) standard median for child growth (Syafrawati et al., 2023). Stunting becomes priority for Indonesian government, seen through President Regulation of the Republic of Indonesia Number 72 of 2021 concerning Acceleration Reduction of Stunting. Growth failure causes disruption of toddler linear growth due to insufficient nutrition and lasts longer, i.e. first 1000 birth days (HPK) or from fetus to two years old (Nurbaya, Irwan, & Najdah, 2022). Stunting caused by factors such as malnutrition, repeated infections, and inadequate psychosocial stimulation (Syafrawati et al., 2023). Stunting can affect long-term health and personal performance including reduced intelligence, productivity loss and decreased wage employment which could impact Indonesia's economic growth, due to annual losses in gross domestic product (GDP) (Bappenas, 2018).

Indonesia’s government prioritizes this problem through a multi-sectoral approach and integrated data system (Candarmaweni & Yayuk Sri Rahayu, 2020). Government focuses on
implementing the eight integrated action programs to reduce stunting, which include situation analysis, activity plans, stunting meetings, Regent/Mayor Regulations regarding the Village Role, KPM coaching, data management systems, stunting measurement and publication, and annual work reviews (Bappenas, 2019). Stunting prevention policies implemented are top-down, so bottom-up integrative policies need to be implemented to make people understand their role in resolving stunting issues. In 2022, the stunting prevalence of West Sulawesi province was 35% (Kementerian Kesehatan RI, 2022) and ranked second highest in Indonesia. Many factors contribute to stunting prevalence in West Sulawesi, ranging from lack of education to high child marriage rates (TVRI Sulbar, 2023).

According to Government Agency Performance Accountability Report (LKJIP) of West Sulawesi Provincial Health Office in 2022, stunting becomes one of major problems faced by the Provincial Health Office (Dinkes Sulbar, 2023a). To overcome this problem, several programs already run by West Sulawesi Health Office such as intervention directly to community by distributing vitamins, blood enhancement tablets, counseling and socialization to pregnant women. Health Office works with BKKBN and Regional Office of Kemenag Sulbar in educating the community about marriage. Government, in this case the PJ Governor, also provided stimulant packages of rice and eggs to several residents, especially mothers and children who were threatened with stunting (TVRI Sulbar, 2023). According to data from the West Sulawesi Health Office, the stunting prevalence in West Sulawesi has decreased, although not significantly. In 2018, the stunting prevalence was 41.6% and decreased in 2022 by 35%, in 4 years there was only a decrease of 6.6%. This rate increased about 1.2% in 2022. Among seven districts, Majene district ranked first with 40.6% stunting prevalence, followed by Polewali Mandar district at 39.26% and Mamasa district at 35.58% (Ditjen Bangda, 2023).
To support the argument, researchers used time series forecasting analysis for the period 2019-2022. Data used are Human Development Index (HDI), the annual infant mortality rate and the percentage of girls marriage aged 10 years and above. HDI percentage is still low, around 65-66%, and there is no significant increase from year to year. Secondly, marriage rate for girls aged above 10 years is increasing each year. This is based on BKKBN West Sulawesi’s statement that child marriage reached 57,061 and will continue to increase until the end of 2022 (Ramli, 2022).

High rates of child marriage affect divorce rates and stunting due to malnutrition and poor parenting. Threats of infant mortality also increased from 22% in 2021 to 25% in 2022. The
questions that arise are "How to analyze the roots of stunting problems and which policy are effective to overcome stunting problems in West Sulawesi?". This research aims to analyze the root of problem based on data and findings while provide policy recommendation for stunting problem. The method used is public policy analysis to thoroughly examine stunting problems (Dunn, 2018).

METHOD

The research type is qualitative research with literature study or secondary data (Bungin, 2006). Researchers used documents from West Sulawesi BPS reports, West Sulawesi Province in Numbers 2019-2023, journals about stunting, West Sulawesi Health Office reports, videos and various online information related to the stunting problem. Researchers used a classification analysis approach to define and classify the stunting problem. Furthermore, researchers listed alternative options using best practice methods. Researchers use lexicographic ordering method to sort the alternatives by fulfilling the policy criteria (Dunn, 2003). Policy alternatives were selected using effectiveness, efficiency, acceptability and equity criteria (Patton, Sawicki, & Clark, 2015).

RESULT AND DISCUSSION

Result

According to these analyses, stunting was caused by various factors such as social, demographic, cultural, economic, poor environmental conditions, food insecurity, poor parenting, low maternal educational status, lack for access health services, clean water, sanitation and poor hygiene practices (Woldesenbet, Tolcha, & Tsegaye, 2023). Issues discussed in this research related to education, health, economic and cultural factors that contributed to high prevalence of stunting. The argument was analyzed by using logical division in classification analysis method to find the formal problem of stunting in West Sulawesi Province. Analysis is based on in-depth data and study findings. Explanation of the analysis is:
1. Health

Analysis was based on data from the West Sulawesi Province society's low awareness of Clean and Healthy Lifestyle, for example family access to clean water facilities was not maximized. According to West Sulawesi Provincial Health Office report, 88.87% of families have access to clean water facilities. Then, in 2021, only 78.75% of households had access to proper sanitation services, while 21.25% had yet to meet proper sanitation indicators and 81% of families used latrines. This basic access has not been fulfilled by 100%, causing various diseases. A report from the WHO revealed that contaminated water and poor sanitation can cause the transmission of diseases like cholera, diarrhea, polio, hepatitis A and typhoid (Siska, 2023). When children suffer from one of these diseases, they need more nutrition. In case of malnutrition, it will cause stunting.

Furthermore, health services in West Sulawesi Province were not optimal, with only 54.58% of the total 2,140 posyandu found to be active. The puskesmas in West Sulawesi were only accredited at 86.73%, with accreditation generally at the intermediate level. In terms of Human Resources for Health (HRH) there are still shortcomings both in terms of quality and quantity. It found that 3.01% of puskesmas did not have a doctor, 35.71% of puskesmas did not have 9 types of basic health workers and 28.57% of district/city hospitals were not fulfilled with various types of specialist doctors (Dinkes Sulbar, 2023b).

![Health Service Quality](image)

Source: West Sulawesi Health Office

Figure 5. West Sulawesi Province Health Service Quality

2. Education

Access to education drives the high stunting cases in West Sulawesi, due to its relevance to mothers' knowledge of parenting and infant feeding. This remains an obstacle in West Sulawesi with average years of education still quite low and not even reaching the Government's 12-year schooling program. BPS West Sulawesi data showed an increase of average years of schooling, but this increase was not significant. By 2023, average school years only around 8 years (BPS Sulbar, 2023a). The data can be seen in the following figure.
Parental education becomes a factor that influences stunting cases. Higher parental education will reduce the risk of stunting by 3% to 5%. Conversely, if parental education is low, it will increase the risk of nutritional problems such as stunting (Rachman, Nanda, Larassasti, Rachsanzani, & Amalia, 2021). A family with highly educated parents tends to be better able to provide good and adequate nutrition for their children so that the risk of stunting will be lower (Rachman et al., 2021).

3. Economy

Poverty is the main problem triggering stunting in West Sulawesi. BPS data shows the number of people categorized as poor has increased in the last five years. In 2022, there were 166.26 thousand poor people (11.92%) of the total population (BPS Sulbar, 2023b). High poverty rates affected people’s food purchasing power, which correlated with fulfillment of infant nutrition. Several food commodities have a major influence on increasing poverty lines in West Sulawesi Province, including protein sources needed by infants (bagged chicken eggs, tuna/skipjack, purebred chicken meat and tempeh).
Research conducted by Oktarina in Wahidamunir (2022) revealed that toddlers born in low economic status families have 1.29 times potential of stunting compared to toddlers who come from families with high economic status (Oktarina & Sudiarti, 2014; Wahidamunir, 2022). Picauly & Toy also revealed that families with low incomes have 62,182 times higher risk of stunting compared to families with higher incomes (Picauly & Toy, 2013; Wahidamunir, 2022). According to Tempo’s survey, West Sulawesi is a province with a high correlation between poverty and stunting prevalence (Javier, 2023).

4. Culture

Early marriage rates continue to increase until 2022 in West Sulawesi Province. This occurred in all districts in West Sulawesi and the highest was in Polewali Mandar. Until 2022, 57,152 child marriages were found, with Polewali Mandar District having 17,630 child marriages, Pasangkayu District having 9,465 child marriages, Mamuju District having 11,287 child marriages, Majene District having 6,857 child marriages, Mamasa District having 5,654 child marriages and Central Mamuju District having 6,068 child marriages (Ramli, 2022). High rates of child marriage are seen in the yearly increased applications for marriage dispensation in four religious courts in Polewali, Majene, Mamuju and Pasangkayu (Mushlih, Rahman, & Yunus, 2022). The religious court also granted the application for marriage dispensation with reasons like avoiding harm, pregnancy before marriage and applicants who are physically and mentally ready to get married although still under 18 years of age.

![Word Cloud Reasons granted for marriage dispensation in West Sulawesi](image)

Source: Analyzed by Researcher

Figure 8. Word Cloud Reasons granted for marriage dispensation in West Sulawesi

The high rate of early marriage has an impact on reproductive health and parenting to children. The high number of early marriage cases triggers high stunting, this is because there is a correlation between the high number of young marriages and stunting cases found in West
Sulawesi (Kemensetneg RI, 2023). Improper feeding to children caused by lack of knowledge about parenting contributes to stunting.

Discussion

Figure 9. Classification Analysis of Formal Stunting Problems in West Sulawesi

The analysis found that there is a cause-and-effect relationship of various sources causing stunting. Figure 1 shows that the problem of stunting arises because of the high rate of child marriage, which is driven by low education, which has an impact on knowledge about clean and healthy lifestyles and knowledge of good and correct parenting. Moreover, frequent early marriages are also driven by two things, cultural and economic factors, causing many teenagers in West Sulawesi Province to get married early. High rate of early marriage in line with the high prevalence of stunting so that it becomes a formal problem that causes the high prevalence of stunting in West Sulawesi Province. The policy alternatives chosen referred to the context of resolving the stunting problem by focusing on tackling child marriage problems in West Sulawesi Province. Some policy alternatives include:

1. Introduce in the school curriculum a subject about sexual education, sexual health and reproductive health, considering the cultural and age characteristics of students.

   In Indonesia, sex education is considered as extracurricular knowledge and considered a taboo. In fact, sex education will give adolescents knowledge about reproductive health and provide an understanding that early marriage could lead to dangerous pregnancies and births. Several countries already mandate sex education, for example the Netherlands teach it from the age of four years old and above. Topics include respecting one's own body, peers, contraception, and sexually transmitted diseases. In Switzerland, sex education is mandatory since children are in kindergarten. Topics include body anatomy, gender differences and healthy relationships. In England, sex education is mandated since children are in primary school. Topics include reproductive health, pregnancy, mental health and bullying. In Finland, sex education is compulsory from the age of nine. Topics include the menstrual cycle, sexual orientation, and gender identity. In Portugal, sex education is compulsory from
the age of 12, with materials about sexual health, human rights, and gender equality (Sulistyowati, 2020). The application form from these countries can be adopted in Indonesia.

2. Monetary incentives, subsidies, and scholarships for families or daughters.

   Policy that gives them space to achieve their full potential not only impacts on themselves but also on the well-being of future generations. Cash transfer programs for adolescent girls implemented in Malawi had a significant impact at short term of 2 years. The program name is Zomba Cash Transfer Program (ZCTP) which is a program that provides financial assistance every month for two years for unmarried women aged 13-22 years. Interventions are carried out in two ways, by providing cash assistance with conditions of school attendance or Conditional Cash Transfer (CCT) and providing unconditional assistance or Unconditional Cash Transfer (UCT) (J.Baird, Chirwa, Hoop, & Ozler, 2013). This kind of intervention can also be applied in West Sulawesi Province by providing scholarship assistance to girls who are vulnerable to early marriage or pregnancy before marriage.

3. Microfinance and related training to support income generation of adolescent girls.

   This is practiced on girls who are at risk of early marriage or single motherhood. Besides being given assistance and training in life skills and health education, they are also trained to earn money to support their families and start saving so that they can better control their lives. It has been practiced in Bangladesh since 1993 under the name Adolescent Development Program (ADP) (Malhotra, Warner, McGonagle, & Lee-Rife, 2011). This program consists of dozens of contents with estimated time 1 hour per session. Methods used are quite diverse ranging from role playing, discussion, group work, and brainstorming to improve skills and financial empowerment, children’s rights and social reproductive health (Shanker, 2016). This policy can be implemented in West Sulawesi Province by identifying girls at risk of early marriage and providing incentives to motivate them to actively participate in these activities.

   According to the three policies, it is synchronized with the criteria determined by the researcher, namely effectiveness, efficiency (Patton et al., 2015) and responsiveness (Setianingrum & Tsalatsa, 2016). The three criteria were analyzed with a score of 1 (lowest) and 5 (highest) to determine the selected policy alternative. The description analysis of the policy alternatives is explained in the following table.

### Table 1. Non-Dominated Alternative Analysis in Determining Stunting Policy Alternatives in West Sulawesi

<table>
<thead>
<tr>
<th>Policy Alternative</th>
<th>Policy Criteria</th>
<th>Aggregate Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex education subjects</td>
<td>4 2 3</td>
<td>9</td>
</tr>
<tr>
<td>Monetary incentives, subsidies, and scholarships for families or daughters</td>
<td>5 2 3</td>
<td>10</td>
</tr>
<tr>
<td>Microfinance and related training to support income generation of adolescent girls.</td>
<td>5 4 4</td>
<td>13</td>
</tr>
</tbody>
</table>

Source: Analyzed by Researcher
The microfinance policy and training to support income generation of adolescent girls is the optimal solution because the alternative has a high score in effectiveness as it can solve the stunting problem by reducing the number of early marriages through empowering adolescent girls. It also considered more efficient compared to other alternatives because it can be an empowerment program in stunting prevention rather than changing the curriculum and providing scholarships that cost more money. The policy can provide knowledge and skills that are very useful for adolescent girls to develop themselves and prepare for the future while also providing information about the negative impacts of early marriage, risks to reproductive health, domestic violence, poverty and change social norms discriminate against women.

CONCLUSION

There are many factors that contribute to the high prevalence of stunting. Classification analysis used to define the formal problem of stunting causes and it found that high rate of child marriage impacted on the high prevalence of stunting in West Sulawesi. Policy alternatives were recommended namely microfinance and related training to support the income generation of adolescent girls. The policy is considered more effective, efficient, and responsive because it could implement youth empowerment programs for adolescent girls and suits the needs of adolescents. This research has limitations in data that obtained only from secondary data so it necessary for further research to strengthen the research results. The scope of this study also still at the regional level so it needs to be developed for research to be carried out in Indonesia, considering that stunting becomes national issue. Therefore, the stunting prevalence rate can decrease and affect the younger generation in the future.

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