

Case Study of Internal and External Dimensions Causes of Stunting in Children Under Five in Jombang, East Java

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ABSTRACT

Background: Stunting is the result of chronic and recurrent malnutrition in both mother and child. Globally in 2020, 149.2 million (144.4 to 154.2 million) children under the age of 5, or 22.0% (21.3 to 22.7) of all children under five, are estimated to be stunted (too short for their age). The cause of children experiencing stunting is a multidimensional factor, namely malnutrition experienced by pregnant women and toddlers. This study aims to describe the causes of stunting in toddlers.

Subjects and Method: This was a qualitative study with a case study approach. This study was conducted at the Health Office of Jombang Regency, East Java, and Mayangan Health Center. A total of 5 key informants, 9 mothers of toddlers as main informants, 1 supporting informant were selected purposively and snowball. Data collection was carried out using interviews, observation, and documentation. Data were analyzed using the Miles and Huberman.

Results: Parents' education level, toddler's age, toddler's weight, toddler's height, role of health personals in terms of services, exclusive breastfeeding, provision of complementary foods, level of food diversity, sanitation, infectious diseases are factors causing stunting cases in Jombang Regency, East Java. Things that are less related to the incidence of stunting are the sex of the toddler, the type of parent's job, asset ownership, social protection card, health insurance, health institutions, mother class for toddlers, early childhood education, family planning participation, food insecurity, clean water, ownership of MCH books, complete basic immunization, treatment of sick toddlers, growth monitoring, deliveries at health facilities, and deliveries at health personnel. The visible impact of stunting is that they physically look small when compared to children of their age.

Conclusion: There are several internal dimensions and external dimensions that are factors causing the incidence of stunting in Jombang Regency, East Java, including parents' education level, toddler's age, toddler's weight, toddler's height, the role of health personal in terms of services, exclusive breastfeeding, provision of complementary foods, diversity in food, sanitation, and infectious diseases.

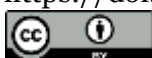
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BACKGROUND

Malnutrition in childhood is always associated with deficiencies of certain vitamins and minerals and is associated with certain micronutrients and macronutrients. In recent years, there have been many studies regarding the impact of inadequate nutritional intake, ranging from an increased risk of infectious diseases and death which can hinder mental growth and development (Media Litbangkes, 2019).

WHO states, stunting is the result of chronic and repeated malnutrition in mothers and children. Globally in 2020, 149.2 million (144.4 to 154.2 million) children under the age of 5, or 22.0% (21.3 to 22.7) of all children under five, are estimated to be stunted (too short for their age) (WHO, 2022).

One of the goals in the Sustainable Development Goals (SDGs) is to eliminate all forms of malnutrition by 2030, including stunting that occurs in children under the age of 5 (Anggraini et al., 2019).

The health consequences of stunting are delays in physical growth and motor development, and susceptibility to infectious diseases. Later in life, it increases the risk of being overweight and developing related chronic diseases such as cardiovascular disease, diabetes, cancer, and mental health disorders (Tafesse et al., 2021). In addition to its debilitating effect, stunting is detrimental to economic productivity, for every 1% loss of adult height due to stunting, another 1.4% of economic productivity is lost (Kragel et al., 2020).

Globally in 2020, almost 45% of child deaths under the age of five are due to malnutrition. Stunting accounts for the largest number of the four forms of malnutrition. According to the 2018 Global Nutrition Report, 144.0 million children under five years suffer from stunting globally. Stunting in children under the age of five is declining

too slowly. In 2000 it was 32.6%, down to 22.2% in 2017 globally. However, the current figures are still concerning, and conversely, the number of stunted children is increasing due to population growth. Stunting mainly occurs in low-income countries and middle-income countries (Fufa, 2022).

Indonesia is a country with a high burden of malnutrition, including stunting. Child health outcomes are poor, even though Indonesia's economy is the largest in South-east Asia and the 17th largest in the world. The World Bank (2020) notes that Indonesia has performed less well in terms of reducing stunting rates compared to other upper middle-income countries and countries in other regions (Mulyaningsih et al., 2021).

The causes of children experiencing stunting are multidimensional factors, namely malnutrition experienced by pregnant women and toddlers, lack of knowledge of mothers about health and nutrition before and during subsequent pregnancies during childbirth and during the provision of complementary foods, limited health services (ANC, PNC, and quality early learning), lack of access to nutritious food and lack of access to clean water and sanitation (Harahap et al., 2019).

Referring to SSGI data for 2022, Jombang Regency, East Java, is ranked the 13th largest in East Java with a stunting prevalence of 22.1%. This study aims to examine the causes of stunting in toddlers.

SUBJECTS AND METHOD

1. Study Design

This study uses a qualitative study using a multiple case study approach to explore views about the causes of stunting related to the characteristics of toddlers, the characteristics of parents, health personal, health institutions, internal dimensions, external dimensions, and the impact of stunting. This study was conducted at the Jombang

Regency Health Office and the Working Area of the Mayangan Health Center, Jombang Regency, East Java in April 2023.

2. Population and Sample

The population in this study were all mothers of toddlers who have stunted children. The sampling technique in this study used purposive sampling and snowball sampling techniques. The sample in this study consisted of 15 informants, including 5 key informants for health personal, 9 key informants for mothers of toddlers who have stunted children, 1 key informant for health cadres.

3. Study Instruments

Data collection was carried out using semi-structured interviews, observation, and document review (maternal and child health books). Data validity is achieved using data triangulation (Murdiyanto, 2020), or by comparing observation data, interview results, and document review.

4. Data Analysis

Data analysis uses the Miles and Huberman technique (1992:20) with the steps of data collection, data reduction, data presentation, conclusion/ verification (Rijali, 2018).

RESULTS

1. Characteristics of informants

Informants in this study consisted of key informants in this study consisting of 5 people who had health backgrounds as managers of nutrition programs, functional doctors, village midwives, community health nurses, health cadres. As many as 9 main informants, namely mothers who have stunting toddlers. 1 health cadre in the working area of the Mayangan Health Center was selected as a supporting informant.

2. Parental education with stunting incidents

Parental education is related to the incidence of stunting where the high level of parents' education will influence their mindset in a better direction so that their knowledge will

also be good. Many parents have low education, where the educational range is below high school.

3. Parents' occupation with stunting incident

Parents' occupation is less related to the incidence of stunting in Jombang Regency, East Java. Most parents of stunted toddlers, especially mothers, have jobs as housewives (IRT), while fathers have jobs as laborers where the income earned per month is in the range of 1-4.5 million. Parents who work with high or low incomes can still cause cases of stunting, so that the type of work of parents is less associated with stunting.

4. Characteristics of toddlers with stunting

Gender has no relation to the incidence of stunting, of the 9 main informants interviewed there were 7 toddler boys and 2 toddler girls who experienced stunting. It can be said that gender has little to do with the incidence of stunting in Jombang, East Java, because cases Stunting in Jombang can occur in both male and female sexes.

The characteristics of toddlers for age, weight, height are related to the incidence of stunting in Jombang Regency, East Java. Such as findings in the field that age, weight, height are related to the incidence of stunting, where from all mothers of toddlers who conducted in-depth interviews, it was found that all toddlers had growth charts in the yellow area which were recorded in the MCH book.

5. Ownership of assets with stunting incidents

Asset ownership is not related to the incidence of stunting in Jombang Regency, East Java. Whereas parents have assets for daily needs starting from income assets, residential assets which on average the informants still mingle with their parents to live in, there are even two mothers of toddlers who have their own homes, assets supporting activities

such as motorized vehicles, all informants almost own them. On the other hand, there are important household assets that are not yet owned by the two informants, namely latrines for defecating, where these 2 informants use latrines at public facilities and those belonging to their immediate family.

6. Social protection card with stunting incident

The Social Protection Card has no relation to the incidence of stunting, all the mothers interviewed did not have a social protection card, so in this case the social protection card has no relation to the incidence of stunting in Jombang Regency, East Java.

7. Health insurance with stunting incidents

Health insurance has nothing to do with stunting, basically health insurance is just a card that is used to seek treatment when sick so that mothers under five get referrals and are not burdened with medical expenses. Findings in the field related to health insurance, almost all mothers under five have health insurance to use for treatment if their stunted child is sick.

8. Health personal with stunting incidents

Health personals have a connection with the incidence of stunting in Jombang Regency, East Java. The health service that causes stunting in Jombang Regency, East Java is the measuring instrument used in measuring toddlers who have not used standard tools so that it affects the measurement results, other health personals remain and always carry out validation if there is a measurement result that drops significantly.

9. Health institutions with stunting incidents

Health institutions have no connection with Stunting Incidents in Jombang Regency, East Java. The informant stated that in the future there will always be improvements in

health service efforts through health institutions. Learning from the shortcomings of previous years, the Jombang District Health Office, East Java, this year collaborated with the Jombang District Development Planning Agency, East Java, to create an application that can be accessed by all levels, which aims to make it easier to see stunting cases so that they can be quickly and accurately handled when they arise new stunting cases.

Internal Dimensions

10. Exclusive breastfeeding with stunting

Parenting has an important role in contributing to the incidence of stunting cases, where exclusive breastfeeding is related to the incidence of stunting in Jombang Regency, East Java. Stunting cases that many researchers encountered in the field were toddler mothers who gave formula milk before the toddler was 6 months old so that the milk given was not exclusive. Mothers under five provide plain water and formula milk to their children before the age of 6 months, one of the reasons why breast milk is not exclusive is not having a refrigerator to store breast milk that has been pumped while at work.

11. Weaning foods with stunting incidents

Weaning Foods is related to the incidence of stunting in Jombang Regency, East Java, where the average MP-ASI given is porridge, the types of porridge that are usually given are organic porridge and packaged instant porridge. Many mothers give their toddlers porridge as solids, for the content is more water than the nutritional content, besides that the porridge used is also instant porridge which contains coloring agents, preservatives and flavor enhancers. There are some mothers who give complementary foods (weaning foods) before the age of 6 months.

12. Class of toddler mothers with stunting incidents

Mother under five classes have no relation to

the incidence of stunting in Jombang Regency, East Java, this is because according to the findings of the researchers, almost all parents of toddlers interviewed attended mother under five classes in various activities carried out by health institutions. Mothers of toddlers can get access to mothers of toddlers' classes through mothers of toddlers' classes after integrated service post, activities with special invitations, Nutrition Recovery Park (TPG). Many of them attend classes for mothers of toddlers, but the average condition of children under five is still stunted.

13. Play group with stunting incidents

Play groups have nothing to do with the incidence of stunting, where for cases of stunting the focus is on prevention in the first 1000 days of life. All mothers of toddlers interviewed said that their stunted toddlers had not been included in the play group because they were not old enough, while the parents who were old enough chose to send their toddlers directly to the kindergarten level, so the play group had no connection with the incidence of stunting in Jombang Regency, East Java.

14. Family planning participation with stunting

Family planning participation has no relation to the incidence of stunting. All mothers under five use family planning, but there are special conditions when mothers under five do not use family planning, the condition is that the status of a widow then remarries, her husband dies, and is sick so she decides to stop from family planning. so that family planning participation has no link to the incidence of stunting in Jombang Regency, East Java.

15. The level of food diversity with the incidence of stunting

The level of food diversity is related to the incidence of stunting where the food intake that goes to toddlers should be varied to meet their nutritional intake. The materials used

by mothers to meet their child's nutritional intake are less diverse which results in children being bored and not trained or not accustomed to a variety of different menus resulting in children under five doing the silent movement (GTM). The level of variety of food given to children under five is inadequate where the findings from interviews show that many toddlers like and prefer dry foods such as kentaki, crackers, peanut brittle. Less animal protein is consumed by toddlers because toddlers don't like meat and are allergic when eating it, besides that many toddlers are allergic to eggs and only eat eggs between the yolks or whites. Many toddlers are reluctant to eat plain cooked vegetables and fruit even though they are made in the form of juice. So that food diversity is related to the incidence of stunting in Jombang Regency, East Java.

External Dimensions

16. Food insecurity with stunting

Food insecurity has nothing to do with stunting in Jombang Regency, East Java because access and allocation of food ingredients are easy to reach. All mothers of toddlers who were conducted in-depth interviews stated that in order to get food ingredients to be processed and served to their toddlers it was very easy to access and close at hand, and the ingredients needed were always available.

17. Sanitation with stunting incidents

Sanitation is related to stunting where the environment has an impact on families, especially children under five. The form of sanitation that occurs is that the disposal of liquid waste is still channeled to the garden, without having a toilet. Other findings in the field aimed at key informants show that mothers under five who do not yet have a toilet perform defecation and urination in public facilities or join those belonging to the surrounding family, besides that if they feel very anxious to defecate and have not had time to reach public facilities the mother is forced to

do so in the river. Apart from that, according to the observations of the researchers, there were many informants whose yards were clean and kept clean from trash and dirt, but there was one informant whose environmental conditions were quite dirty, where the garbage disposal was next to his house close to the main entrance, this could invite various vectors such as mosquitoes. and flies that can land on manatees or children and cause infection.

18. Clean water with stunting incidents

Clean water has nothing to do with the incidence of stunting, according to the key informant we have to look at the water used for purposes or needs for clean activities or not, otherwise it will trigger something that can infect. All mothers of children under five stated that the clean water used comes from groundwater or drilled wells, for the water consumed by mothers under five they cook from ground water or well water. In addition, there are mothers under five who consume water using non-brand refill water and branded water. like Aqua, Le Minerale, and Cleo. Apart from that, there were two main informants who complained that the groundwater once smelled but over time it returned to normal.

19. Ownership of the MCH book with stunting incidents

Ownership of the MCH handbook has no relation to the incidence of stunting where the MCH handbook itself functions as an information provider in which there are sick records, monitoring of child growth, and information related to pregnant women, breastfeeding, children aged 0 to 5 years which aim to increase the knowledge of mothers under five. All mothers under five have MCH books, but there are conditions where there are MCH books that are placed in the integrated service post and there are MCH books that are brought home, many

informants said that they only owned the MCH books and rarely read them.

20. Complete basic immunization with stunting incidents

Complete basic immunization has no relation to the incidence of stunting in Jombang Regency, East Java, complete basic immunization itself has a function to prevent toddlers, besides that immunization can increase immunity. All mothers of children under five who were interviewed stated that their children under five had received complete basic immunization.

21. Treatment of sick toddlers with stunting incidents

Treatment of sick toddlers has no relation to the incidence of stunting in Jombang Regency, East Java, parents if their child is sick immediately try to seek help at a health facility or health service. If the child is sick, the first step is to try to treat it on their own by coming to the nearest health facility, namely the pharmacy, to consult and buy medicine independently. independently and independent practicing nurses, if they are not qualified, sick toddlers will be referred to health centers and health facilities at the next level.

22. Growth monitoring with stunting incidents

Growth monitoring has no relation to the incidence of stunting in Jombang Regency, East Java where there are differences that arise when parents of toddlers do not carry out integrated service post routinely and not routinely, where parents who routinely will know the growth and development of their toddlers regularly and if abnormalities are found growth such as stunting can be handled immediately, this is different from parents who rarely even do not monitor the growth of their toddlers at the integrated service post. All mothers of children under five carry out growth monitoring for their

children under five by coming to the integrated service post, this is evidenced by the fact that all mothers of children under five who were interviewed had a MCH book in which the growth chart was filled in at the integrated service post.

23. Delivery of health facilities and delivery of health personals with stunting incidents

Deliveries in health facilities and deliveries assisted by health personals have no relation to the incidence of stunting in Jombang Regency, East Java, where the treatment given for delivery is the same, starting from an ordinary midwife to a specialist, even Jombang Regency, East Java, is targeting 100 percent of deliveries assisted by health personals. and in health facilities. All mothers under five in this study stated that mothers under five gave birth at the midwife and at the hospital normally and by caesarean section.

24. Infectious disease with stunting incidents

Sickness in toddlers due to infection is related to the incidence of stunting in Jombang Regency, East Java, if a child gets an infection, it will cause various diseases that cause their body weight to drop dramatically and trigger vomiting and difficulty eating. On the other hand, the nutritional needs of toddlers when they are sick should be high because they are divided into basic intake and intake for recovery. infections that attack toddlers are diarrhea, heat, cough, runny nose, allergies. This is the same as the data obtained from the mothers of toddlers who were interviewed, they stated that their children often had diarrhea, fever, coughs, colds and allergies.

25. Impact of stunting with stunting incidents

Stunting that occurred in Jombang Regency, East Java, has had an impact on children under five, most of the impacts that arise and are visible are their physical growth. Toddlers

who experience stunting if they are seen they are short compared to their peers. All mothers who were interviewed stated that their toddlers were physically small, they didn't feel heavy in their arms, and they couldn't get fat.

DISCUSSION

The results of this study indicate that the characteristics of the main informants in this study are mothers who have stunted toddlers where the average education of mothers under five is lower middle school, namely below high school, the education of parents, especially mothers, is related to the incidence of stunting in Jombang Regency, East Java. Low maternal education is related to the incidence of stunting, this is in line with research by Chowdhury et al. (2020), stated that statistically lower maternal education levels emerged as a significant determinant of stunting, with lower maternal education being associated with higher opportunities for stunting in children.

The results of this study indicate that the work of parents is not related to the incidence of stunting in Jombang Regency, East Java. numbers in the range of 1–4.5 million. This is in line with Oka and Annisa's research (2019), which showed that there was no significant relationship between the respondent's occupation and the mother's knowledge of stunting. The same thing showed that there was no relationship between the mother's work and the child's nutritional status which would result in stunting, even though the mother was not work is not necessarily influenced or followed by good parenting patterns.

The results of this study indicate that the characteristics of toddlers are related to the incidence of stunting in Jombang Regency, East Java, the main characteristics that have a relationship are age, weight, and height of toddlers. The data found in the field

shows that all toddlers have growth charts below -2 SD to -3 SD. This can be monitored through the toddler growth charts in the MCH handbook. The researchers' findings are in line with the theory which states that stunting toddlers are toddlers whose body length (PB/U) or height (TB/U) according to their age is compared to the WHO-MGRS standard (Multicenter Growth Reference Study) (Alfarisi et al., 2019).

The results of this study indicate that asset ownership is not related to the incidence of stunting in Jombang Regency, East Java, according to the findings of the researchers, all mothers of toddlers interviewed stated that they had their own place to live and some were still joined by their parents, then had private vehicles, as well as income to meet their needs. her toddler every day. This is in contrast to Firna and Setiarini's research (2023), which showed results that in Bangladesh and Rmwanda also showed that the wealth index was related to the incidence of stunting.

The results of this study indicate that the Social Protection Card is not related to the incidence of stunting in Jombang Regency, East Java. After the researchers examined the main informants who had stunted children, it was found that almost all mothers under five did not have a Social Protection Card. This is contrary to the research of Amrullah et al. (2020), which states that KPS beneficiary households can access direct assistance of IDR 150,000/month. It is hoped that this assistance will help poor and vulnerable households to maintain purchasing power when prices rise.

The results of this study indicate that health insurance is not related to the incidence of stunting in Jombang Regency, East Java. According to the findings of the researchers, it was found that health insurance only applies if someone is sick and this insurance is used to get free health services. This is in

line with the research by Widari et al. (2021), states that health insurance has a positive but not significant effect on the incidence of stunting (with a $p = 0.050$ (2013 Riskesdas data) and 0.080 (2018 Riskesdas data), meaning that national health insurance has no effect on the incidence of toddler stunting.

The results of this study indicate that health workers are related to the incidence of stunting in Jombang Regency, East Java, according to the findings of researchers health workers from the health office and puskesmas have provided various health service efforts to eradicate stunting cases, on the other hand there are errors in making measurements caused by the measuring instruments used are not standardized and the toddlers measured are thrashing around. This is in line with study by Azarine et al. (2023), which states that the task of medical officers is to provide health services to the community and be able to provide advice. The role of health workers in reducing the incidence of delays is very important because they are in direct contact with pregnant women.

The results of this study indicate that health institutions are not related to the incidence of stunting in Jombang Regency, East Java. According to the findings of researchers, all health institutions, such as the Health Office and Community Health Centers, have made various efforts to reduce the rate of stunting. This is in line with the study of Azrimaidaliza et al. (2022), which states that it is necessary to design various strategies or programs in preventing and overcoming nutritional problems by involving all relevant agencies at all levels both national and community, working together with a focus on factors such as the economy, access to health and education services.

The results of this study indicate that exclusive breastfeeding is related to the incidence of stunting in Jombang Regency, East

Java. According to the findings of the researchers, many mothers of toddlers provide food for their toddlers such as formula milk and plain water which keeps their children under five from getting exclusive breastfeeding. This is in line with the study of Uwiringiyimana et al. (2022), which states that the chance of stunting is 24% higher for children who are not exclusively breastfed compared to children who are exclusively breastfed. Another study states that children who are breastfed non-exclusively have a nearly two-fold higher likelihood of stunting than their peers (Toma et al., 2023).

The results of this study indicate that weaning foods is related to the incidence of stunting in Jombang Regency, East Java. weaning foods increases the risk of stunting in children under five. This finding is due to the poor quality of the nutritional content in complementary foods given to toddlers. The forms of complementary food given on average are organic porridge and instant porridge, apart from that there are types of complementary food if judging by the lack of nutritional content, such as astor and crackers. This is in line with Hanum's research (2019), which shows that the more appropriate the age of complementary feeding for toddlers, the lower the risk of stunting. Other findings related to giving weaning foods show that there are mothers who give weaning foods to their toddlers at the age of 5 months, this is in line with Guirindola et al. (2021), which states that the introduction of complementary foods that are too early (too early or too late) increases the likelihood that a child will experience stunting by almost two times and become severely stunted by more than four times.

The results of this study indicate that the mother-to-five class is not related to the incidence of stunting in Jombang Regency, East Java, the mother-to-five interviewed took part in various activities, especially in

the integrated service post and outside the integrated service post. This is in line with the study of Mutoharoh et al. (2019), which showed that class activities for mothers of toddlers aged 1-5 years were proven to significantly increase the knowledge of mothers of toddlers about health, nutrition, and stimulation of growth and development in children aged 0-1 years, > 1-2 years and > 2-5 years.

The results of this study indicate that play group education is not related to the incidence of stunting in Jombang Regency, East Java. According to the findings of the researchers, none of the children under five are sent to school on the play group. This is contrary to the study of Hadi et al. (2019), which states that detecting stunting with a Wall Towards Health Card (WTHC) is very easy to do. WTHC walls were able to detect stunting in play group children by 38.0%. The use of this tool is effective and capable and can improve the quality of information on nutritional status data for toddlers related to height/age index.

The results of this study indicate that family planning participation is not related to the incidence of stunting in Jombang Regency, East Java, the findings of the researchers show that all mothers have used family planning and their pregnancies are over 2.5 years or even longer, the types of family planning used are pills, injections and condoms. This is in contrast to Rahmidini's study (2021), which states that birth spacing has a significant effect on reducing the prevalence of stunting.

The results of this study indicate that the level of food diversity is related to the incidence of stunting in Jombang Regency, East Java, the findings of the researchers show that mothers of toddlers provide food menus to their children that are less diverse, if they find one menu that their toddler likes then the menu will be given continuously until the toddler feel bored. This is in line

with research by Margiana et al. (2021), showed that dietary diversity has a relationship with stunting in children aged 6-24 months, children with non-varied food consumption are 3 times more likely to experience stunting compared to children who consume a variety of foods. Another study shows that the prevalence of stunting in children under five is caused by the frequency of eating less than 4 times a day, this is in line with this study because all the mothers of toddlers interviewed complained that their children had difficulty eating (Afeework et al., (2021).

The results of this study indicate that food insecurity is not related to the incidence of stunting in Jombang Regency, East Java, the findings of the researchers show that all mothers of toddlers find it easy and able to access food. This is in line with Carolina's study (2020), which shows that there is no effect of food insecurity on the incidence of stunting in Indonesia. This is indicated by a p-value (significance) of 0.07.

The results of this study indicate that sanitation is related to the incidence of stunting in Jombang Regency, East Java. The findings of the researchers indicate that the form of sanitation that occurs is the disposal of liquid waste into the garden area, there are no toilets, so it requires mothers under five to find a place to defecate and urinate. will run into the river, water for daily needs has been polluted due to local factory waste, waste management where pampers and other waste is disposed of next to the house right beside the main entrance, this can invite various vectors. This is in line with the study of Rahayu and Darmawan (2019), which shows that there is a significant relationship between environmental sanitation and the incidence of stunting in toddlers.

The results of this study indicate that clean water is not related to the incidence of stunting in Jombang Regency, East Java.

According to the findings of the researchers, all mothers of children under five use well water or drilled ground water to carry out activities, specifically drinking water for mothers using non-brand refill water and gallons of water. branded. This is in line with the study of Fibrianti et al. (2021), there is no relationship between clean water supply facilities in healthy homes and the incidence of stunting. Other research shows that most of the mothers of toddlers have used clean water sources that meet the requirements (94.1%), (p value = 1.00) meaning that there is no relationship between clean water sources and stunting (Nisa and Sukesu, 2022).

The results of this study indicate that ownership of the MCH handbook is not related to the incidence of stunting in Jombang Regency, East Java. The research findings show that all mothers under five have MCH handbooks. This is in line with Hasyim and Sulistianingsih (2019), which stated that in multivariate modeling it was found that the MCH handbook had no effect on the nutritional status of toddlers.

The results of this study indicate that complete basic immunization is not related to the incidence of stunting in Jombang Regency, East Java, basically immunization functions to increase the body's immunity or immunity of toddlers so that they are not susceptible to infections that cause toddlers to fall ill, the findings of the researchers show that all toddlers are stunted It turns out that he has received complete basic immunization. This is contrary to research by Taswin et al. (2023), which states that there is a significant relationship between basic immunization and stunting.

The results of this study indicate that the treatment of sick toddlers is not related to the incidence of stunting in Jombang Regency, East Java, East Java. The findings of the researchers show that if a toddler is sick, the

mother will immediately treat the toddler and immediately take him to the nearest health facility. This is in line with the research of Tobing et al. (2021), which states that if the child is sick, the mother takes the child for treatment to the puskesmas because the puskesmas is the closest health facility to the house. Research Mansur et al. (2021), states that the involvement of mothers in making decisions about child health care with fathers (OR = 0.83) is associated with a lower probability of stunting.

The results of this study indicate that growth monitoring is not related to the incidence of stunting in Jombang Regency, East Java, the findings of the researchers show that all mothers under five in this study carry out routine monitoring of their children under five This is in line with Ramadhani et al. (2019), which states that growth monitoring is a problem at the Seberang Padang Health Center even though it does not have a significant relationship with the incidence of stunting so that growth monitoring does not have a significant relationship with the incidence of stunting.

The results of this study indicate that deliveries at health facilities and deliveries at health personnel are not related to the incidence of stunting in Jombang Regency, East Java, in Jombang itself it has a target that 100% deliveries are assisted by health workers and this has been implemented. The findings of the researchers showed that all mothers of toddlers whose children were stunted gave birth at health facilities and were assisted by health workers, so that childbirth itself had no connection with the incidence of stunting. This is in line with Aisy and Kurniasari (2022), which stated that based on a review of articles in 10 journals, 9 articles were found which stated that there was no relationship between history of childbirth and the incidence of stunting in children.

The results of this study indicate that infectious diseases are related to stunting in Jombang Regency, East Java. The findings of the researchers indicate that many mothers of toddlers in this study stated that their children often experience diarrhea, fever, cough, runny nose, allergies. This is in line with Himawati and Fitria's research (2020), which states that there is a relationship between a history of infectious diseases and the incidence of stunting in the working area of the Kerkap Health Center. Research by Subroto et al. (2021), showed that there was a relationship between a history of infectious diseases and the incidence of stunting with OR= 3.23 meaning that a child who had a history of infection would be 3 times at risk of experiencing stunting.

The results of this study indicate that the incidence of stunting in Jombang Regency, East Java has had an impact on children under five. light. This is in line with Kamilia's research (2019), which states stunting is a delay in physical growth and health status. Research by Ginting and Pandiangan (2019), states that children who experience stunting have an impact on stunted growth and are irreversible. Primasari and Keliat (2020) state that the short-term impact of stunting can cause growth failure and suboptimal physical body size.

CONFLICT OF INTEREST

There are no conflict(s) of interest in this study.

AUTHORS CONTRIBUTION

Firdy Rama Permana Putra as a researcher who selects topics, searches for and collects data. Argyo Demartoto and Bhisma Murti analyzed the data and reviewed research documents.

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CONFLICT OF INTEREST

There is no conflict of interest in this study.

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