

## Factors Related to Father's Behavior in Preventing Childhood Stunting Based on Health Belief Model

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### Abstract

Childhood stunting is still a significant public health burden in Indonesia. Fathers' engagement in childcare could improve a child's health and help to prevent stunting. This study aimed to analyse factors related to the father's behaviour in preventing childhood stunting based on Health Belief Model. This study was used a correlational study design with a cross-sectional approach. This study involved 199 fathers who had children under five years old, recorded at Puskesmas (Public Health Center) Maronggela, East Nusa Tenggara, Indonesia. Samples were taken using the cluster random sampling technique. The independent variables were the father's perceived susceptibility, perceived severity, perceived benefit, perceived barrier, cues to action, and self-efficacy regarding childhood stunting and its prevention. The dependent variable was the father's behaviour in preventing childhood stunting. The questionnaire was used to collect the data. Data were then analysed using the Spearman Rho Test with a level significance of 95% ( $\alpha < 0.05$ ). The statistical analysis showed that perceived susceptibility ( $p = 0.023$ ;  $r = 0.161$ ) and cues to action ( $p = 0.004$ ;  $r = 0.204$ ) correlated with the father's behaviour in preventing childhood stunting, while perceived severity, perceived benefits, perceived barriers, and self-efficacy did not correlate. The current study suggests that fathers' behaviour to prevent stunting among children under five years was related to their perception of an illness and the cues that can trigger their decision-making process. These findings can be used to arrange health promotion programs to improve fathers' behaviour and engagement in childcare to prevent childhood stunting.

**Keywords:** childhood stunting, early life nutrition, father, health belief model, preventive behaviour

### Abstrak

**Faktor-faktor yang Berhubungan dengan Perilaku Ayah dalam Mencegah Stunting Pada Balita Berdasarkan Health Belief Model.** Stunting pada balita masih menjadi beban kesehatan masyarakat yang signifikan di Indonesia. Keterlibatan ayah dalam pengasuhan balita dapat meningkatkan kesehatan balita dan membantu mencegah stunting. Penelitian ini menganalisis faktor-faktor yang berhubungan dengan perilaku ayah dalam mencegah stunting pada balita berdasarkan Health Belief Model. Penelitian ini menggunakan desain penelitian korelasional dengan pendekatan cross sectional. Penelitian ini melibatkan 199 ayah yang memiliki balita, yang tercatat di Puskesmas Maronggela, Nusa Tenggara Timur, Indonesia. Variabel independen adalah kerentanan yang dirasakan ayah, keparahan yang dirasakan, manfaat yang dirasakan, hambatan yang dirasakan, isyarat untuk bertindak, dan self-efficacy berkaitan dengan perilaku pencegahan stunting pada balita. Variabel terikat adalah perilaku ayah dalam mencegah stunting pada balita. Kuesioner digunakan untuk mengumpulkan data. Uji Statistik dilakukan menggunakan Spearman Rho dengan signifikansi 95% ( $\alpha < 0,05$ ). Analisis statistik menunjukkan bahwa persepsi kerentanan ( $p = 0,023$ ;  $r = 0,161$ ) dan isyarat untuk bertindak ( $p = 0,004$ ;  $r = 0,204$ ) berkorelasi dengan perilaku ayah dalam mencegah stunting pada masa kanak-kanak, sedangkan persepsi keparahan, manfaat yang dirasakan, hambatan yang dirasakan, dan efikasi diri tidak berkorelasi. Studi saat ini menunjukkan bahwa perilaku ayah untuk mencegah stunting pada balita terkait dengan persepsi mereka tentang suatu penyakit dan isyarat yang dapat memicu proses pengambilan keputusan mereka. Temuan ini dapat digunakan untuk menyusun program promosi kesehatan untuk meningkatkan perilaku dan keterlibatan ayah dalam pengasuhan balita untuk mencegah pengerdilan anak.

**Kata Kunci:** ayah, balita stunting, early life nutrition, health belief model, perilaku pencegahan

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## Introduction

Stunting is a significant public health problem, as it is still affecting a large number of children globally (World Health Organization [WHO], 2018). Stunting or being too short for a child's age is defined as a length/height below -2 SD (Standard Deviation) from the World Health Organization (WHO) child growth standards median for the same sex and age (WHO, 2015). It is estimated that 149.2 million (22%) children under five years old in the world were experienced stunting in 2021. More than half were lived in Asia (UNICEF et al., 2021). Indonesia has a very high percentage of children under five affected by stunting (Titaley et al., 2019). Almost 30.8% of children under 5 in Indonesia were stunted and severely stunted by 2018 (Ministry of Health Republic of Indonesia, 2018). Although this percentage was found to decrease by 27.7% in 2019 and 24.4% in 2021, the average of yearly cases declined too slowly (only 2.13%) (Statistics Indonesia, 2019; Ministry of Health Republic of Indonesia, 2021). It is not suited to achieve The National Medium-Term Development Plan for 2020-2024, which targeted the average yearly cases decline to 2.5% (PEPRES No. 18 Tahun 2020). The highest prevalence of stunting was recorded in East Nusa Tenggara, 42.6% by 2018, slightly increased to 43.8% by 2019, and declined to 37.8% by 2021. The prevalence of stunting in this province is even higher than in Indonesia (Ministry of Health Republic of Indonesia, 2018; Statistics Indonesia, 2019; Ministry of Health Republic of Indonesia, 2021).

Acceleration was needed to meet the World Health Assembly (WHA) global targets to reduce stunting prevalence to 40% by 2025 and the second Sustainable Development Goal to end all forms of malnutrition by 2030 (WHO, 2014). It is also essential to obtain Indonesian government targets, to reduce the prevalence of stunting to less than 14% of the total number of children under five in 2024 (PEPRES No. 18 Tahun 2020). Stunting in early childhood must be prevented (Prendergast & Humphrey, 2014), as it has an irreversible effect, leading to an interge-

nerational cycle of poor growth and development and increasing child morbidity and mortality (Argaw et al., 2019; Onis & Branca, 2016). The long-run effects of childhood stunting also lessen their future economic opportunities (McGovern et al., 2017).

Stunting is linear growth retardation and cumulative growth deficits. The critical period of linear growth retardation often begins in utero and continues for at least the first two years of child's life (Onis & Branca, 2016). Appropriate child care during the first 1000 days between conception to 24 months is important as it increase the opportunity of children to grow and develop optimally, and prevent childhood stunting (Georgiadis & Penny, 2017). Early childhood care can be difficult for caregivers (in most family were mother) due to limited resources, time, and family support (Compaoré et al., 2021). Father were key family influencer who have impact on child health (Thuita et al., 2015). Global guidance start to involve father as social support for mother in counseling and activities regarding to child care (UNICEF, 2020).

Family members played various roles in child care to prevent childhood stunting (Kavle et al., 2019). In most Indonesian families, a father dominates household decision-making, including child care (Phillips, 2021). The father's engagement in child care was described as fathers taking an active role in protecting and promoting their children's health. A shared responsibility between father and mother could improve child's health and reduce stunting among children under five (Bukit et al., 2021). The odds of stunting is low among family whose father has gender-equitable attitudes (Sharma & Subramanyam, 2021). Fathers contributes to creating an ideal environment to maintain a child's health. Father's participation in health education and healthcare access positively affect mother and child's nutrition and reduce the risk of child stunting (Comrie-Thomson et al., 2015; Januarti & Hidayathillah, 2020). Father's engagement in parenting increased appropriate complementary feeding practice (Martin et al.,

2021; Stewart et al., 2013). Father also provides instrumental and emotional support for mother and their children, such as giving advice, providing money, buying healthy food, and giving emotional support (Compaoré et al., 2021; Kansime et al., 2017; Krisnana et al., 2020).

The prevention of childhood stunting with the family approach consists of three strategies: appropriate feeding, parenting, and hygiene-sanitation practice (Kementerian PPN/BAPPENAS RI, 2018). As like mothers, fathers should be viewed as potential agents to implement positive child care practices within the family (Mallan et al., 2014). A health promotion program should be developed to improve fathers' engagement in child care to prevent childhood stunting. So that, factors related to father's behaviour in childhood stunting prevention need to be evaluated. Research regarding this issue is lacking. Most studies were primarily focused on mothers (Catholic Relief Services, 2016; Davison et al., 2020).

This research used The Health Belief Model (HBM) approach to analyse fathers' behaviour in childhood stunting prevention. HBM is one of the health behaviour models developed by Hochbaum and Rosenstock in 1952. It is widely used as a theory to explain one's health-related behaviours based on attitudes and personal beliefs or perceptions about a disease/health condition. It was designed to encourage people to take positive health actions. HBM believed that one's motivation to undertake a health behaviour is influenced by perceptions, modifying factors, and the likelihood of action. Combining these factors causes a response that often manifests into the likelihood of that behaviour occurring (Rosenstock, 1974). HBM consists of six constructs, including perceived susceptibility, severity, benefit, barrier, self-efficacy, and cues to action, explaining why people prevent such conditions (Diddana et al., 2018). This study aimed to analyse factors that correlated with the father's behaviour in preventing childhood stunting based on the health belief model. This study hypothesized that father's perceived

susceptibility, severity, benefit, barrier, self-efficacy, and cues to action were related to their behavior in preventing childhood stunting.

## Methods

This study was used a correlation study design with a cross-sectional approach. The population were father who have under five years old children, as recorded by Pusat Kesehatan Masyarakat/Puskesmas (Public Health Center) Maronggela, East Nusa Tenggara Province, Indonesia. The samples were taken by using the cluster random sampling technique. The sampling unit used was *Desa* (village). From 9 (nine) villages, 199 respondents were involved.

The independent variables in this study were the father's perceived susceptibility, severity, benefit, barrier, cues to action, and self-efficacy regarding childhood stunting and its prevention. The data were collected by using a Likert scale questionnaire. The instruments were adopted from the previous studies (Hupunau et al., 2019; Sholecha, 2018). The validity and reliability of each questionnaire were already tested. The instrument was as follows: 1) Perceived susceptibility refers to the father's perception of the risk of acquiring childhood stunting (6 items); 2) Perceived severity refers to the father's opinion of the negative consequences of childhood stunting (7 items); 3) Perceived benefit refers to the father's belief about the benefit of performing childhood stunting preventive behaviour (4 items); 4) Perceived barrier refers to father's feelings on the obstacles to performing childhood stunting preventive behaviour (9 items); 5) Cues to action refers to the internal or external stimulus which needed to trigger father's decision-making process to accept childhood stunting preventive behaviour (6 items), and 6) Self-efficacy refers to father's level of confidence in his ability to perform childhood stunting prevention (5 items). Each item was scored 4 (strongly agree), 3 (agree), 2 (disagree), and 1 (strongly disagree) for favourable questions. For unfavourable questions, the score was in reverse. Each variable was categorized as high

(if father's score was 76 – 100% of total score), moderate (if father's score was 60 – 75% of total score), and low (if father's score was < 60% of total score).

The dependent variable was the father's behaviour in childhood stunting prevention. It refers to the father's action regarding providing appropriate feeding, parenting, and hygiene-sanitation practice to their children. The questionnaire consisted of 6 items were adopted from the previous study (Hupunau et al., 2019). The validity and reliability of the questionnaire were already tested. Each item was scored 1 (yes) and 0 (no). Each variable was categorized as positive (if the total score is higher than or the same as the data mean) and low (lower than the data mean).

The researcher collected data for two months, door to door at respondents' houses, accompanied by the local health volunteer in each village. The author also notices the health protocol of the Coronavirus disease (COVID-19) pandemic to ensure no disease transmission, including using a mask, washing hands or using hand sanitiser, and physical distancing at least 1 (one) meter. Participation in this study was voluntary.

The information regarding this study was provided, and all respondents sought written informed consent before participation. The Health Research Ethics Committee of Faculty of Nursing, Universitas Airlangga, granted ethics approval for this study (2157-KEPK).

Descriptive statistics using frequency distribution and percentages were used to summarize the characteristics of respondents as univariate analysis. Then, the bivariate analysis was performed using the Spearman Rho Test with the level of significance 95% ( $\alpha < 0.05$ ) to analyse the correlation between independent and dependent variables.

## Results

Many respondents in this study were 26 – 35 years old (49.3%). Mostly came from nuclear family type (61.8%). Half of them only finished elementary school (54.3%). Almost all respondents (91%) have monthly income less than regional minimum wage (IDR 1.600.000) as most of them work as a farmer (82.9%). The majority of respondents (60.8%) have 1 – 2 children. The details of respondents' characteristics can be seen in Table 1.

Table 1. The Characteristics of Respondents (n = 199)

Respondent's characteristics	Category	n	%
Father's age	17 – 25 years old	9	4.5
	26 – 35 years old	98	49.3
	36 – 45 years old	92	46.2
Family's type	Nuclear	123	61.8
	Extended	76	38.2
Father's level of education	Elementary school	108	54.3
	Junior high school	24	12.1
	Senior high school	42	21.1
	Higher education	25	12.6
Monthly income	< Regional Minimum Wage	181	91.0
	≥ Regional Minimum Wage	18	9.0
Occupation	Private worker	19	9.5
	Farmer	165	82.9
	Civil servant	4	2.0
	Self-employed	11	5.5
Number of children	1 – 2	121	60.8
	>2	78	39.2

Table 2. Factors Correlate with Father's Behavior in Preventing Childhood Stunting (n = 199)

Categories	Father's behaviour in preventing childhood stunting				Total		p	r
	Negative		Positive		Σ	%		
	n	%	n	%				
<b>Perceived Susceptibility</b>								
Low	8	4.0	43	21.6	51	25.6	0.023	0.161
Moderate	9	4.5	97	48.7	106	53.3		
High	5	2.5	37	18.6	42	21.1		
Total	22	11.1	177	88.9	199	100.0		
<b>Perceived Severity</b>								
Low	8	4.0	39	19.6	47	23.6	0.050	0.139
Moderate	9	4.5	96	48.2	105	53.8		
High	5	2.5	42	21.1	47	23.6		
Total	22	11.1	177	88.9	199	100.0		
<b>Perceived Benefit</b>								
Low	6	3.0	58	29.1	64	32.2	0.198	0.092
Moderate	16	8.0	115	57.8	131	65.8		
High	0	0	4	2.0	4	2.0		
Total	22	11.1	177	88.9	199	100.0		
<b>Perceived Barrier</b>								
Low	0	0	2	1.0	2	1.0	0.112	0.113
Moderate	14	7.0	104	52.3	118	59.3		
High	8	4.0	71	35.7	79	39.7		
Total	22	11.1	177	88.9	199	100.0		
<b>Cues to Action</b>								
Low	2	1.0	4	2.0	6	3.0	0.004	0.204
Moderate	15	7.5	110	55.3	125	62.8		
High	5	2.5	63	31.7	68	34.2		
Total	22	11.1	177	88.9	199	100.0		
<b>Self-efficacy</b>								
Low	4	2.0	9	4.5	13	6.5	0.883	0.010
Moderate	14	7.0	143	71.9	157	78.9		
High	4	2.0	25	12.6	29	14.6		
Total	22	11.1	177	88.9	199	100.0		

Table 2 shows that most of the respondents have a moderate level of perceived susceptibility (48.7%), perceived severity (48.2%), perceived benefit (57.8%), perceived barrier (52.3%), cues to action (55.3%), self-efficacy (71.9%) and positive behaviour in preventing childhood stunting.

Statistical analysis using Spearman Rho Test found that fathers' perceived susceptibility ( $p = 0.023$ ;  $r = 0.161$ ) and cues to action ( $p = 0.004$ ;  $r = 0.204$ ) positively correlate with their behaviour in preventing childhood stunting. As their perception increases, their behaviour will be

more optimistic about preventing childhood stunting. While the other variables are not significantly correlated with the father's behaviour in preventing childhood stunting.

## Discussion

The present study showed that perceived susceptibility and cues to action were significantly correlated with the father's behaviour in preventing childhood stunting. It also revealed that perceived severity, benefits, barriers, and self-efficacy did not correlate with the father's behaviour in preventing childhood stunting.

The HBM attempts to predict health-related behaviour in terms of specific belief patterns (Rosenstock, 1974, 1990). One's motivation to engage in health-related behaviour depends on his specific health beliefs about vulnerability to a particular health threat and the consequences, the likelihood of reducing the threat by engaging in the health behaviour and the cost associated with engaging in the behaviour. If one's perceives a threat to their health, is consecutively cued to action, and their perceived benefits outweigh the perceived barriers, they are likely to undertake the recommended preventive health action (Jones et al., 2015).

Perceived susceptibility is one of the primary constructs of HBM, which is defined as one's subjective perception of risk to acquire a disease or enter a dire state due to a particular behaviour. In this research, it refers to childhood stunting (Hall, et al., 2018; Rosenstock, 1990). Perceived susceptibility is a more substantial contributor to the understanding of preventive health behaviour (Sukeri et al., 2020). One's may act to prevent disease if they believe that they are susceptible to a condition that they also believe is serious (Green et al., 2020; Jones et al., 2019). Children under 5 were susceptible to stunting if they could not meet appropriate feeding practices as WHO recommended or were frequently infected by the diseases. The household factors such as poor care practices, food insecurity, inadequate sanitation and water supply, low caregiver education, and lowest wealth index were associated with childhood stunting (Beal et al., 2018; Onis & Branca, 2016). Culturally fathers were considered as a provider of food and resources to provide food for the family (Kansiime et al., 2017). Most respondents have moderate to high levels of perceived susceptibility regarding children's opportunity to be stunted were due to their inability to provide healthy food. Many respondents were low educated and less wealthy fathers as they were only farmers with low monthly incomes.

This study also revealed that fathers' cues to action were positively correlated with their be-

haviour regarding childhood stunting prevention. Previous studies found cues to action as a significant variable to predict intention to do a preventive behaviour (Ares et al., 2020; Puspita et al., 2017). The HBM believes that one's motivation process is set in motion by cues to action. Cues to action include a diverse range of triggers for individuals to take action and are often divided into internal (e.g., physical symptoms) and external (e.g., educational resources, mass media, various activities imposed by the government, and information from close contacts or health care provider) factors (Kim & Kim, 2020). Health campaigns can increase knowledge and resolve misconceptions about stunting, and serve as cues to demonstrate good nutrition, sanitation, and hygiene practices (Hallet al., 2018). Most respondents have moderate to high cues to action and positive behaviour to prevent childhood stunting. As stunting has become one of the major projects in the Medium-Term National Development Plan (RPJMN) 2020–2024, a campaign was frequently conducted by the health care provider or the government through media portrayal (Holschneider et al., 2021). These cues can influence the father's decision-making regarding optimally used household resources to prevent childhood stunting.

According to HBM, parents are most likely to adopt preventive behaviour if they believe that those problems will negatively impact their children (Salari & Filus, 2017). In this study, there was no significant correlation between perceived severity and the father's behaviour to prevent childhood stunting. It is similar to the previous research, which found that mothers' perceived severity did not correlate with their behaviour in fulfilling their child's nutrition (Hupunau et al., 2019). It may be because fathers usually consider whether their child is susceptible to a health problem before considering its severity (Nenobais & Katmini, 2021). If they do not have experience with childhood stunting, they find it difficult to imagine its seriousness (Glanz et al., 2015). Most respondents with negative behaviour to prevent childhood stunting were junior high school or lower graduates and

had monthly salaries less than the regional minimum wage. Fathers' level of education also influences their understanding of the seriousness of a disease and its consequences. Besides, low social-economic status hinders families' ability to provide resources to support behaviour in preventing childhood stunting.

The other constructs of HBM that are believed to impact one's health behaviour change are perceived benefits and perceived barriers. Perceived benefits refer to what positive effects can be expected from a specific health action. Perceived barriers refer to the tangible and psychological costs of changing or modifying an existing behaviour (Glanz et al., 2015; Rosenstock, 1990). Accuracy in perceiving both perceptions of health behaviour change requires a good knowledge about a specific health condition, its causal factors, and health outcomes (Hall, et al., 2018). The present study revealed no significant correlation between fathers' perceived benefits and barriers to their behaviour in preventing childhood stunting. In this study, fathers with high and low perceived benefits had positive stunting prevention behaviours, likewise to the perceived barrier. These findings are similar to the previous studies (Hupunau et al., 2019; Nenobais & Katmini, 2021; Sholecha, 2018). Most fathers perceive behaviour to prevent childhood stunting as beneficial. They agree that this is crucial to maintaining their children's health and ensuring their children have a normal weight and height according to their age. However, most of them still perceived that stunting is undeniable due to heredity. Lack of knowledge about adequate nutrition, living too far from the local market, and low monthly income are the most significant barriers reported by fathers to maintain their behaviour in preventing childhood stunting.

This study stated that perceived self-efficacy did not significantly correlate with fathers' behaviour in preventing childhood stunting. Perceived self-efficacy in HBM refers to the level of a person's confidence in his or her ability to perform a behaviour successfully (Jones et al.,

2015). Self-efficacy is a strong predictor of many health-related behaviours, mainly when the target behaviour is more challenging to perform, such as fulfilling recommended child nutrition and preventing childhood stunting. Most fathers in this research have low to moderate self-efficacy and positive behaviour in preventing childhood stunting. These findings are similar to the previous study by Hupunau et al., (2019). Most fathers perceived they could not provide nutritious food as recommended to prevent childhood stunting, as they have a low monthly income. In fact, nutritious food can be locally grown food which is more accessible and affordable. The understanding of this information should be increased.

The present study has several strengths as follows: 1) this study provides evidence about the father's perception and behaviour regarding childhood stunting prevention, which is rarely explored; 2) the door-to-door assessment data collection allowed the researcher to meet the respondents directly and observe their household environmental condition; and 3) the location of this study was strategic as it is a priority region for childhood stunting prevention in Indonesia. Despite the strength, this study had several limitations. The sample number used was too small to generalize the results. The cross-sectional study design also limited the ability to explore causation.

## Conclusion

In conclusion, the present study found that perceived susceptibility to childhood stunting and cues to action that can trigger the decision-making process regarding childhood stunting prevention was related to the father's behaviour in preventing it. Community health nurses or policymakers can use these findings to design health promotion programs that involve fathers to improve their engagement in childcare and childhood stunting prevention, especially for those with fewer advantages in sociodemographic conditions.

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