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Association between Parental Understanding of Stunting and the Awareness Factors among Preschool Children

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Abstract
Stunting in human development refers to impaired growth, particularly in height, due to chronic undernutrition, especially in early childhood. Parental understanding of stunting and its contributing factors is crucial for prevention. This study aimed to examine the association between parental awareness and understanding of stunting among preschool children in Puncak Alam, Selangor. A total of 137 parents participated in this cross-sectional survey. The study revealed a significant association between parental understanding and awareness of stunting factors, with sociodemographic data also influencing these levels. The findings highlight the importance of improving parental knowledge to reduce the risk of stunting in children.

Keywords: Association; Stunting; Awareness; Understanding

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1.0 Introduction

Stunting is a significant public health issue, particularly in developing countries, where it reflects both the nutritional status and overall well-being of children. Defined as impaired growth resulting from chronic undernutrition, stunting primarily affects children under the age of five and manifests in reduced height for age, indicating that they have not reached their potential for growth (WHO, 2019). The impact of stunting is profound, not only affecting physical development but also cognitive abilities, immune system function, and overall health outcomes, potentially leading to lifelong consequences. In Malaysia, a few researchers found child malnutrition, stunting remains a persistent problem, especially in rural and underserved areas (Baharudin et al., 2019; Haron et al., 2023; How et al., 2020; Rahman et al., 2021).

Gebre et al. (2019) stated that many factors contributed to stunting, such as parental education background, family size, breastfeeding duration, health status and children's illness. The important of parental awareness and understanding of stunting are crucial for the prevention and mitigation of its effects. Parents play a fundamental role in shaping the nutritional habits and health practices that influence their children's growth. However, limited awareness and a lack of knowledge about the underlying causes of stunting can contribute to delayed intervention and exacerbation of the condition (Majid et al., 2024). The factors influencing stunting are multifaceted, including poor maternal nutrition, inadequate infant feeding practices, insufficient access to healthcare, and socio-economic factors. Rahman et al. (2021) identified the factors related to child development, including household's socioeconomic status,

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parents' education, wealth index, and environmental and sanitation factors. Understanding these factors is key to addressing the root causes and promoting better health outcomes in children growth and development.

The present study aims to explore the association between parental understanding of stunting and their awareness of the factors contributing to it. Specifically, the research focuses on parents of preschool-aged children in Puncak Alam, Selangor, Malaysia. By examining the correlation between parents' socio-demographic characteristics and its contributing factors, the study seeks to identify key areas where interventions can be targeted and improved. This research aims to provide valuable insights into how improving parental knowledge may help mitigate the prevalence of stunting among preschool children in Malaysia. The findings of this study are expected to contribute to the development of targeted health education programs that can empower parents with the knowledge and tools needed to prevent stunting, ultimately improving the overall health and development of children in Malaysia.

2.0 Literature Review

2.1 Level of understanding regarding stunting

Stunting, a form of chronic malnutrition marked by low height-for-age, poses significant risks to children's physical and cognitive development. Parental awareness of stunting plays a critical role in its prevention, yet research shows that various sociodemographic factors influence this understanding, including gender, age, income, education, occupation, and marital status.

Studies on gender differences in stunting knowledge have shown mixed results. While some suggest that mothers, due to their primary role in childcare, tend to have more knowledge than fathers (Win et al., 2022), others report no significant differences (Agyen et al., 2024). Age is another factor, with younger parents, especially those in their twenties, generally having less knowledge about child nutrition (Haron et al., 2023). Income also plays a key role, with higher-income families often having better access to education, healthcare, and nutrition, thus improving awareness of stunting (Yani et al., 2023). Parental education is strongly linked to stunting understanding, as educated parents are more likely to seek and apply health information (Anggie & Rong, 2021). Occupation can also impact awareness, particularly for those in health-related fields (Haron et al., 2023). While marital status is less consistently linked to stunting knowledge, some studies suggest that married parents may benefit from better support and shared childcare responsibilities (Haron et al., 2023). Understanding these factors is essential for designing targeted interventions to reduce stunting. Most of the studies revealed education background of the parent as the association factors to their children growth (Anggie & Rong, 2021; Rahman et al., 2021; Yani et al., 2023).

2.2 Awareness of factors that contribute to stunting.

This review examines the influence of various sociodemographic factors on parental awareness of stunting, highlighting both consistent and conflicting findings across studies, which can guide future research and intervention strategies.

Gender differences in stunting awareness have been explored in several studies. Mediani et al. (2022) found that mothers typically showed higher awareness than fathers, likely due to their primary caregiving roles. However, Haron et al. (2023) observed minimal gender differences, suggesting that both parents may have similar levels of awareness. This highlights the need for educational programs that target both parents equally.

The impact of parental age on stunting awareness is also debated. Made et al. (2023) reported that younger parents, who often use digital platforms, had greater awareness of stunting factors, while Kumar et al. (2021) found that older parents, with more parenting experience, showed a deeper understanding despite challenges in accessing modern health information.

Occupational status plays a role in awareness as well. Made et al. (2023) noted that working parents may face time constraints that limit their access to health education, while Kumar et al. (2021) suggested that stay-at-home parents may lack formal health education despite having more time for childcare.

Socioeconomic status, particularly household income, significantly affects stunting awareness. Higher-income families generally have better access to healthcare and education (Kumar et al., 2022), while lower-income households may face barriers to accessing vital health resources (Rahman et al., 2019).

3.0 Methodology

3.1 Research setting

This study was conducted in the lively Phase 3 area of Puncak Alam, offering a rich environment to examine the complexities of parental understanding and the diverse factors contributing to stunting among preschool-aged children. Phase 3 of Puncak Alam, situated within a varied socioeconomic backdrop, serves as a snapshot of the region's cultural diversity and different lifestyle patterns.

3.2 Sample

Phase 3 of Puncak Alam has a total population of 5,000 individuals. For this research, a convenience sampling method was employed to determine the sample size, which was calculated to be 137 using the Raosoft calculator. This calculation was based on a 95% confidence level and a 5% margin of error, yielding the recommended sample size. The participants in this study were Malaysian parents

residing in the Phase 3 area of Puncak Alam, with preschool-aged children between one and five years old and excluding those with chronic or congenital illnesses.

3.3 The research instrument

Demographic data regarding parents' gender, age, education level, household income, employment status, and marital status were gathered for this study. The research employed a questionnaire adapted from previous studies by Moudy et al. (2021) to assess parents' understanding of stunting in children. This questionnaire consisted of 20 close-ended questions, with scores ranging from 0 to 20. The understanding level was categorized as follows: 0-8 (poor understanding), 9-14 (moderate understanding), and 15-20 (good understanding). Additionally, a questionnaire developed by Manggala et al. (2018) was used to assess parents' awareness of the factors contributing to stunting. This instrument contained 15 questions, rated on a 1 to 5 Likert scale, where responses ranged from 1 (Strongly Disagree) to 5 (Strongly Agree). For scoring, answers of 1 (Strongly Disagree), 2 (Disagree), and 3 (Neutral) were assigned 0 points, while answers of 4 (Agree) and 5 (Strongly Agree) were assigned 1 point. The awareness levels were categorized as follows: 0-6 (poor awareness), 7-11 (moderate awareness), and 12-15 (good awareness)

3.4 Data collection

Data collection started in January 2024, after the ethics from the UiTM Research Ethics Committee was granted. Participants were selected using convenience sampling. WhatsApp messages were utilized to contact the potential participants for the study. The purpose of the study was explained, and a link to the questionnaire via Google Forms was provided. At the beginning of the Google Form, a consent form was presented for participants to indicate their willingness to participate before answering the questions. The online surveys were distributed over several months until the target sample size was reached. Weekly progress checks were carried out to ensure that the data collection process is progressing as planned.

3.5 Data analysis

The data collected from the questionnaire were systematically organized and analyzed using IBM SPSS Statistics software, version 29.0. To examine the relationships between variables, Pearson Chi-square tests were applied. These tests were used to assess the association between sociodemographic factors and parents' understanding of stunting, as well as to explore the relationship between sociodemographic data and parents' awareness of the factors contributing to stunting in preschool children within the Phase 3 communities of Puncak Alam.

4.0 Findings

4.1 Participants' demographic profile

Table 1 illustrates the gender distribution among the participants. A majority of 62% (n = 52) were female, while the remaining 38% (n = 32) were male. In terms of age, 43.1% (n = 59) of participants were aged 18 to 29, followed by 38.7% (n = 53) in the 30 to 39 age group, and 18.2% (n = 25) were aged 40 to 49. Regarding educational background, 76.6% (n = 105) of the participants held tertiary qualifications, while 23.4% (n = 32) had completed only secondary education. The study also reveals that 94.9% (n = 130) of the participants are employed, with 5.1% (n = 7) not engaged in work. In terms of household income, the largest group (39.4%, n = 54) earned between RM3001 and RM5000, followed by 33.6% (n = 46) earning RM5001 to RM10000, 24.1% (n = 33) earning less than RM3000, and 2.9% (n = 4) earning above RM10000. Finally, the majority of participants, 97.1% (n = 133), were married, while 2.9% (n = 4) were either divorced or widowed.

Table 1. Participants' 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 Association between socio-demographic data and parents' level of understanding regarding stunting among preschool children

Table 2 shows the association between various sociodemographic variables and parents' understanding of stunting among 137 participants. The variables include gender, age, education level, occupational status, household income, and marital status.

For gender, the sample includes 52 males and 85 females, with a chi-square (χ^2) value of 3.372 and a *p*-value of 0.660, indicating no significant association. Age groups (18-29, 30-39, and 40-49) have frequencies of 59, 53, and 25, respectively, and a chi-square value of 8.348 with a *p*-value of 0.150, showing no significant trend. Education levels, with 32 parents having secondary and 105 having tertiary education, show a significant association ($\chi^2 = 5.578$, $p = 0.018$). Occupational status, with 130 parents working and 7 not, also shows a significant association ($\chi^2 = 5.818$, $p = 0.016$). Household income categories (<RM3000, RM3001-RM5000, RM5001-RM10000, >RM10001) show a strong significant association ($\chi^2 = 15.215$, $p = 0.002$). Marital status, with 133 married and 4 divorced or widowed, shows no significant association ($\chi^2 = 0.290$, $p = 0.590$).

Table 2. Association between socio-demographic data with parents' level of understanding regarding stunting among preschool children

Variables	Frequency, n (%)	Level of understanding	
		χ2 Statistics (*df*)	*p* -value
Gender			
Male	52 (38.0)	3.372 (1)	0.660
Female	85 (62.0)		
Age			
18-19 years old	59 (43.1)	8.348 (2)	0.150
30-39 years old	53 (38.7)		
40-49 years old	25 (18.2)		
Level of Education			
Secondary education	32 (23.4)	5.578 (1)	0.018
Tertiary education	105(76.6)		
Occupational			
Working	130 (94.9)	5.818 (1)	0.016
Not working	7 (5.1)		
Household Income			
<RM3000	33 (21.1)	15.215 (3)	0.002
Rm3001-RM5000	54 (39.4)		
RM5000-RM10000	46 (33.6)		
>RM10001	4 (2.9)		
Marital Status			
Married	133 (97.1)	0.290 (1)	0.590
Divorced (Live/Dead)	4 (2.9)		

4.3 Association between socio-demographic data with parents' level of awareness about stunting's factors among preschool children

The table 3 shows the association between various sociodemographic factors and parents' awareness of factors contributing to stunting among 137 participants. The variables analysed include gender, age, education level, occupational status, household income, and marital status.

Gender distribution in the sample includes 52 males and 85 females, yielding a chi-square (χ^2) value of 0.580 with a p-value of 0.446, indicating no significant association with awareness of stunting factors. Age groups (18-29, 30-39, and 40-49 years) show respective frequencies of 59, 53, and 25, with a chi-square value of 2.128 and a p-value of 0.345, suggesting no significant association by age. Education levels indicate 32 parents with secondary education and 105 with tertiary education, resulting in a chi-square value of 0.179 and a p-value of 0.672, indicating no significant association with awareness.

Occupational status reveals that 130 parents are employed while 7 are not, showing a highly significant association ($\chi^2 = 12.117$, $p = 0.000$) between being employed and greater awareness of stunting factors. Household income categories (<RM3000, RM3001-RM5000, RM5001-RM10000, >RM10001) have frequencies of 33, 54, 46, and 4 respectively, with a chi-square value of 6.645 and a p-value of 0.084, suggesting a potential association between higher income and awareness. Marital status (133 married and 4 divorced or widowed) shows no significant association ($\chi^2 = 0.360$, $p = 0.549$) with awareness.

In summary, the analysis underscores that occupational status significantly influences parents' awareness of stunting factors, with employed parents demonstrating greater awareness. Other factors such as gender, age, education level, household income, and marital status do not show significant associations, although household income approaches significance. These findings highlight the critical role of employment status in shaping parental awareness of stunting factors among preschool children.

Table 3. Association between socio-demographic data with parents' level of awareness about stunting's factors among preschool

Variables	Frequency, n (%)	Level of awareness	
		χ2 Statistics (*df*)	*p* -value
Gender			
Male	52 (38.0)	0.580 (1)	0.446
Female	85 (62.0)		
Age			
18-19 years old	59 (43.1)	2.128 (2)	0.345
30-39 years old	53 (38.7)		

40-49 years old	25 (18.2)		
Level of Education			
Secondary education	32 (23.4)	0.719 (1)	0.672
Tertiary education	105(76.6)		
Occupational			
Working	130 (94.9)	12.117 (1)	0.000
Not working	7 (5.1)		
Household Income			
<RM3000	33 (21.1)	6.645 (3)	0.082
Rm3001-RM5000	54 (39.4)		
RM5000-RM10000	46 (33.6)		
>RM10001	4 (2.9)		
Marital Status			
Married	133 (97.1)	0.360 (1)	0.549
Divorced (Live/Dead)	4 (2.9)		

4.4 Association between parents' level of understanding regarding stunting and awareness of its factor among preschool children

Table 4 shows the association between parents' level of understanding regarding stunting and their awareness of its factors among preschool children. The data reveals that among parents with a good level of understanding, 98 participants have good awareness, 2 participants have moderate awareness, and 4 participants have poor awareness of stunting factors. In contrast, among parents with a moderate level of understanding, 26 participants have good awareness, 3 participants have moderate awareness, and 4 participants have poor awareness. The chi-square statistic (χ^2) value is 28.660 with 2 degrees of freedom, and the *p*-value is 0.000. This significant p-value indicates a strong association between the parents' level of understanding and their awareness of stunting factors. The results suggest that parents with a higher understanding of stunting are significantly more likely to have better awareness of its factors, underscoring the importance of enhancing parental knowledge to improve awareness and potentially mitigate stunting among preschool children.

Table 4. Association between parents' level of understanding regarding stunting and awareness of its factor among preschool children

		Level of awareness				
		Good	Moderate	Poor	χ2 Statistics (*df*)	*p* -value
Level of understanding	Good	98	26	4	28.660 (2)	0.000
	Moderate	2	3	4		

5.0 Discussion

5.1 Association between socio-demographic data and parents' level of understanding regarding stunting among preschool children

The study findings suggested that socioeconomic factors like education, employment, and income have a significant association role in influencing the level of understanding in the studied population. This study found a significant association between parents' understanding of stunting among preschool children and their level of education in Phase 3 of Puncak Alam. Most participants had tertiary education, followed by secondary education, suggesting that higher education levels associated with better understanding of stunting, likely due to exposure to relevant information in school or college. Anggie and Rong (2021) similarly reported that educated parents are more likely to seek and comprehend health information, engage in health-promoting behaviours, and access healthcare services for their children. Rahman et al. (2021) also found low levels of parental
education has increased the risk of children with underweight.

Additionally, the study showed a significant association between parents' understanding of stunting and their occupation. Most participants were employed, suggesting that working parents, particularly those in healthcare or other professional fields, are better informed about stunting. Haron et al. (2023) also found an association between parents' occupational status and understanding of stunting. However, Win et al. (2022) in Dhaka, Bangladesh, found no significant link between these factors, suggesting that demanding jobs may limit parents' time and energy to access and process information about stunting.

The study also revealed a significant association between parents' understanding of stunting and household income. Most participants had low middle income, followed by higher income. Yani et al. (2023) similarly found a strong association between understanding stunting and household income, noting that higher-income parents often have better access to education, healthcare services, and nutritious food, enhancing their understanding of stunting and its impacts.

5.2 Association between socio-demographic data and parents' level of awareness about stunting factors among preschool children

This study found a significant association between parents' awareness of stunting factors and their occupational status. Most participants were working, which aligns with study by Haron et al. (2023) showing that occupations in healthcare, agriculture, or nutrition enhance awareness of child health and nutrition. However, Made et al. (2023) contradicted this, finding no significant association due to time constraints limiting working parents' access to health education.

Other sociodemographic factors, such as gender, age, education, household income, and marital status, showed no significant association with awareness of stunting factors in this study. For gender, Haron et al. (2023) found no significant differences, suggesting

similar awareness levels between parents, while another study by Haron et al. (2023) noted higher awareness in mothers compared to fathers. Regarding age, Made et al. (2023) found no significant association, with younger parents having greater access to health information via digital platforms. Conversely, Kumar et al. (2021) found older parents had nuanced awareness due to parenting experience.

Education level showed no significant association with the level of awareness, contradicting Mediani et al. (2022), who found that higher education levels correlated with better awareness of stunting prevention strategies. Similarly, Kumar et al. (2022) found a significant link between higher household income and increased awareness due to better access to healthcare and educational resources. Lastly, marital status showed no significant association, contrasting with Rosmala et al. (2020), who found that married couples sharing childcare responsibilities had heightened collective awareness of stunting prevention strategies.

5.3 Association between parents' level of understanding and awareness regarding stunting and its factor among preschool children

This study found a strong association between parents' understanding of stunting and their awareness of its causes among preschool children in Phase 3 of Puncak Alam. Sociodemographic factors such as higher education and income levels influenced parents' understanding and awareness. Most parents in the study had tertiary education and higher household incomes, which contributed to their knowledge of stunting.

A study by Rosmala et al. (2021) in Dhaka, Bangladesh, found that parents with greater knowledge of stunting were also more aware of its causes, and sociodemographic factors played a key role in this. Similarly, Mediani et al. (2022) in Nusa Tenggara Timur, Indonesia, found that increasing general knowledge about stunting helped improve awareness of its causes, leading to better prevention and intervention.

However, a study by Schneider (2023) contradicted these findings, showing no significant association. Schneider's study suggested that while parents may be aware of stunting factors, their overall understanding of stunting remains limited. This indicates that awareness alone is not enough to develop a comprehensive understanding, emphasizing the need for more integrated educational efforts to address stunting effectively.

6.0 Conclusion

In conclusion, enhancing parents' knowledge and awareness of stunting and its contributing factors is crucial for preventing and controlling stunting among preschool children. With stunting being a significant health issue for children globally, including in Malaysia, parents must be well-informed to avoid further complications. This study has several limitations. It was limited to Phase 3 of Puncak Alam, which may affect the applicability of the results to other areas with different socioeconomic or cultural contexts. Additionally, the sample size, while sufficient for preliminary findings, might not have fully captured the diversity of parental awareness levels.

Future research should focus on longitudinal studies to examine the long-term effectiveness of educational programs in reducing stunting. Qualitative studies could also provide deeper insights into the challenges and enablers of stunting awareness and prevention in various communities. The lack of knowledge about stunting can contribute to its occurrence, highlighting the need for healthcare professionals to equip parents with comprehensive education on the issue.

In terms of public health implications, efforts should prioritize early intervention and monitoring programs, coupled with community involvement and support, to reduce the prevalence of stunting. Engaging parents and fostering community-based strategies can play a significant role in tackling this issue effectively.

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Paper Contribution to Related Field of Study

The findings of this research could provide valuable insights into the association between parents' awareness and understanding of stunting. The study highlights the importance of health literacy in the community. It provides insight for policymakers and healthcare professionals to plan for effective education programs to overcome the issue of stunting.

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