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Socioeconomic Status as a Root Cause of Child Malnutrition

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Abstract

Nutritional problems increase the prevalence of brain disorders and intellectual development disorders in underweight toddlers by 52%, severe stunting by 6.32%, and severe wasting by 1.22%. The type of qualitative research is related to problems in toddlers who experience nutritional issues. The primary informants were 9 mothers who had malnourished toddlers. Data triangulation involved nutritionists, health cadres, and health center midwives. The research location was in the working area of the Bantul Regency Health Center, Special Region of Yogyakarta. Data were taken by in-depth interviews and home observations. The instruments used were interview guidelines and Healthy Home assessment instruments. Data analysis used thematic analysis. The results obtained 5 themes, including low socio-economic status, health status, parenting style and feeding of toddlers with permissive and unresponsive parenting styles, low maternal education, and poverty resulting in low provision of quality food. Almost all malnourished toddlers experience health problems, and unhealthy housing conditions, and nutrition management carried out by the health center is good.

Introduction

The golden age (golden age in toddlers) is the most crucial period in life. At this time, there are many problems in achieving optimal toddler growth and development. The government programs various efforts in dealing with toddler malnutrition. Preventive and promotive efforts by early detection guidebooks and education on stimulation and nutrition in toddlers. While curative efforts by the Therapeutic Feeding Centers in health facilities. In several health services, these curative efforts have been implemented well by involving cross-sectors and cross-programs (Taguri *et al.,* 2015). The results of a systematic review study stated that interventions to improve good water quality, good sanitation, and maintaining personal hygiene during treatment for severe acute malnutrition can improve recovery but are unable to prevent the recurrence of malnutrition (Patlán-Hernández *et al*., 2022).

Many government programs to overcome malnutrition have not yet been able to free Indonesia from malnutrition. Based on the results of the National Riskesdas in 2018, which stated that toddlers (0-59 months) with malnutrition (BB/A <-3sd) were 3.9%, toddlers with very short (PB/A <-3sd) were 11.59%, toddlers with very thin (severe wasting) BB/PB <-3sd were 3.5% (Indonesian Ministry Of Health, 2014). Meanwhile, Bantul Regency is located in the Special Region of Yogyakarta, ranking second in the problem of toddler nutritional status. In 2018, the nutritional status of toddlers (0-59 months) with underweight (BB/A < -3sd) was 2.52%, toddlers with very short (PB/A < -3sd) were 6.32%, toddlers with very thin (severe wasting) BB/PB < -3sd were 1.22% (Indonesian Ministry Of Health, 2014).

The nutritional status of BB/TB with severe wasting criteria is one of the priorities in health development, according to the policy

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direction of the 2020-2024 RPJMN, the target for 2024 is to reduce the prevalence of wasting to 7% and stunting to 14% (Indonesian Ministry Of Health, 2014). This handling is a priority because children with nutritional problems will be highly susceptible to disorders of brain and mental development in children. The results of a systematic review study stated that children with nutritional issues, especially malnutrition, have lower scores for development. The abilities considered low include children's intelligence, the ability to distinguish colors, the ability to recognize visual images, and a short memory (Pizzol *et al*., 2021).

A child's nutritional status is greatly influenced by parenting patterns, attitudes, and practices of feeding, caring for, and giving affection. Inappropriate parenting patterns in caring for and feeding have a risk of toddlers with protein energy deficiency or experiencing primary malnutrition (Güngör *et al.,* 2023). Other factors include gender, history of low birth weight, immunization coverage, maternal characteristics (knowledge, height, maternal age, nutritional status), number of family members, birth order in the family, child birth weight (Katoch, 2022) and family characteristics (family sanitation, water quality) (Kohlmann *et al*., 2021). Other studies identified factors causing malnutrition using quantitative methods, but in this study, identification used qualitative methods.

Method

It is a qualitative study of problems in toddlers who experience nutritional issues. The location of the study was in one of the working areas of the Health Center in Daerah Bantul Daerah Istimewa Yogyakarta. The primary informants in this study were mothers who had toddlers with malnutrition, understood Indonesian, and were willing to be informants. The initial number of informants was 11 people. However, as the study progressed, 2 informants dropped out. It was because, at the time of the re-checking of the toddler's BB TB, they were no longer malnourished. The other respondents were because the parents were not cooperative, so the appropriate participants were 9 mothers who had toddlers with nutritional problems. Data were collected through in-depth interviews and healthy home observations. The data triangulation process involved 1 nutrition officer from the health center, health cadres, and health center midwives. The instruments used in this study were the researchers themselves assisted by using interview guidelines and Healthy Home assessment instruments from the Ministry of Health of the Republic of Indonesia (Indonesian Ministry Of Health, 2014). The research implementation time took 40-60 minutes. Data collection in this interview was recorded using an audio recorder in the Indonesian language, and a mixture of Javanese. During the interview, verbal and non-verbal communication was used to show appropriate feedback. For example, the researcher nodded to show understanding or motivated the informant to continue the story. The data compilation process was done anonymously to maintain confidentiality. To increase the validity and reliability of the study, the researcher will carry out a strategy to strengthen trustworthiness in the qualitative research phase (credibility, transferability, dependability, and confirmability). Data analysis in this study used thematic analysis by referring to the qualitative research protocol, which includes: transcription, statement extraction, formulating the meaning of each sentence, grouping sub-themes and themes, describing the problem phenomenon as a whole, Formulating and describing the phenomenon studied in a fundamental structure, Final validation to confirm the results of the study.

Results and Discussions

The research location is the working area of the Community Health Center, located in a rural area in the Special Region of Yogyakarta. Public health improvement carried out at the Community Health Center includes individual and community health services. Services provided by the Community Health Center to optimize growth and development are directly involved in existing integrated health service posts (19 integrated health service posts). Activities include nutritional status assessment, development monitoring, direct intervention, and referrals. Toddler nutritional status is monitored through an online application system for community-based nutritional recording

and reporting (e-PPGBM). Development monitoring activities make use of the 2012 SDIDTK manual (Stimulation, Detection, and Intervention in Growth and Development) tahun 2012.

Table 1 shows that toddlers who have poor nutritional status in all three indicators are 4 toddlers (44.44%). 66.67% have Severely Wasting nutritional status, and 66.67% are severely underweight. Toddlers who experience wasting, stunting, or being overweight can result in irreparable damage or stunted growth in later life (Indonesian Ministry Of Health, 2014). A total of 11.11% in Table 1 have Severely stunted stature. Short stature in toddlers is not hereditary, but toddlers do not reach their full linear growth potential and are related to delayed motor development (Mustakim *et al.*, 2022). If this problem is not addressed, it will potentially lead to weak cognitive capacity, which will impact their school readiness, learning ability, and health. Nutrition plays a crucial role in maintaining a person's health. It is an obligation for someone, in this case, parents, to take care of their body so that it functions properly. It is stated in the words of the Prophet Muhammad SAW: "Indeed your body has a right over you" (Almaatani *et al.*, 2017). The results of the identification of interviews and observations obtained 1) Socioeconomic status, 2) Parenting patterns, 3) Unhealthy Housing Conditions, and 4) Health service programs.

Theme 1. Low Socioeconomic Status

Socioeconomic status is defined as the level of education, income, and occupation of parents. The average education level of mothers is high school graduates or equivalent. Mothers with higher education will be more aware of health facilities and the infrastructure thus easily accept the information provided. Low maternal education increases the incidence of stunting. Stunting is one of the problems of malnutrition. Low maternal education increases the incidence of stunting. Stunting is one of the problems of malnutrition (Wijhati *et al.*, 2021). The study found that 72.7% of mothers were housewives, while one worked as a seller. 77.79% of informants were from underprivileged families with jobs in the informal sector, namely craft workers, gas agent workers, poster sellers, workshop workers, and fish sellers. The fulfillment of household needs comes from the father's income. The monthly income generated by the family is between 1-2 million rupiah. The income earned by the family is used for various needs ranging from the father's needs for work operations, payment of various monthly bills, and operational fulfillment of food for one family.

A family's income is linear with the provision of a safe environment, cleanliness, adequate clean water, and adequate sanitation. An environment consisting of clean drinking water, good sanitation, and healthy home conditions with open toilets will reduce the incidence of stunting in toddlers (Mustakim *et al.*, 2022). Poor sanitation will reduce food security and lead to increased infection risk (Taguri *et al.*, 2015). When viewed from the status of residential ownership, the majority are their own homes, but one subject family lives in a boarding house, and 2 families live with parents who do not work. Poverty is

TABLE 1. Respondents Data

Informant Code	Informants	Remarks
Informant 1-9	Mother with malnourished toddler	Key Informant
Informant 10	Health Center Nutrition Officer	Supporting informant
Informant 11	Community Health Center Midwife	Supporting informant
Informant 12	Health Cadres	Supporting informant

TABLE 2. Respondent Characteristics

Code	Gender	Weight for Height	Weight for Age	Height for age
Informant 1	Boy	Wasting	Normal	normal
Informant 2	Girl	Severely Wasting	severely underweight	stunting
Informant 3	Boy	Severely Wasting	severely underweight	Severely stunting
Informant 4	Boy	Severely Wasting	severely underweight	stunting
Informant 5	Boy	Wasting	underweight	normal
Informant 6	Girl	Severely Wasting	severely underweight	normal
Informant 7	Boy	Wasting	underweight	normal
Informant 8	P	Severely Wasting	severely underweight	Stunting
Informant 9	P	Severely Wasting	severely underweight	normal

one of the dominant factors contributing to wasting / very thin rates in toddlers because families have obstacles in providing food and nutritional services (UNICEF, 2021). Lack of family food availability in the long term can result in malnutrition even though the toddler is not sick (Taguri *et al.*, 2015). Rahma *et al.*, (2020) Their research showed that toddlers from low-income families have a 10.222 times greater risk of malnutrition. Low family income accompanied by low maternal education levels has a high risk of nutritional problems in toddlers (Owoaje *et al.*, 2014).

The majority of the attendance rate of subjects in posyandu activities is good. It is proven by the recapitulation of data owned by health cadres. However, when viewed from the data in the KIA book, there are still nutritional status graphs that have not been filled in. It is because posyandu activities have only just started since COVID-19, and there are also problems for mothers of toddlers.

"*When the mother was told about her child's condition, it was as if she couldn't accept it. So she felt that her child was fine.*" (informant 12)

"*I never bring the KIA book, because the cadres always scold me. Why isn't your child's weight increasing? I'm annoyed.*" (Informant 9).

The lack of self-confidence caused by mothers in accompanying their children to visit Posyandu is due to the lack of positive support from the community and the mothers' knowledge about the importance of monitoring the nutritional status of toddlers. Low self-confidence makes mothers unhappy and reduces the opportunity to accompany their children. Mothers' self-confidence is also highly correlated with the existence of proper feeding practices (Kohlmann *et al.*, 2021).

Pattern

The specific parenting raised in this study is related to parenting style and child feeding style. According to Harborn, the parenting style widely applied by respondent mothers is an indulgent/permissive parenting style with an unresponsive feeding style (Almaatani *et al.*, 2017). Mothers pay less attention to the diet and the food their children eat daily (Tardy *et al.*, 2020). Most mothers said they do not immediately prepare their children's food but buy fast food. Children are not used to eating according to a meal schedule.

"*Regarding breakfast, it depends on when the child wakes up. If the child wakes up at 10 am, then I serve breakfast*" (Informant 2) .

"Regarding breakfast, it's difficult. Because when waking up, the child asks for milk. If I don't give in, the child cries" (Informant 1).

"The child asks for breakfast in the morning, even though sometimes the child doesn't finish it" (Informant 2)

"The meals that are always finished are breakfast and dinner" (Informant 8)

There is no meal schedule because the child wakes up late. The child often does not want to eat because he has had milk when he wakes up and prefers to choose snacks rather than main meals. This habit makes the child feel full before the main meal. The most common habit is eating something or drinking

milk before the main meal. It makes the meal duration long (±30 minutes), and children often do not finish their main meal. Mothers have not implemented a balanced food menu on their children's serving plates. The menu commonly given to most children is rice, eggs, tempeh, vegetables, and occasionally chicken or fish. The presentation is often in the form of rice and eggs, rice and vegetables, rice and tempeh, or just rice. The food given to children does not match the child's nutritional needs. Healthy eating habits are influenced by the parents' habits. However, this habit does not always have a positive meaning and sometimes conflicts with a healthy eating menu (Almaatani *et al*., 2017).

"*Well.. sometimes the child only eats rice. He will finish eating only rice. For me, the important thing is that the child eats rice*" (Informant 1).

"*When feeding children, parents often say that the important thing is that the child fell full* " (Informant 10).

It is supported by the results of interviews with nutritionists at the Community Health Center

"*Parenting and child diet are the dominant factors in malnutrition in children here. Mothers always prefer to give organic porridge commonly sold without clearly stating any nutritional content. Toddlers here are mostly given organic porridge, even a one-day menu. The KIA book is also not utilized properly* " (Informan 10).

Improper parenting practices lead to unhealthy eating habits (e.g., overeating, eating without hunger, emotional eating, etc.). It can increase the risk of overweight and obesity (Lindsay *et al.*, 2017). The results of a systematic review showed that complementary feeding with strict supervision during meals and no activities other than eating can reduce the incidence of obesity at an early age (Bergamini *et al.*, 2022). Most informants stated that their children had comorbidities during their growth and development. There were 3 respondents with a history of being born with low birth weight. The diseases that were and are being suffered are 1 subject who had suffered from childhood pulmonary TB and underwent routine treatment (Informant 3), 1 post-epilepsy treatment (Informant 2), 1 child with Down syndrome (Informant 1), 1 child monitoring nutritional intake (Informant 6), persistent diarrhea (child has not been detected with the disease).

Infectious diseases such as TB and malnutrition have a very close relationship. Diseases interfere with the absorption of nutrients in the digestive process of toddlers. This condition will result in a decrease in the weight of toddlers. Weight loss is related to inadequate nutritional intake, causing chronic nutritional problems that will lead to stunting (Tardy *et al.*, 2020). On the other hand, malnutrition is also one of the causes of TB (Dahwan *et al.*, 2020). The association of malnutrition as a risk factor for TB in children has not been definitively established. It is because diagnostic tests for TB in children are less sensitive. So, the diagnosis is often based on clinical findings without bacteriological confirmation. The establishment of malnutrition as a causal factor for TB has been through inference and extrapolation from data from studies of adults, BCG-vaccinated children, children with latent TB infection, and animal models. Severe malnutrition is associated with decreased rates of tuberculin skin test positivity in BCG-vaccinated children, suggesting impaired cellular immune function and an increased risk for developing active disease. Thus, adults with coexisting latent TB infection and low BMI have reduced protective cytokine responses and increased production of regulatory cytokines compared with individuals with latent TB infection and normal BMI. Studies in guinea pigs challenged with M. tuberculosis (402–404) and mice suggest that protein malnutrition reduces resistance to TB through defects in innate and adaptive immune function. Compromised host defenses are associated with impaired T cell trafficking and proliferation, reduced production of protective cytokines (IFN-γ and TNF-α), impaired granuloma maturation, and reduced macrophage effector function (e.g., nitric oxide generation). Malnourished mice challenged with BCG also have reduced IFN-γ and TNF-α production and increased risk of bacterial dissemination. BCG vaccination fails to protect protein-deficient guinea pigs against M. tuberculosis challenge (Ibrahim *et al.*, 2017).

Unhealthy Housing Conditions

The assessment of 9 informants results they have unhealthy houses. 66.67% of houses do not have ceilings (Informants 1,2,4,5,8). As many as 22.22% of the walls are not permanent walls (Informants 3,8). As many as 11% of the floors are still dirt (Informant 8). The house has permanent ventilation, but the area is <10% of the house area, as many as 66.67% (Informants 1,3,4,5,8,9). The lighting in most houses is not bright enough so it required lamp light when the researcher conducted interviews (55.56%) (Informants 1,2,6,8,9). As many as 44.44% have a kitchen smoke hole but it is not sufficient (<10% of the kitchen area) (Informants 4, 5, 6, 9). Most clean water facilities are their own and meet health needs, however, there is still 1 family (Informant 8) who has clean water facilities from a well with a distance of 5-7 meters from the goat pen and septic tank. As many as 100% of subjects defecate in their respective toilets with a goose-neck toilet model. 100% of subjects dispose of garbage in closed trash cans collected by garbage officers periodically (once every 2-3 days). Environmental and house conditions at the time of the visit, five houses (55.56%) looked dusty (Informants 1, 2, 3, 8, 6), one house looked clean (Informant 7), three houses felt damp and stuffy (Informant 9, Informant 4, Informant 5).

Poor sanitation will reduce food security and can increase the risk of infection. Examples of infectious diseases caused by poor sanitation and environment are diarrhea and worms. These infections interfere with the absorption of nutrients in the toddler's digestive process. This condition will result in anemia, and in chronic conditions, the toddler's weight will decrease. Weight loss accompanied by inadequate nutritional intake will cause chronic nutritional problems, which will cause stunting (Wijhati *et al.*, 2021; Djuardi *et al.*, 2021).

Health Center Service Program

The assessment of nutritional problems among toddlers in the community begins with evaluations conducted by health cadres through Posyandu Balita (Integrated Health Service Post for Children Under Five) activities.

"As midwives, we are tasked with integrated health services (posyandu). Observing the implementation of posyandu, screening toddler development, and monitoring weight measuring. If any toddler has nutritional issues, we will refer to Puskesmas to be checked by a nutritionist" (Informant 11)

Toddlers identified as having nutritional problems are referred to the health center. The report results are followed up by nutrition officers for re-examination at the Health Center. Toddlers who are analyzed for malnutrition are re-examined for the cause of the child's nutritional problems. Toddlers who have problems due to nutritional intake will be handled directly by nutrition officers, but if there are other causes, then cross-program action will be involved. Not only reviewed by nutritionists but also identified from cross-programs (health promotion programs, environmental health, village midwives, etc.). Handling and management of malnutrition at the Health Center is by a medical team, namely midwives, nurses, nutritionists, and referrals to pediatricians for intervention. The handling carried out was counseling and education from nutrition officers and Supplementary Food Provision. It was obtained from Village Funds, Baznas, APBD (Regional Revenue and Expenditure Budget) of Bantul Regency. The Supplementary Food Provision provided was biscuits from the Health Office, milk, and multivitamins.

*"The obstacle experienced in handling malnutrition is the large number of toddlers who experience malnutrition. So the main priority in handling cross-programs is toddlers with malnutrition first, Interventions for malnutrition in the form of counseling only "(*Informant 10).

It is not explained exactly for the content of biscuits and multivitamins provided by the health center. Providing additional food appropriate to the needs of toddlers with nutritional problems is by providing micronutrients. Micronutrients help the body produce hormones and materials needed by the body to grow and develop (Tardy *et al.,* 2020). The provision of mineral micronutrient supplements such as zinc and iron has been shown in many studies to increase toddlers' appetite. Zinc supplementation increases the average frequency of eating from 4.16 to 4.8 times per day. Meanwhile, zinc and iron

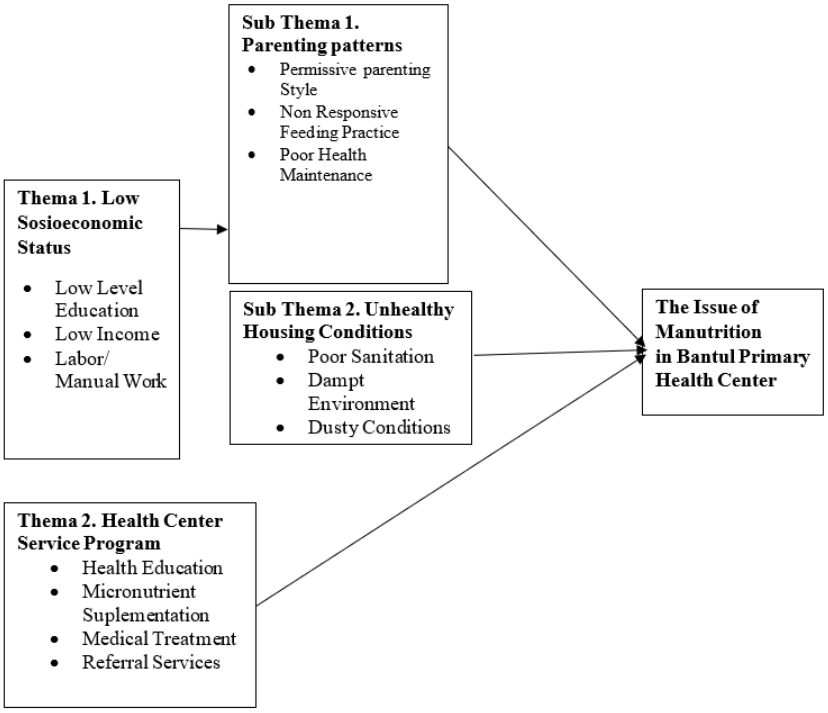

Figure 1. Research Results Chart

supplementation can increase the average frequency of eating from 4.1 to 5 times per day. This means that zinc supplementation along with iron can increase the frequency of eating more than zinc supplementation alone or iron alone. In addition to meal frequency, increased appetite can also be seen from increased energy intake. Other studies state that providing zinc and iron supplements together can increase toddlers' appetite (Candra, 2017). Zinc and iron supplementation proved to improve toddlers' nutritional status. One of the causes of weight gain is increased appetite. Zinc and iron supplementation can also help toddlers achieve optimal height. The height increase in toddlers over 2 years is slower than in toddlers under 2 years. Therefore, it takes a longer time to provide supplementation to increase height significantly. Zinc supplementation for 6 months can increase children's height and weight more than placebo (4.9 ± 1.3 vs 3.6 ± 0.9 cm, $p < 0.001$ (Candra, 2017). Other studies have stated that vitamin A supplementation can be one way to increase toddler weight, although there is not much evidence in meta-analyses (Das *et al.*, 2020). From the results obtained, it can be concluded in the chart below.

Conclussions

From the results, we concluded that toddlers experience malnutrition because of low socioeconomic status, which causes a permissive parenting style so that feeding is not responsive. Low maternal education and poverty result in low provision of quality food and unhealthy housing conditions, which cause health problems. The existing health service center program has been implemented well. Recommendations given are increasing literacy in a democratic parenting style and preventing malnutrition by routinely providing zinc and zinc supplements. This research needs to be continued with a mixed method and a different and broader research scope so that it can provide broader insights regarding malnutrition in toddlers.

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