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Research Article

Analysis of the Impact of Stunting on Psychosocial Development in Pre-School Children in the Working Area Seberang Padang Community Health Center

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Abstract

Aims: This study aimed to determine the impact of stunting on psychosocial development in preschool children in terms of motoric, cognitive, affective, language, personality, moral spiritual, social the working area of the Seberang Padang Health Center in 2022.

Method: Research's type is quantitative with a descriptive research design. The sample population in this study were Children age 3-6 years who experienced stunting in the previous year in the Seberang Padang Health Center Work Area, totaling sample is 32 people. Sampling using the proportional random sampling method The instrument used is the evaluation of psychosocial development. Data analysis is univariate.

Result: This research was conducted on preschool children (3-6 years), where there were 13 girls and 19 boys. This study shows that less than half of the respondents (46.7%) analyze the impact of stunting at risk on psychosocial development with the following details: more than half (53.1%) the impact of stunting is at risk on psychosocial (motor) development, less than half (46.7%) the impact of stunting has a risk on psychosocial (cognitive) development, less than half (31.2%) the impact of stunting has a risk on psychosocial (affective) development, and more than half (53.1%) the impact of a risk on psychosocial (language) development. at risk for psychosocial (social) development.

Conclusion: addressing stunting and ensuring proper nutrition during pregnancy and early childhood is crucial for optimal child development and long-term well-being.

Discussion: the leadership of the opposite Padang health center should provide education to mothers regarding nutritious food and psychosocial monitoring of preschool children at least once a month.

Keywords:

Preschool, Psychosocial Development, Stunting

INTRODUCTION

(1)Stunting refers to a condition characterized by significantly below-average height as determined by the standard WHO-MGRS (Multicenter Growth Reference Study). (2)Stunting occurs when children under the age of five (toddlers) fail to develop properly due to chronic malnutrition and recurring infections within

the first 1000 days of life (HPK). Children with stunting will appear shorter than the average height for their age according to the national standard. (3)The prevalence of stunting in Southeast Asia is comparatively lower at 24.7%. In contrast, the Basic Health Research Data (Riskesmas) consistently shows that the prevalence of stunting in Indonesia from 2007 to 2018 remained in the high category. (3)According to the

Indonesian Nutritional Status Survey (SSGI), the prevalence of stunting in Indonesia was 27.7% in 2019, 24.4% in 2020, and 21.6% in 2021.

According to the data, in 2021, the stunting 27.47% to 23.3%. However, it still falls significantly short of the national target of 14% by 2024. The COVID-19 pandemic has played a role in this situation, as it has had an economic impact on families, leading to layoffs and difficulties in accessing food as well as disruptions in healthcare services. The Padang City Health Office's data collection reveals that the Seberang Padang Health Center has the highest incidence rate of stunting in the city of Padang, which stands at 16.44%.

(3)The issue of stunting among children under the age of five is a chronic nutritional problem that is influenced by various health factors. These factors include the health condition of the mother during pregnancy, the weight of the fetus, the weight of the infant or toddler, the presence of direct or indirect diseases, and overall health problems faced by the child.

(4)Toddlers with stunting will have a different level of intelligence than toddlers in general; this makes children susceptible to various diseases and is at risk of decreasing productivity in the future. The impact will expand even further to hamper economic growth and increase poverty. (5)Stunting indicates a disturbance in the body's organs, where the brain is one of the organs that is most quickly damaged when a child experiences nutritional disorders. (6)Damage to the brain certainly affects children not only from a motoric aspect but also from a psychosocial aspect. Children with stunting will easily experience the feeling as if they are younger than their age and the risk of getting bullied, ridiculed, and disturbed during adolescence, where height can affect their self-image and self-efficacy when interacting with peers.

(7)Impacts of stunting can lead to various disturbances in children, including psychosocial problems in later stages of

their development. (8)According to the World Health Organization (WHO), stunting can cause developmental delays in children due to growth delays. One noticeable effect of this delay is the cognitive development delay, which can manifest in a child's academic performance. Cognitive abilities such as critical thinking, problem-solving, and memory may be compromised or hindered. (9)Research conducted by Solihin et al. (2013) establishes a relationship between cognitive development and the occurrence of stunting in children, demonstrating a direct correlation between cognitive development and a child's height. (10)Another study by Pangaribuan et al. (2021) reveals that 68% of preschool children with stunting experience deficits in motor and psychosocial development. This study highlights the close correlation between stunting and the motoric and psychological development of preschool-aged children.

(11)In addition, the psychosocial development of children consists of developmental tasks and developmental aspects. The development aspect consists of 8 aspects, namely motor, cognitive, language, emotional, personality, moral, spiritual, and social aspects. Each child has a unique aspect of developing abilities and aspects that are interconnected with one another. (12)According to the psychosocial theory developed by Erickson, children of preschool age have developmental tasks that must be fulfilled, namely developing initiatives for solving problems. (1)Children with stunting are more likely to tire easily, lack enthusiasm, have difficulty concentrating, be unable to solve problems, and be prone to disease (the child's body is susceptible to infectious diseases because the child's immunity decreases). (1)One of the government's efforts to prevent stunting is to improve diet, parenting, sanitation, and access to clean water. (2)According to Rahmawati and Agustin (2020), providing psychosocial stimulation to toddlers has significant benefits for their growth and development.

In the case of stunted children, the role of parents is crucial in providing this stimulation, as it not only affects their physical development but also has a profound impact on their psychosocial development.

In an early survey conducted on April 28, 2022, researchers interviewed ten mothers who had stunted children. The mothers reported that their children had been experiencing stunting for approximately one year. The causes identified by the mothers included decreased appetite, frequent illnesses, reduced enthusiasm, easy fatigue, and difficulty concentrating. Anthropometric measurements were taken using the height/age index (TB/U) in accordance with the Regulation of the Minister of Health of the Republic of Indonesia No. 2 of 2020. The measurements revealed that the children had a height/age ratio (TB/U) that was below the normal range, indicating short stature.

Based on the provided information, it appears that the researcher intends to conduct a study in 2022 on the analysis of

the impact of stunting on the psychosocial development of preschool children in the working area of the Seberang Padang Health Center. The study aims to investigate how stunting affects the psychosocial development of children in that particular area.

METHODS

The study's sample population consists of 32 children who experienced stunting in the previous year within the Seberang Padang Public Health Center Area. These children will be selected to participate in the research to examine the impact of stunting on their psychosocial development.

The design of this study is descriptive, in which the researcher looks at the descriptions of children who are stunted in their psychosocial development as preschoolers. Sampling using the proportional random sampling method The instrument used is an evaluation of psychosocial development in preschool-age children.

RESULTS

This research was conducted on preschool children (3-6 years), where there were 13 girls and 19 boys.

1.1 Psychosocial Development

Table 1.1
Distribution of Psychosocial Development in Preschool Children in Work Area of the Seberang Padang Health Center in 2022

Psychosocial Development	F	%
Risk	15	46,9
Normal	17	53,1
Total	32	100

Based on Table 1.1, it indicates that less than half of the respondents (46.9%) were found to have a higher risk of experiencing the impact of stunting on psychosocial development among preschool children in the working area of Seberang Padang Health Center in 2022.

1.2 Psychosocial Development (Motor)

Table 1.2
Distribution of the Impact of Stunting on Psychosocial (Motoric) Development in Pre-School Children in Work Area of the Seberang Padang Health Center in 2022

Psychosocial Development (Motoric)	<i>f</i>	%
Risk	17	53,1
Normal	15	46,9
Total	32	100

Based on Table 1.2, it indicates that more than half of the respondents (53.1%) are at risk of experiencing the impact of stunting on psychosocial (motoric) development among preschool children in the working area of Seberang Padang Health Center in 2022.

1.3 Psychosocial Development (Cognitive)

Table 1.3
Distribution of the Impact of Stunting on Psychosocial (Cognitive) Development in Pre-School Children in the work area of the Seberang Padang Health Center in 2022

Psychosocial Development (Cognitive)	<i>f</i>	%
Risk	15	46,9
Normal	17	53,1
Total	32	100

Based on Table 1.3, it indicates that less than half of the respondents (46.7%) are at risk of experiencing the impact of stunting on psychosocial (cognitive) development among preschool children in the working area of Seberang Padang Health Center in 2022.

1.4 Psychosocial Development (Affective)

Table 1.4
Distribution of the Impact of Stunting on Psychosocial (Affective) Development in Preschool Children in the work area of the Seberang Padang Health Center in 2022

Psychosocial Development (Affective)	<i>f</i>	%
Risk	10	31,2
Normal	22	68,8
Total	32	100

Based on Table 1.4, it indicates that less than half of the respondents (31.2%) are at risk of experiencing the impact of stunting on psychosocial (affective) development among preschool children in the working area of Seberang Padang Health Center in 2022.

1.5 Psychosocial Development (Language)

Table 1.5
Distribution of the Impact of Stunting on Psychosocial (Language) Development in Preschool Children in the work area of the Seberang Padang Health Center in 2022

Psychosocial Development (Language)	<i>f</i>	%
Risk	17	53,1
Normal	25	46,9
Total	32	100

Based on Table 1.5, it indicates that more than half of the respondents (53.1%) are at risk of experiencing the impact of stunting on psychosocial (language) development among preschool children in the working area of Seberang Padang Health Center in 2022.

1.6 Psychosocial Development (Personality)

Table 1.6
Distribution of the Impact of Stunting on Psychosocial Development (Personality) in Pre-School Children in the Working Area of the Seberang Padang Health Center in 2022

Psychosocial Development (Personality)	<i>f</i>	%
Risk	20	62,5
Normal	12	37,5
Total	32	100

Based on Table 1.6, it indicates that more than half of the respondents (62.5%) are at risk of experiencing the impact of stunting on psychosocial development (personality) among preschool children in the working area of Seberang Padang Health Center in 2022.

1.7 Psychosocial Development (Moral-Spiritual)

Table 1.7
Distribution of the Impact of Stunting on Psychosocial (Spiritual and Moral) Development in Pre-School Children in the Working Area of the Seberang Padang Health Center in 2022

Psychosocial Development (Moral-Spiritual)	<i>f</i>	%
Risk	19	59,4
Normal	13	40,6
Total	32	100

Based on Table 1.7, it indicates that more than half of the respondents (59.4%) are at risk of experiencing the impact of stunting on psychosocial (spiritual and moral) development among preschool children in the working area of Seberang Padang Health Center in 2022.

1.8 Psychosocial Development (Social)

Table 1.8
Distribution of the Impact of Stunting on Psychosocial (Social) Development in Pre-School Children in the Working Area of the Seberang Padang Health Center in 2022

Psychosocial Development (Social)	<i>f</i>	%
Risk	16	50,0
Normal	16	50,0
Total	32	100

Based on Table 1.8, it indicates that half of the respondents (50.0%) are at risk of experiencing the impact of stunting on psychosocial (social) development among preschool children in the working area of Seberang Padang Health Center in 2022.

DISCUSSION

The findings of this study indicate that in 2022, there will be a total of 32 preschool children affected by stunting in the Seberang Padang Health Center work area, distributed across 10 Posyandu (integrated health posts). Throughout the research, it was observed that these 32 children experienced growth and developmental disorders due to malnutrition that started during infancy. Additionally, despite some children being obese, their height did not correspond to their age.

Stunting can occur from the time a child is in the womb or shortly after birth until they reach the age of two, as reflected in their height. Various factors contribute to stunting, and one such factor is the mother's level of education. Mothers with an elementary school (SD) educational background or those who did not attend school are at a higher risk of having stunted children compared to mothers with higher education levels. The likelihood of a child being stunted before the age of two increases as the mother's level of education decreases. This correlation is related to the mother's understanding of pregnancy-related information and the insufficient intake of supplements and nutrition during pregnancy.

Additionally, it is important for mothers to continue acquiring pregnancy-related information and understanding after giving birth, especially regarding the practice of exclusive breastfeeding without introducing other complementary foods before the child reaches 6 months of age. When introducing complementary foods, known as complementary feeding or MPASI, at 6 months, mothers need to carefully choose the types of food to meet the child's nutritional needs that breast milk alone cannot provide. This stage is crucial for children as they start developing their immune system based on the intake they consume. However, several factors come into play, including the relatively high cost of nutritious food in Indonesia. This poses challenges for pregnant women and children in accessing adequate nutrition from food sources.

Furthermore, research has revealed a correlation between the prevalence of stunting and the demographic conditions of the mother. Mothers residing in rural areas, particularly in smaller or more remote regions, are more likely to have children affected by stunting compared to mothers living in larger urban areas. (13)A study conducted by Ekholuenetale et al. (2020) on the impact of stunting on early childhood cognitive development in Benin, based on the Demographic and Health Survey, demonstrated that children whose mothers had received junior and senior high school education, listened to the radio, and watched television showed better cognitive development compared to children whose

mothers had no education. Additionally, children of working mothers exhibited an 8% increase in cognitive development.

(1) In conclusion, mothers with low educational backgrounds and low socioeconomic status may lack awareness about proper nutrition during pregnancy and the dietary needs of their children during the crucial period of growth and development. Stunting has a significant impact on child development, both in the short term and the long term. In the short term, stunted children may experience suboptimal cognitive, motoric, and language development, which can have long-lasting effects on their capacity to understand and learn, as evident in their academic performance.

Multiple studies support the notion that stunting consistently affects motoric and cognitive development in early childhood. (14) For instance, a study by Beekum, Berger, Geystelen et al. (2022) established a strong relationship between anthropometric status at 12 months of age and motoric and cognitive development in early childhood, emphasizing the impact of stunting. (15) Another study by Setianingsih et al. (2019) investigated the impact of stunting on children aged 12 to 60 months and highlighted that stunting reflects nutritional deficiencies and infections experienced before and during the child's first year of life, posing a risk to brain development. Insufficient nutrition from prenatal stages to early childhood can disrupt nerve and brain development, leading to limited vocabulary and lower intelligence in children.

Overall, addressing stunting and ensuring proper nutrition during pregnancy and early childhood is crucial for optimal child development and long-term well-being.

1. Psychosocial Development (Motoric)

This study identified that 53.1% of children were at risk of stunting their motoric development, as they exhibited difficulties in activities such as walking on a catwalk, jumping, drawing and cutting out patterns, and drawing. (16) A

study by Hizni et al. (2010) supported these findings, highlighting that stunting increases the risk of motor development delays in children by four times. These delays can be observed through improper development of nerve cells, slower motor movements, and slower responses in children at risk of stunting.

(17) Movement plays a crucial role in the development of children's motor skills. Children who engage in a wide range of movements benefit from improved motor skills, both gross motor skills (involving larger muscle groups) and fine motor skills (involving smaller muscle groups). These motor skills act as stimuli for intelligence and overall health development.

(14) A previous study conducted by Beekum, Berger, Geystelen et al. (2022) also found a strong correlation between anthropometric status at 12 months of age and motor development. They observed that children with stunting experienced delays in basic gross motor skills such as sitting, standing, and walking, as well as fine motor skills such as bringing objects to their mouths. (18) Stunted children often have reduced muscle mass, which can hinder their ability to move and delay the mastery of movement abilities such as walking, jumping, running, and grasping.

2. Psychosocial Development (Cognitive)

The study results indicate that children with a history of stunting in the previous year have a 46.9% risk of cognitive impairment. Although this rate is slightly lower than the rate of normal development (53.1%), it is still significant as it affects children's cognitive abilities in subsequent developmental stages. Children at risk of experiencing the impact of psychosocial development on the cognitive aspect may exhibit difficulties

in following three-step instructions, recognizing more than four colors, forming complete sentences while storytelling, mentioning the day of the week, and expressing imagination through storytelling. Cognitive development in preschool-aged children involves the development of reasoning, memory, problem-solving, learning, and the ability to articulate and comprehend knowledge. This development is particularly important as it influences children's abilities in all learning activities. The cognitive development achieved during preschool age serves as a predictor of future achievements, as it involves the construction of knowledge through thought processes. Children's cognitive skills are associated with their ability to develop common sense in problem-solving activities, understand, analyze, form new understandings, and make sense of their experiences. These abilities significantly impact a child's life and future.

(13)A study by Ekholuenetale et al. (2020) on the impact of stunting on early childhood cognitive development in Benin, based on evidence from the Demographic and Health Survey, found that stunted children experience a 7% decline in cognitive development compared to non-stunted children. Stunted children often have shorter and less connected brain cells. These short and unconnected brain cells contribute to below-average intelligence and lower IQ scores among stunted children.

(19)The impact of stunting on cognitive abilities varies. Stunting has negative effects on cognitive abilities, including lower IQ and academic achievement. Children experience difficulties in various aspects of their lives. (20)A study by Koshy et al. (2022) on the analysis of cognitive development differences in school-age children who experienced stunting from an early age found that these children had IQ scores

4-5 points lower than the cognitive abilities of their peers at age 9. (21)However, children who experienced stunting early in life can catch up and show significant changes in cognitive abilities compared to those who faced continuous hindrances throughout their childhood.

(22)Additionally, conducted a study highlighting the relationship between cognitive abilities and the maturation of physiological development, particularly in the first five years. Children who demonstrate conscious movement of their arms, legs, and head are interpreted as having sufficient nerve and muscle development, which, when combined with physical, learning, and language stimulation, allows them to develop their thinking abilities, imagination, vocabulary, and effective use of complete sentences in language.

3. Psychosocial Development (Affective)

The study results indicate that less than half of the children (31.2%) are at risk for psychosocial (affective) development due to stunting in preschool children in the working area of the Opposite Health Center in 2022. (23)This aligns with the findings of research conducted by Sakti (2020) on the effect of stunting on the growth and development of children during the critical early childhood period. According to this research, stunting disrupts physical development, which consequently affects optimal brain development during this critical period. Stunting in Indonesia has also been found to disrupt the social and affective development of children. The term "affective" refers to feelings, moods, or emotions that manifest in attitudes, values, interests, appreciation, character, morals, and individual behavior. (24)Some affective components that can be observed in children include interest, attitude,

value, and appreciation. (25) Research by Manggala et al. (2018) explains that stunted children experience delays in the maturation of nerve cells responsible for regulating motor movements, resulting in disruptions in both gross and fine motor development. This, in turn, negatively affects the child's intelligence. Collectively, these conditions impede the growth and development of children. Delays in growth and development also impact children's responses through their five senses. A study by Manggala et al. (2018) on stunted children in Indonesia found that they tend to exhibit quietness and poor motor, cognitive, and affective responses. (25) Stunting has a negative impact on the growth and development of children, affecting all aspects of their development until the age of five. Interventions and stimuli are necessary to address the developmental delays in children according to their age.

4. Psychosocial Development (Language)

The study results indicate that 53.1% of children with a history of stunting experience psychosocial impacts on the language aspect. These impacts are reflected in the child's inability to state their full name, nickname, and gender, understand meanings, and express gratitude and apologies. (14) Moreover, a previous study conducted by Beekum, Berger, Geystelen et al. (2022) found a strong relationship between anthropometric status at 12 months of age and language development in early childhood. According to their findings, stunted children face challenges in following objects with their eyes, reacting to sounds, interacting with people around them, and speaking a few words. When comparing the two studies, it becomes evident that children who have experienced stunting earlier in life show changes in their language skills as they progress in their

development. These changes range from difficulties in reacting to sounds and interacting with others to the inability to express simple words such as their name, nickname, and gender, as well as convey gratitude and apologies in specific situations.

5. Psychosocial Development (Personality)

The study findings reveal that more than half of the children (62.5%) with psychosocial (personality) development are at risk of experiencing stunting in pre-school children in the working area of the opposite side of the Padang health center in 2022. (26) These results align with research conducted by Muhammad R.D. Mustakim (2022) titled "Impact of Stunting on Development of Children between 1 and 3 Years of Age," which indicates that children with stunting have a higher likelihood of experiencing suspected developmental delays compared to non-stunted children. Stunting has various developmental impacts, including delays in personality development among stunted children.

Psychosocial (personality) development in children is closely related to their basic growth and developmental needs, which require continuous stimulation. (27) Mental stimulation plays a crucial role in the learning process, contributing to the development of psychosocial aspects such as mental development, intelligence, skills, independence, creativity, religious understanding, personality, moral-ethics, and productivity.

The association between stunting and child development is significant, as factors such as gender, age, and nutritional status greatly influence children's development. The presence of stunted children compared to non-stunted children can lead to differences in their abilities and self-control. Stunted children often exhibit distinct



developmental characteristics compared to non-stunted children.

6. Psychosocial Development (Moral-Spiritual)

The study reveals that 59.5% of pre-school children in this study experienced the risk of stunting's impact on psychosocial development, particularly in the moral and spiritual aspects. It was observed that pre-school children with a history of stunting did not actively participate in worship activities within the family or engage in activities involving prayers before and after. The impact of stunting, which predominantly affects motor, cognitive, and language aspects, can also extend to other areas, such as moral and spiritual development. Proficiency in motor, cognitive, and language skills enables children to understand and respond to experiences, contributing to the development of attitudes or effective reactions to stimuli or situations. (28) Since children are still under adult supervision, they closely observe and learn from the moral behavior exhibited by adults. During the preschool years, children engage in a process of observation, attention, and imitation. Their moral and spiritual development is heavily influenced by the family and the behaviors and speech patterns they witness at home. The family environment plays a crucial role in shaping a child's moral values as parents are constantly present in their lives. It is important for parents to exercise control over their own behavior and speech when in the presence of their children, as children tend to imitate what they see and hear. (28) The moral compass of a child is shaped by the quality of their family environment, and parents must provide positive examples to prevent misperceptions. When children observe or hear something, their initial instinct is to imitate it. (29) Children's moral learning experiences are closely tied to

social norms and are also influenced by religious values. Religious attitudes are seen as the manifestation of one's level of obedience to religious teachings. (29) Children are taught to establish a connection with higher and spiritual entities to attain life's goals and meanings. Moral and spiritual aspects in children manifest through appropriate behavior and actions that avoid mistakes, in line with the expectations of their religious and social communities. (28) Regarding the religious aspect, it heavily relies on how parents teach and apply religious values at home. By instilling these values within the home environment, children develop familiarity and discipline in matters of religion. It is essential to cultivate religious values and discipline in children, ensuring that they adhere to these principles both at home and outside, as they navigate the world beyond their immediate family.

7. Psychosocial Development (Social)

The study reveals that children with a history of stunting in the previous year have a 50% risk of experiencing social disorders. While this risk may be considered half of the normal rate, it still cannot be overlooked due to its impact on children's social abilities in subsequent developmental stages. Stunted children who are at risk of experiencing the effects of psychosocial development on social aspects may exhibit difficulties in playing with kitchen tools, household utensils, and assuming different roles. (30) Research conducted by Ruth Hanani and Ahmad Syauqy (2016) investigating the differences in gross motor, fine motor, language, and personal-social development between stunted and non-stunted children found that stunted children showed higher rates of suspected developmental delays in social personal development (87.5%), language (75%), gross motor skills (25%), and fine motor skills (12.5%).



(12) Additionally, stunted children with malnutrition are more susceptible to infectious diseases due to their weakened condition, resulting in frequent illnesses and delays in physical activities. These limitations in physical activity hinder children's exploration of their environment, which, in turn, hampers their personal and social development within that environment. Insufficient nutrition or undernutrition affects the growth, development, and physical activity of children, ultimately influencing brain development through caregiver behavior, parenting styles, and the child's interaction with their surroundings. Children may exhibit apathetic attitudes towards their social environment under conditions of malnutrition. Caregivers, perceiving stunted children as younger than their actual age, may inadvertently hinder the child's personal development. (12) This contrasts with the fact that preschool children between the ages of 3 and 6 years are in a phase of self-control and initiative-taking, necessitating social interaction with their peers.

CONCLUSION

Less than half of the respondents (46.7%) analysis of the impact of stunting is at risk for psychosocial development, with the following details: More than half (53.1%) of the impact of stunting is at risk of psychosocial development (Motoric), less than half (46.9%) is at risk of psychosocial (cognitive) development, less than half (31.2%) is at risk of psychosocial (affective) development, more than half (53.1%) is at risk of psychosocial (language) development, and more than half (62.5%) is at risk of psychosocial (person) development. There is an analysis of the impact of stunting at risk on psychosocial development in preschool children.

It is advised that this study be carried out to further our understanding of the impact of

stunting on the psychosocial development of preschoolers at the problem-solving stage.

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