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Parental Awareness, Understanding, and Factors of Stunting among Preschool Children

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Abstract
Undernutrition, including stunting, is a global issue, with significant prevalence in Asia, including Malaysia. Stunting, characterized by low height-for-age in children under five, is a critical health concern. This study focused on parents in Puncak Alam, Selangor, to assess their awareness and understanding of stunting factors. Using a cross-sectional quantitative approach with 137 participants, the study found that most parents had a good awareness and understanding of stunting. Parental education emerged as a key factor influencing understanding. These findings can guide policymakers and health professionals in reducing stunting and improving children's health in Malaysia.

Keywords: Stunting; Awareness; Understanding; Children

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1.0 Introduction

Stunting is defined as a condition in which children, typically under the age of five, have a low height for their age when compared to a reference population or standard growth chart. It is an indicator of chronic undernutrition and reflects a failure to achieve one's growth potential due to inadequate nutrition, recurrent infections, and other factors that hinder healthy growth and development during the early years of life (WHO, 2019). The review of stunting begins by exploring the aetiology of stunting, emphasising the complex interplay of biological, environmental, and socio-economic factors. It highlights the significance of inadequate nutrition, particularly during the critical window of the first 1,000 days from conception to a child's second birthday (Kinshella et al., 2020).

In Malaysia, the prevalence of stunting remains alarmingly high, with approximately one in five children affected by this condition. According to a nationwide survey conducted in 2019 by the Ministry of Health, Malaysia, the prevalence of stunting among children under five years old was estimated to be 20.7% (Lee et al., 2022). This indicates a significant public health challenge that requires urgent attention and intervention. This study aims to investigate the parents' level of understanding regarding stunting and the level of awareness about its associated factors among preschool children. By identifying gaps in awareness, the research seeks to inform the development of tailored educational programs, community interventions, and healthcare policies that address the root causes of stunting

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and promote holistic child development. Ultimately, this research endeavours to enhance the global effort to combat stunting and improve the well-being of children worldwide.

As per the 2021 World Health Organization (WHO) report, 21.3% of children under the age of five globally face stunted growth, constituting approximately 144 million children. In 2019, UNICEF identified Malaysia as the third-highest nation in Southeast Asia in terms of stunted growth among children. Surprisingly, even when compared to lower-middle-income countries like Ghana, Malaysia exhibits a stunting prevalence that surpasses expectations despite its significantly higher Gross Domestic Product (GDP). The Ministry of Health in Malaysia recently released findings from their National Health and Morbidity Survey, revealing a notable surge in stunting rates to 21.8%. Remarkably, prior research conducted in Malaysia has predominantly cantered around the broader issue of child malnutrition, inadvertently overlooking the specific concern of stunting (Muda et al., 2019).

The importance of this study lies in addressing a critical gap in existing research, where previous efforts in Malaysia have primarily addressed child malnutrition without a specific emphasis on stunting. This study aims to investigate the parents' level of understanding regarding stunting and the level of awareness about its associated factors among preschool children. The findings from this study are anticipated to contribute valuable insights into the nuanced determinants of stunting, allowing for the development of targeted interventions and policies aimed at improving the health and well-being of preschool children in Malaysia. Therefore, the objective of the study is to assess the understanding and the awareness of stunting among parents with preschool children.

2.0 Literature Review

2.1 Level of understanding regarding stunting

Studies examining the relationship between parental genders and stunting understanding have yielded mixed results. Some research suggests that mothers tend to have better knowledge of stunting than fathers, possibly due to their primary role in childcare and feeding practices (Win et al., 2022). However, another study by Agyen et al. (2024) has found no significant gender differences in stunting awareness. This variation may be attributed to cultural context and the division of childcare responsibilities within families.

Parental age has been identified as a potential factor influencing stunting understanding. Younger parents, particularly those in their early twenties, may have less experience and knowledge regarding child nutrition and growth compared to older parents (Haron et al., 2023). This can result in lower awareness of stunting risk factors and appropriate feeding practices. However, the relationship between age and stunting understanding is not always linear, as some studies have found that middle-aged parents may also exhibit knowledge gaps.

Household income is consistently linked to parental understanding of stunting. A study by Soekatri et al. (2020) revealed that parents with higher incomes often have better access to education, healthcare services, and nutritious food, contributing to increased awareness of stunting and its consequences. Conversely, parents with lower incomes may face barriers to accessing information and resources, leading to limited knowledge of stunting. This disparity highlights the need for targeted interventions to reach low-income families and improve their understanding of stunting.

Parental education is a strong predictor of stunting understanding. A study conducted by Anggie and Rong (2021) stated that higher education levels are associated with increased knowledge of child nutrition, growth patterns, and stunting prevention strategies. Educated parents are more likely to seek and understand health information, engage in health-promoting behaviours, and access healthcare services for their children. Conversely, parents with lower education levels may have limited health literacy and face challenges in understanding complex information about stunting.

2.2 Awareness of factors that contribute to stunting

The influence of parental age on awareness of stunting factors varies across studies. Research by Made et al. (2023) indicated that younger parents tend to have greater access to health information through digital platforms, resulting in higher awareness levels regarding stunting factors. Conversely, studies by Kumar et al. (2022) observed that older parents, with their accumulated parenting experience, demonstrated nuanced awareness of stunting factors despite potential challenges in accessing modern health information. These contrasting findings suggest the need for age-specific educational strategies that cater to the information preferences and needs of different parental age groups.

Occupational status significantly impacts parental awareness of stunting factors. Studies such as Made et al. (2023) highlighted that working parents often face time constraints that limit their access to health education programs, potentially resulting in lower awareness levels. In contrast, research by Kumar et al. (2022) found that stay-at-home parents, while having more time for childcare, may lack access to formal health education opportunities, affecting their awareness of stunting prevention strategies. Addressing these disparities requires tailored interventions that accommodate the scheduling constraints and information preferences of both working and non-working parents.

Socio-economic status, particularly household income, plays a critical role in parental awareness of stunting factors. A study by Kumar et al. (2022) consistently demonstrates that higher household income correlates with better access to healthcare services and educational resources, leading to heightened awareness of stunting contributing factors. Conversely, research by Vilar-Compte et al. (2021) indicated that lower-income households often face barriers such as limited access to healthcare facilities and nutritional guidance, resulting in lower levels of awareness regarding stunting factors.

Effective public health interventions should prioritise equitable access to health information and services across socio-economic strata to mitigate disparities in stunting awareness. Parental marital status can influence awareness of stunting factors due to differences

in familial dynamics and support systems. A study by Rosmala et al. (2021) suggested that married couples tend to share childcare responsibilities and decision-making processes, fostering collective awareness of stunting prevention strategies within the household. In contrast, research by Lut et al. (2021) highlighted that divorced or single parents may experience increased challenges in accessing health information and resources, potentially resulting in lower awareness levels regarding stunting factors. Tailored interventions should consider the unique needs and support structures of diverse family compositions to enhance parental awareness and promote optimal child health outcomes.

3.0 Methodoloy

This study is a cross-sectional study designed to determine parents' level of understanding regarding stunting and awareness about its factors among preschool children in Puncak Alam communities.

3.1 Research setting

This research took place in Phase 3 of Puncak Alam communities, providing a dynamic setting to explore the intricacies of parents' understanding and the multifaceted factors influencing stunting among preschool children. Phase 3 of Puncak Alam, nestled within its diverse socio-economic landscape, offers a microcosm reflecting various cultural nuances and lifestyle variations.

3.2 Sample

Phase 3 of Puncak Alam's overall population amounted to 5000 individuals. The research used a convenience sampling approach to determine a sample size of 137 using the Raosoft calculator. This calculation was based on a 95% confidence level and a 5% margin of error, resulting in the recommended sample size. The inclusion criteria for the study participants comprised Malaysian parents in Phase 3 of the Puncak Alam region, having preschool children aged between one and five years old and excluding those with chronic or congenital illnesses.

3.3 The research instrument

Demographic information about parents' gender, age, education level, household income, occupational status and marital status were collected. The research utilised a questionnaire from previous research by Moudy et al. (2021) that consists of of 20 close-ended questions to identify the level of understanding among parents regarding stunting in children in general. The scores range from 0 to 20. The scores range from 0-8 (poor understanding), 9-14 (moderate understanding) and 15-20 (good understanding). The next instrument by Manggala et al. (2022) consists of 15 questions about parents' awareness of factors of stunting that use a 1 to 5 Likert scale which contains 1 (Strongly Disagree), 2 (Disagree), 3 (Neutral), 4 (Agree) and 5 (Strongly Agree). The scores range from 0 to 15. Respondents who answered 1 (Strongly Disagree), 2 (Disagree) and 3 (Neutral) were given 0 marks, while those who answered 4 (Agree) and 5 (Strongly Agree) were given one mark. The scores range from 0 to 6 (poor awareness), 7 to 11 (moderate awareness) and 12 to 15 (good awareness).

3.4 Data collection

The data collection was scheduled to commence in January 2024, after receiving the ethics approval from the UiTM Research Ethics Committee. Respondents were chosen through convenience sampling. Parents who met the inclusion criteria were contacted via personal WhatsApp messages, where the study's purpose was explained, and the questionnaire was administered through a shared Google form link. The consent form was presented at the onset of the Google form, allowing respondents to indicate their agreement or disagreement to participate before answering all provided questions. The distribution of online questionnaires persisted for a few months until the desired sample size was achieved. Regular progress checks were conducted weekly to ensure data collection is on track.

3.5 Data analysis

The data obtained from the questionnaire were organised and analysed. The IBM SPSS statistical software version 29.0 was used to conduct the data analysis, implementing descriptive statistics and correlation tests. A descriptive analysis of frequency and percentage was applied to determine the parents' level of understanding regarding stunting and parents' level of awareness about stunting factors among preschool children in Phase 3 of Puncak Alam communities.

4.0 Findings

4.1 Respondents' demographic profile

Table 1 depicts the gender distribution of respondents. 62% of respondents (n = 52) were female, while male respondents made up the remaining 38% (n = 32) of the sample. The proportion of respondents between the ages of 18 to 29 years old was 43.1% (n = 59), followed by those aged 30 to 39 years old at 38.7% (n = 53), and those aged 40 to 49 years old at 18.2% (n = 25). Next, 76.6% (n = 105) of respondents in the study are parents with tertiary education, while the remaining 23.4% (n = 32) are parents with secondary education. Additionally, the majority of the respondents, 94.9% (n = 130), are working parents, while 5.1% (n = 7) of the respondents are not working. Regarding household income, most respondents earn between RM3001 – RM5000, which is 39.4% (n = 54), followed by those earning RM5001 – RM10000 at 33.6% (n = 46), those earning less than RM3000 at 24.1% (n = 33), and those earning more

than RM10000 at 2.9% (n = 4). Lastly, most of the respondents are married, accounting for 97.1% (n = 133), while the remaining 2.9% (n = 4) are either divorced or widowed.

Table 1. Respondents' socio-demographic profile (n=137)

Variables	Frequency (n)	Percentage (%)
Gender		
Male	52	38.0
Female	85	62.0
Age		
18-19 years old	59	43.1
30-39 years old	53	38.7
40-49 years old	25	18.2
Level of Education		
Secondary education	32	23.4
Tertiary education	105	76.6
Occupational		
Working	130	94.9
Not working	7	5.1
Household Income		
<RM3000	33	21.1
Rm3001-RM5000	54	39.4
RM5000-RM10000	46	33.6
>RM10001	4	2.9
Marital Status		
Married	133	97.1
Divorced (Live/Dead)	4	2.9

4.2 Parents' level of understanding regarding stunting

Table 2 shows the frequency respondents answered for section B of the questionnaire, which is a questionnaire adapted from the "Mother's Knowledge Toward Stunting in Toddlers" article by Moudy et al. (2021). This section consists of 20 closed-ended questions with options Yes and No. Respondents were required to choose one answer only. For "Yes", each correct answer gets 1 point, while 0 points for No with a total possible score of 20. The scoring was given as Poor (0-8), Moderate (9-14) and Good (15-20).

Table 2. Analysis of each item in parents' level of understanding regarding stunting (n = 137).

Survey Items	Yes n (%)	No n (%)
The success of a child's growth and development in the future depends only on what has been eaten since birth.	128 (93.4)	9 (6.6)
The definition of the growth process can be seen and measured with the naked eye according to age.	129 (94.2)	8 (5.8)
Stunting is irreversible (cannot be reversed once affected).	122 (89.1)	15 (10.9)
Stunting is a state of failure of the body and brain to develop due to prolonged malnutrition.	112 (81.8)	25 (18.2)
Genetics is one of the main causes of stunting in children.	122 (89.1)	15 (10.9)
Children who are stunted and malnourished will not become obese when they grow up.	99 (72.3)	38 (27.7)
Stunting can only be reversed when the baby is born.	115 (83.9)	22 (16.1)
Lack of access to clean water and sanitation can be a cause of nutritional diseases in children.	130 (94.9)	7 (5.1)
Children should get the most vegetables at each meal.	122 (89.1)	15 (10.9)
Stunting in children is caused by lack of food intake.	126 (92.0)	11 (8.0)
Stunted children are more susceptible to disease.	129 (94.2)	8 (5.8)
Stunting in children can cause decreased IQ and developmental disorders.	128 (93.4)	9 (6.6)
Exclusive breastfeeding can prevent children from stunting.	129 (94.2)	8 (5.8)
Stunted children have an increased risk of decreased brain function.	130 (94.9)	7 (5.9)
Stunted children do not experience normal physical and mental growth.	125 (91.2)	12 (8.8)
Parents who lack knowledge about good nutrition for children can cause children to experience stunting problems.	114 (83.2)	23 (16.8)
Keeping the home environment clean can prevent nutritional diseases in children	133 (9.71)	4 (2.9)
Children's growth monitoring should be carried out every month to prevent children from experiencing growth failure	130 (94.9)	7 (5.1)

Children's comfort is obtained when they are in a loving environment.	131 (95.6)	6 (4.4)
Inadequate healthcare services and limited access to quality health care can increase the risk of stunting.	130 (94.9)	7 (5.1)

Table 3 shows the parents' level of understanding regarding stunting among preschool children. This study discovered that there were 93.4% (n = 128) of respondents had a good level of understanding regarding stunting, while 6.6% (n = 9) had a moderate level of understanding regarding stunting among preschool children.

Table 3. Parents' level of understanding regarding stunting

Level of Understanding	Frequency (n)	Percentage (%)
Poor	0	0
Moderate	9	6.6
Good	128	93.4
Total	137	100

4.3 Parents' level of awareness about stunting's factors

Table 4 shows the frequency respondents answered for section C of the questionnaire, which is a questionnaire adapted from the "Risk factors of stunting in children aged 24-59 months" article by Manggala et al. (2022). This section consists of 15 questions about parents' awareness of factors of stunting that use a 1 to 5 Likert scale, which contains 1 (Strongly Disagree), 2 (Disagree), 3 (Neutral), 4 (Agree) and 5 (Strongly Agree). The scores range from 0 to 15. Respondents who answered 1 (Strongly Disagree), 2 (Disagree) or 3 (Neutral) were given 0 marks, while those who answered 4 (Agree) or 5 (Strongly Agree) were given one mark. The scoring was given as Poor (0 – 6), Moderate (7 – 11) and Good (12 – 15).

Table 4. Analysis of each item in parents' level of awareness about stunting's factors (n = 137).

Survey Items	Aware n (%)	Not aware n (%)
Poor maternal nutrition during pregnancy increases the risk of stunting in children.	127 (92.7)	10 (7.3)
Inadequate access to nutritious food plays a significant role in stunting.	129 (94.2)	8 (5.8)
Lack of exclusive breastfeeding for the first six months contributes to stunting	103 (75.2)	34 (24.8)
Poor access to clean water and sanitation facilities is associated with stunting.	125 (91.2)	12 (8.8)
Chronic infections, such as diarrhoea and respiratory infections, play a role in stunting.	83 (60.6)	54 (39.4)
Socioeconomic conditions and poverty are strongly linked to stunting.	128 (93.4)	9 (6.6)
Limited access to healthcare services increases the likelihood of stunting.	122 (89.1)	15 (10.9)
Inadequate sanitation practices and open defecation contribute to stunting.	118 (86.1)	19 (13.9)
Poor hygiene behaviours and inadequate sanitation practices play a role in stunting.	122 (89.1)	15 (10.9)
Inadequate cognitive stimulation in early childhood contributes to stunting.	98 (71.5)	39 (28.5)
Inadequate support for breastfeeding and complementary feeding practices leads to stunting	106 (77.4)	31 (22.6)
Insufficient investment in early childhood development programs contributes to stunting	106 (77.4)	31 (22.6)
Early introduction of unhealthy foods, such as sugary snacks or carbonated beverages, increases the likelihood of stunting.	133 (97.1)	4 (2.9)
Maternal mental health significantly impacts the occurrence of stunting	129 (94.2)	8 (5.8)
Exposure to environmental toxins, such as lead or arsenic, contributes to the risk of stunting.	107 (78.1)	30 (21.9)

Table 5 shows the parents' awareness of stunting factors among preschool children. This study discovered that there were 73.0% (n = 100) of respondents had good awareness regarding stunting factors, followed by 21.2% (n = 29) had moderate awareness regarding stunting factors, and 5.8% (n = 8) had poor awareness of stunting factors among preschool children.

Table 5. Parents' level of awareness about stunting's factors

Level of Awareness	Frequency (n)	Percentage (%)
Poor	8	5.8
Moderate	29	21.2
Good	100	73.0
Total	137	100

5.0 Discussion

5.1 Parents' level of understanding regarding stunting among preschool children

This present study found that most parents in Phase 3 of Puncak Alam had a good understanding of stunting among preschool children, with only a few having a moderate understanding and none showing a poor understanding. This finding aligns with a study by Moudy et al. (2021) in Pangadaran, Indonesia, where most mothers also had a good understanding of stunting. However, studies by Utami et al. (2019) and Mediani (2022) reported that most parents had poor or low understanding of stunting.

Although most respondents answered correctly, many still had misconceptions. Stunting is the failure of the body and brain to develop due to prolonged malnutrition. Mustakim et al. (2022) noted that stunting results in shorter height for age, delayed motor development, impaired cognitive function, and weakened immune systems. Contrary to some beliefs, children who are stunted and malnourished can become obese later in life. Chung et al. (2023) found that stunted individuals are at risk for metabolic disorders, cardiovascular diseases, and diabetes, contributing to obesity in adulthood.

5.2 Parents' level of awareness about stunting factors among preschool children

This study found that most parents in Phase 3 of Puncak Alam had a good level of awareness about stunting factors among preschool children, while only a few had moderate or poor awareness. Similarly, Muliadi et al. (2021) discovered that most mothers in Sumatera and Sulawesi, Indonesia, had a good level of awareness about stunting factors. In contrast, other studies reported that most parents had poor or low awareness of stunting factors (Habimana & Biracyaza, 2019; Made et al., 2022).

Despite this awareness, some parents still answered incorrectly on the questionnaire. For instance, chronic infections like diarrhoea and respiratory illnesses contribute to stunting. Pecora et al. (2020) noted that infections increase the body's demand for nutrients, depleting the reserves of already malnourished children. Additionally, inadequate cognitive stimulation in early childhood also contributes to stunting. Rayhan (2022) emphasised that early childhood development is holistic, with physical growth, cognitive development, and emotional well-being interconnected. Moreover, not exclusively breastfeeding for the first six months contributes to stunting. Telo et al. (2022) found that exclusive breastfeeding protects infants from infections, which significantly contribute to malnutrition and stunting. Breast milk contains immunoglobulins and other immune factors essential for a strong immune system.

A study conducted in Dhaka, Bangladesh, by Rosmala et al. (2021) stated that parents with high knowledge regarding stunting also exhibited high awareness of stunting factors. It also stated that socio-demographic factors played a crucial and important role in parents' understanding and awareness regarding stunting and its factors among preschool children. Another study in Nusa Tenggara Timur, Indonesia, by Mediani et al. (2022), also revealed a strong significant association between the level of understanding and the level of awareness regarding stunting and its factors among preschool children. It stated that increasing general knowledge about stunting can enhance awareness of its causative factors, leading to better prevention and intervention practices.

6.0 Conclusion

In conclusion, a good understanding and awareness level regarding stunting and its factors among preschool children's parents is essential to controlling and preventing stunting problems in societies and communities. Parents should have a good understanding and awareness regarding stunting and its factors to prevent further complications, as this problem is one of the major diseases among children, not just in Malaysia but also worldwide. Additionally, the study was geographically limited to Phase 3 of Puncak Alam, potentially restricting the generalizability of the findings to other regions with different socioeconomic and cultural backgrounds. The sample size, while adequate for initial insights, may not have been large enough to capture the full diversity of parental knowledge and awareness levels.

Researchers were encouraged to conduct longitudinal studies to assess the long-term impact of educational interventions on stunting rates. It was also suggested that qualitative studies be undertaken to understand better the barriers and facilitators to stunting awareness and prevention in various communities. A lack of information regarding stunting can lead to stunting. Healthcare professionals should provide effective tools to educate parents about stunting holistically.

As for the implications of this study, several areas in public health intervention should be focused on such as early intervention and monitoring program for stunting among parents with community engagement and support.

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Paper Contribution to Related Field of Study

The research findings may contribute valuable insights into the current level of awareness and understanding of stunting among parents. The healthcare professional could use the information to promote healthy feeding practices and prevent childhood stunting and malnutrition.

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