



DO PARENTS WILLING TO PAY FOR PREVENTING STUNTING? EVIDENCE FROM BEKASI

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Abstract

In Indonesia, stunting is still a significant public health issue that has an impact on children's physical and mental development. By applying the contingent valuation method (CVM), this study examines parents' willingness to pay (WTP) for stunting prevention programs in Bekasi City. In a survey, 362 participants were chosen using proportional stratified random selection. Multiple linear regression is utilised in the study to investigate the impact of environmental and sociodemographic factors on WTP. According to the findings, most parents are prepared to finance stunting prevention initiatives with an average monthly contribution of IDR 16,000 (USD 0.98). Water quality, child nutrition, parent's education level, and monthly household income all have a positive and significant impact on WTP. On the other hand, parents' jobs and the distance to healthcare services have a negative effect. These findings highlight the critical role of economic capacity, education, and environmental factors in shaping parental support for public health initiatives. The study underscores the need for targeted educational campaigns and improved healthcare accessibility to enhance community participation in stunting prevention.

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INTRODUCTION

Stunting is a worldwide concern that profoundly affects children's growth and development, particularly in low- and middle-income nations. Combating stunting has emerged as a worldwide need within the Sustainable Development Goals (SDGs), namely in the second objective aimed at eradicating all types of malnutrition by 2030 (Beal *et al.*, 2018). An analytical assessment of the current study underscores the significance of comprehending stunting and its enduring effects on children's quality of life (Leroy & Frongillo, 2019). Gender-based disparities in malnutrition risk have been observed, with boys exhibiting greater susceptibility than girls (Thurstans *et al.*, 2020). The Covid-19 pandemic has exacerbated malnutrition rates among mothers and children in low- and middle-income countries, hence substantially elevating the risk of stunting (Osendarp *et al.*, 2021).

Key risk factors for stunting have been determined by cross-sectoral population-based surveys, as seen in Rwanda (Nshimyiryo *et al.*, 2019). Moreover, the significance of nutritional treatments in urban slums in poor nations has been emphasized as an effective preventative strategy (Goudet *et al.*, 2019). The heightened prevalence of malnutrition during the Covid-19 pandemic has been associated with an increase in child death rates (Mertens & Peñalvo, 2021). Genomic studies show a link between lymphocyte activation, fat metabolism, and problems in the gut, which may worsen stunting (Haberman *et al.*, 2021). A mixed-methods approach was used to study the different factors causing the decrease in stunting in several countries, providing useful ideas for creating effective policies (Akseer *et al.*, 2020). In Nigeria, differences in child health, specifically concerning stunting and wasting, are attributed to intricate socioeconomic factors (Nwosu & Ataguba, 2020). Researchers have carefully studied how infections during diarrhea affect children's growth and how antibiotic treatment impacts their health (Nasrin *et al.*, 2021).

Southeast Asia faces a significant stunting burden, with Indonesia ranking second after Cambodia in 2016 (Global Nutrition Report, 2016). In Indonesia, the rate of stunting was 30.8 percent in 2018, according to national data (Ministry of Health of the Republic of Indonesia, 2019). It went down to 27.7 percent in 2019, based on the Indonesian Nutrition Status Survey, and further decreased to 21.5 percent in 2023 (Ministry of Health of the Republic of Indonesia, 2023). Despite this progress, the figure remains well above the government's target of 14 percent by 2024 (Ministry of Health of the Republic of Indonesia, 2024). In West Java Province, the stunting prevalence was recorded at 21.7 percent in 2023, with Bekasi City having the lowest rate in the province at just 2.99 percent in the same year (Ministry of Health of the Republic of Indonesia, 2024). The stunting incidence is measured using the Electronic Community-Based Nutrition Recording and Reporting (e-PPGBM) system, implemented by Indonesia's Ministry of Health (Ministry of Health of the Republic of Indonesia, 2024). Despite this relatively low aggregate prevalence, the urgency of conducting research in Bekasi lies in understanding the underlying behavioral and structural factors that have contributed to this success, as well as identifying any micro-level disparities that may persist. Furthermore, this study examines whether low prevalence correlates with strong public willingness to sustain stunting prevention efforts, particularly in terms of parents' WTP for long-term risk mitigation. Such insights are crucial for formulating scalable, context-sensitive health financing strategies in urban areas approaching the "zero stunting" threshold.

Stunting continues to be a significant health concern in Indonesia. Study in Blepanawa Village, East Flores, underscores the significance of early stunting identification and nutritional treatments, emphasizing the necessity for prompt action to mitigate the long-term effects of stunting (Beribe *et al.*, 2024). Nutrition enhancement initiatives are a central emphasis in Pekanbaru City, with interventions via community health centers being crucial in tackling this concern (Rozalinasari & Nurmasari, 2024). Moreover, community-based educational initiatives have demonstrated efficacy in diminishing stunting rates, especially through the engagement of posyandu cadres in identifying and mitigating stunting risks at the village level, thereby significantly aiding national endeavors to reduce stunting prevalence

(Yuliani *et al.*, 2024). Maternal parenting methods and a history of infectious illnesses have a high correlation with the prevalence of stunting, as shown in Nulle Community Health Center, NTT (Timo *et al.*, 2024).

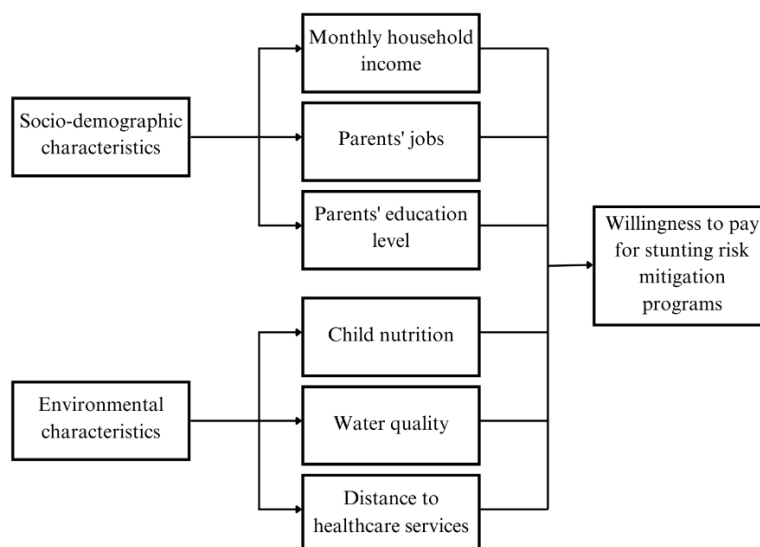
Community education is essential for the prevention of stunting. Outreach at Rodaya Village, West Kalimantan, effectively enhanced community understanding via talks and direct engagement (Amir, 2023). Moreover, deep learning technology has been employed to assess the nutritional condition of children with outstanding precision, facilitating the early identification of stunting hazards (Muthohharoh & Fatah, 2024). More study shows a strong link between iron intake and stunting in toddlers. This emphasizes the importance of proper micronutrient nutrition to help reduce this issue (Sirajuddin *et al.*, 2020).

The contingent valuation method (CVM) has gained significance in several studies to assess the community's willingness to pay for services or goods associated with environmental, health, and social concerns. Study shows that the contingent valuation method (CVM) can help understand the economic effects of social disruptions. For example, a study on the social costs of the tourist industry during the Covid-19 pandemic highlighted this (Qiu *et al.*, 2020). A study of the community's willingness to pay for ecosystem services in the Xin'an River basin, China, shows several factors that influence this decision (Ren *et al.*, 2020). The contingent valuation method (CVM) is useful for measuring the economic value of health treatments. For example, a study looked at how much people are willing to pay for the Covid-19 vaccine (Cerdeira & García, 2021). In farming, CVM has been used to study the sustainability of returning wheat straw in different areas of China, helping to evaluate the economic value of eco-friendly practices (Huang *et al.*, 2019). Similar studies looked at how many people in the Bashang Plateau, Hebei, accept better environmental services. They found that the contingent valuation method (CVM) is good at understanding what local people want and need (Chu *et al.*, 2020). The evaluation of the contingent valuation method (CVM) for environmental products provides important insights for using it in environmental economics study (Perni *et al.*, 2021).

Other studies show that the contingent valuation method (CVM) can be used to measure how much the community is willing to pay for forest protection. An example of this is seen in Ecuador, where they combined a referendum survey with an open consequence approach (Gordillo *et al.*, 2019). Study on the importance of forests and their sustainability in developing countries highlights how valuable healthy forest ecosystems are (Bamwesigye *et al.*, 2020). The contingent valuation method (CVM) is used in the health sector to understand how much people are willing to pay for possible Covid-19 vaccines. This information is important for making public health policies (Vo *et al.*, 2021). Sustainable waste management policies are important for the economy and can help address the trash problem in South Korea. The contingent valuation method (CVM) is useful for understanding what the public thinks about these sustainability efforts (Ko *et al.*, 2020). However, several studies on the direct impact of the interaction of these factors on the willingness to pay for stunting risk mitigation are still inconclusive.

This study will employ a quantitative methodology to assess the Willingness to Pay (WTP) for stunting risk reduction initiatives among parents in Bekasi City. In the subsequent sections, the term WTP will be used to refer to parents' willingness to pay. This methodology enables a comprehensive examination of how socio-demographic factors, such as monthly household income, parents' jobs, parents' education level, and environmental factors, such as child nutrition, water quality, and distance to healthcare services, influence parents' WTP for stunting prevention initiatives. This study utilizes a multiple linear regression (MLR) model, which is estimated using the ordinary least squares (OLS) technique. The OLS method has demonstrated efficiency and impartiality in evaluating the socioeconomic aspects that affect household decisions, including environmental risk reduction (Zhao *et al.*, 2022). The findings from this analysis are expected to provide valuable insights for policymakers in designing more effective and targeted interventions to enhance community participation in stunting prevention programs. This study constructs a conceptual model that integrates several socio-

demographic and environmental factors to thoroughly evaluate community participation in public health initiatives. In a previous study, the conceptual framework was used to illustrate the relationship between growth opportunity, profitability, and real assets on firm value, with debt as a mediating variable and risk disclosure as a moderating variable (Triaryati *et al.*, 2025). The framework of research concepts is briefly illustrated in Figure 1.



Source: Author, 2025

Figure 1. Research Concept Framework

RESEARCH METHOD

This study was conducted in Bekasi City, particularly due to its paradoxical context, while the city reports a relatively low stunting prevalence of 2.99 percent in 2023 (Ministry of Health of the Republic of Indonesia, 2024). It still hosts micro-areas, such as several neighborhoods within Mustika Jaya Subdistrict, where child health disparities persist. For instance, Puskesmas Mustika Jaya documented 44 stunting cases among children aged 0–5 years in 2024, consisting of 27 males and 17 females (Puskesmas Mustika Jaya, 2024). These local figures highlight the ongoing burden at the micro-level, despite city-wide improvements. In response, the Bekasi City Government has launched the "Zero Stunting" initiative, aiming to address such localized inequalities through targeted interventions (Pemerintah Kota Bekasi, 2024). Therefore, this area was strategically selected to examine the community-level factors influencing parents' WTP for stunting risk reduction programs. Furthermore, challenges related to uneven access to healthcare services, infrastructure limitations in densely populated areas, and varying levels of parental awareness make this site an ideal context for investigating the socio-demographic and environmental determinants of WTP. This study is expected to provide evidence-based policy recommendations that can strengthen community engagement in stunting prevention efforts, even in urban areas with relatively low aggregate prevalence.

We surveyed residents in the study area to find out if parents with children aged 0-5 in Bekasi City are willing to pay for measures to reduce the risk of stunting. We also looked at how socio-demographic and environmental factors influence this willingness. Their willingness was assessed by their consent to financially support the stunting risk mitigation program, encompassing nutrition education, water quality enhancement, and access to health care. This study seeks to determine which parents are predisposed to invest in stunting prevention initiatives and how variables such as monthly

household income, parents' jobs, parents' education level, child nutrition, water quality, and distance to healthcare services affect their willingness to pay for the program.

This study employed the contingent valuation method (CVM) via a bid game technique to assess the WTP of parents with children aged 0–5 years in Bekasi City for the stunting risk reduction program. The bidding process started with an initial proposal of IDR 10,000 (USD 0.61) each month, prompting respondents to indicate their readiness to contribute to this sum. Should the replies concur, the bid value escalates by IDR 3,000 to IDR 13,000 (USD 0.80), and with further agreement, it advances to IDR 16,000 (USD 0.98). Furthermore, participants were requested to indicate the highest monthly donation they would be prepared to make to support the stunting risk reduction initiative. The first proposal of IDR 10,000 was determined based on the average waste management charge pertinent to the local community, reflecting the economic realities of the region.

This study's questionnaire is meticulously crafted to gather extensive data on the determinants affecting the community's WTP for the stunting risk reduction program in Bekasi City. This survey has three primary sections. The initial portion comprises socio-demographic information, including monthly household income, parents' jobs, parents' education level. The second section looks at environmental factors. It examines how ready respondents are to improve children's nutrition when they notice a risk of stunting, the quality of water in their homes, and how close they live to the Community Health Center, which shows how accessible health services are. The third section evaluates how much people are willing to pay for the stunting risk reduction program using a bidding game. It starts with an initial bid of IDR 10,000 (USD 0.61) and increases the amount until respondents reveal the highest amount, they are willing to contribute.

This study uses proportionate stratified random sampling as its sampling strategy. We began by gathering demographic data from each community unit (RW) in the study region. We stratified the sample according to the number of RWs to guarantee representation across diverse demographic groupings. We then randomly selected more participants from each group, focusing on parents of children aged 0-5 years. This approach was meant to ensure that the participants had relevant knowledge about making household decisions to reduce the risk of stunting. This method facilitates a more precise depiction of the population's perspectives about their readiness to invest in stunting risk mitigation initiatives. The sample size for each group is determined using a method for proportional stratified random sampling. This makes sure the sample reflects the population's traits in the same proportions.

This study included 362 respondents drawn from five community units (RW) in Bekasi City, with a focus on determining parents' WTP for the stunting risk prevention program. The five RWs participating in this study are RW 06 (73 respondents), RW 07 (73 respondents), RW 18 (72 respondents), RW 25 (72 respondents), and RW 14 (72 respondents). The Slovin formula was used to compute the needed sample size, ensuring that the sample taken was representative. Data gathering was carried out in two steps. During the first step, we used stratified sampling techniques to pick families based on key variables. In the second round, we randomly chose parents with children aged 0 to 5 to participate in the survey.

We employed multiple linear regression analysis to ascertain the correlation between various characteristics and the willingness of parents with children aged 0–5 years to pay (WTP) for stunting risk reduction programs. In this model, WTP is depicted as a continuous dependent variable reflecting the greatest amount respondents are prepared to provide. The model's independent variables encompass socio-demographic and environmental characteristics, monthly household income, parents' jobs, parents' education level, child nutrition, water quality, and distance to healthcare services (refer to Table 1). This study seeks to determine the primary factors influencing parents' decisions to support the program.

Table 1.
Operational Definition of Variables

Categories	Variable
Willingness to pay for stunting risk mitigation programs	The maximum contribution value of parents for stunting risk mitigation (IDR).
Socio-demographic characteristics	Monthly household income (IDR) 1: <1,000,000 2: 1,000,000-2,000,000 3: 2,100,000-4,000,000 4: >4,000,000 Parents' jobs 1: High status jobs (Doctor, Lawyer, Manager) 2: Jobs with medium Status (Teacher, Technician, Civil Servant) 3: Jobs with low status (Laborers, Motorcycle Taxi Drivers, Street Vendors) Parents' education level 1: Elementary school 2: Junior high school 3: Senior high school 4: Diploma 5: Bachelor's degree
Environmental characteristics	Child nutrition 1: Strongly disagree 2: Disagree 3: Agree 4: Strongly agree Water quality 1: Very bad 2: Bad 3: Good 4: Very good Distance to healthcare services 1: <1 KM 2: 1-3 KM 3: 3-5 KM 4: 5-7 KM 5: >7 KM

Source: Author (2025)

The multiple linear regression model used is stated as follows:

$$WTP = \beta_0 + \beta_1 INC_i + \beta_2 JOB_i + \beta_3 EDU_i + \beta_4 CN_i + \beta_5 WTR_i + \beta_6 DIS_i + e \dots\dots\dots(1)$$

Where WTP is the community's readiness to pay for stunting risk mitigation, with β_0 as the intercept; β_1 to β_6 are the regression coefficients describing the influence of each independent variable; INC_i representing monthly household income, JOB_i indicating the type of work parents do (Wijianto & Ulfa, 2016), and EDU_i depicting the educational level of parents; CN_i reflects the perception of the importance of nutritional intake; WTR_i measures the quality of clean water; DIS_i represents the accessibility of healthcare services; e is error term.

RESULTS AND DISCUSSION

The study's findings show that 362 parents with children aged 0 to 5 years are prepared to spend an average of IDR 16,000 (USD 0.98) each month to support the stunting risk reduction program. This

study uses the multiple linear regression approach. This approach is intended to assess the relationship between the dependent and independent variables. In this study, the dependent variable is WTP. Meanwhile, the study's independent factors include monthly household income, parents' jobs, parents' education level, child nutrition, water quality, and distance to healthcare services. The hypothesis testing is designed to examine the impact of income, parents' jobs, parents' education level, child nutrition, water quality, and distance to health services on WTP.

Tabel 2.
Results of Multiple Linear Regression Test

Variables	Coefficients	Std. Error
(Constant)	9304,277	158,241
Monthly household income (INC)	981,774***	23,292
Parents' jobs (JOB)	-726,359***	30,773
Parents' education level (EDU)	497,672***	22,202
Child nutrition (CN)	982,777***	25,040
Water quality (WTR)	474,252***	26,865
Distance to healthcare services (DIS)	-192,359***	20,825
Adjusted R ²	.932	

Dependent variable: WTP Stunting Risk Mitigation

* Significant at $\alpha=10\%$.

** Significant at $\alpha=5\%$.

*** Significant at $\alpha=1\%$.

Source: Primary data, processed, 2025

This study examines the impact of socio-demographic and environmental variables on the community's WTP for stunting risk reduction initiatives. The findings of the multiple linear regression analysis indicate that monthly household income, parents' education level, child nutrition, and water quality exert a positive and substantial impact on WTP. Conversely, parents' jobs and distance to healthcare services exhibit a substantial detrimental impact. These findings provide important information about what drives community involvement in health programs and highlight the need for specific policies to increase public support.

According to Table 2, the study findings indicate that monthly household income significantly positively affects the willingness to pay. Individuals with elevated earnings typically exhibit increased support for stunting mitigation initiatives, attributable to their financial capacity to contribute to public health programs. Previous studies have shown that household income is strongly linked to the community's readiness to pay for ecosystem services in the Xin'an River area. More household income is linked to a higher WTP (Ren *et al.*, 2020). Similar study shows that parental income has a big effect on how much people are WTP for social health insurance in Nigeria, with higher-income people being more likely to pay (Ogundeji *et al.*, 2019). Moreover, prior studies indicate that elevated wealth enhances the community's capacity to contribute more substantially to environmental conservation and protection (Chu *et al.*, 2020). Considering these results, subsidized contribution methods must be put in place so that lower-income households may take part in stunting mitigation without facing financial hardship.

The parents' education level exerts a markedly beneficial effect on WTP. Parents with elevated educational attainment generally exhibit a greater understanding of the significance of child health and appropriate nutritional practices. Prior studies indicate that individuals with elevated educational attainment exhibit a heightened propensity to invest in ecosystem conservation and sustainable settings (Glenk *et al.*, 2020). Additionally, level of education was found to be a major factor in increasing willingness to pay for Covid-19 vaccination, as people with more education understood the importance

of immunization better (Vo *et al.*, 2021). A study in Malaysia found that parental education affects their WTP for the hepatitis B vaccination. This is because parents are more willing to help if they understand the health benefits (Rajamoorthy *et al.*, 2019). These results suggest that education efforts, like online ads and community awareness programs, could help inform the public about preventing stunting and possibly increase donations.

Moreover, child nutrition and water quality exert a substantial favorable impact on WTP. Parents who acknowledge the significance of ensuring enough nutrition and access to clean water for children are more inclined to endorse stunting mitigation initiatives. Prior studies indicate that children's nutrition enhances respondents' WTP for health risk reduction initiatives, such as stunting (Xue *et al.*, 2009). This underscores that the quality of children's diets is a significant element that motivates the community to engage in health risk prevention initiatives. Previous study has shown that the benefits of mangrove ecosystems for fisheries make the local community much more WTP to protect natural resources, such as access to clean water (Seary *et al.*, 2021). The community is prepared to invest more in sustainable recreational opportunities in urban parks, with water quality knowledge significantly affecting their willingness to pay (Mäntymaa *et al.*, 2021). A study in Bangladesh indicates that families with access to safe drinking water and disaster resilience have a greater WTP, underscoring the significance of clean water in enhancing public knowledge about health and sustainability (Islam *et al.*, 2019). These results show that improving infrastructure, particularly in sanitation and water supply, can help get communities more involved in efforts to reduce stunting.

On the other hand, parents' jobs show a significant negative influence on WTP. Individuals with lower social status jobs tend to have financial limitations that reduce their participation in this program. Previous study shows that socioeconomic status, including job type, significantly affects individuals' WTP in supporting health and environmental services (Li *et al.*, 2020). These findings emphasize the importance of implementing inclusive policies that can enhance community participation from various socioeconomic groups in risk mitigation programs (Ogundeji *et al.*, 2019). Based on this finding, financial aid programs for people with lower incomes, like support for low-wage workers, could help reduce this gap and encourage more participation in efforts to prevent stunting.

The distance to healthcare services also has a significant negative impact on WTP. Communities with greater distance to healthcare facilities tend to be less supportive of stunting mitigation programs. Study in the Xin'an River Basin region found that greater distance significantly reduces the community's willingness to contribute to the preservation of ecosystem services (Ren *et al.*, 2020). Additionally, the spatial dimension in preference valuation shows that accessibility and the location of facilities are important variables influencing the community's WTP for health and environmental-based policies (Glenk *et al.*, 2020). To ensure everyone can access programs to prevent stunting, especially in remote and poor areas, our findings highlight the need to improve healthcare access. This can be done by using mobile health clinics and telemedicine services.

Overall, the findings of this study suggest that socio-demographic and environmental variables influence community engagement in stunting risk reduction initiatives. As a result, data-driven policies that account for these determinants are critical to improving the efficiency of public health initiatives and assisting Indonesia in meeting its stunting prevalence reduction objectives.

CONCLUSION AND RECOMMENDATION

This study uses the contingent valuation method (CVM) to evaluate parents' WTP in the stunting risk mitigation program at in Bekasi City. The study results show that the average WTP of parents is IDR 16,000 (USD 0.98) per month, with factors that significantly influence WTP, including monthly household income, parents' jobs, parents' education level, child nutrition, water quality, and distance to

healthcare services. Based on this study, the Indonesian government has started several programs to lower stunting rates. These include providing extra food for pregnant women and young children to ensure they get enough nutrition. They also give iron tablets to teenage girls and pregnant women to help prevent anemia, which can increase the risk of stunting. In addition, the government also distributes anthropometric tools and ultrasound (USG) to posyandu and puskesmas to improve the accuracy of monitoring child growth and fetal development. In 2025, the government launched the Free Food Program for School Children and Pregnant Mothers, targeting 90 million recipients, as a strategic step to improve nutritional status and prevent malnutrition from an early age.

The findings of this study indicate that the success of stunting prevention programs does not solely depend on government intervention but also on parental involvement and socio-economic factors that influence their willingness to contribute to child health programs. Therefore, future research is recommended to explore strategies to increase parental participation in stunting mitigation programs, including through education, health campaigns, and the provision of incentives to encourage broader involvement. The policymakers should include things like economic capacity and environmental conditions in public health plans. Strengthening access to clean water, improving healthcare accessibility, and conducting targeted educational campaigns can further encourage community involvement. Future study is necessary to validate these findings in other regions of Indonesia and beyond, considering potential variations in socio-cultural contexts. Exploring the long-term impact of WTP-based programs on stunting reduction and evaluating alternative funding mechanisms could provide valuable insights for sustaining public health interventions in the future.

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