



The Effect of Secondhand smoke exposure on Stunting Incidence in Cirebon, Indonesia

Uswatun Khasanah¹, Eni Suhaeni¹, Ahmad Fariz Malvi Zamzam Zein^{2,3}, Widya Shafira⁴

¹Department of Public Health, Faculty of Medicine, Universitas Swadaya Gunung Jati, Cirebon, West Java, Indonesia

²Department of Internal Medicine, Faculty of Medicine, Universitas Swadaya Gunung Jati, Cirebon, West Java, Indonesia

³Department of Internal Medicine, Waled General Hospital, Cirebon, West Java, Indonesia

⁴Graduate Study, Faculty of Medicine, Universitas Swadaya Gunung Jati, Cirebon, West Java, Indonesia

uswatunhasanah7@gmail.com

Abstract. Aim: This study aimed to analyze the association between secondhand smoke exposure (ShSE) and the incidence of stunting in toddlers.

Methods: A case-control study was conducted in June 2021 at Suranenggala Community Health Center, Cirebon, West Java, Indonesia. A total of 30 subjects for cases and 30 subjects for controls were recruited. The case was stunted toddlers and control was non-stunted toddlers. Stunting status was based on WHO Child Growth Standards median. A validated questionnaire was used in this study determining child characteristics, maternal and ShSE factors. A chi-square test was performed in bivariate analysis.

Results: Most of the subjects were 13-24 months (86.67%). Parental smoking was prevalent in both case (80.0%) and control (90.0%). Smoking exposure was predominantly more than 2 hours a day (73.33%) and inside home (83.84%). There was association between age of children and stunting (OR 7.429, 95%CI 2.078-26.550, p 0.002). There was association between duration of exposure and stunting as well (OR 3.596, 95%CI 1.216-10.638, p 0.018).

Conclusions: Toddlers with ShSE duration >2 hours a day have an increased 3.5 times the risk of stunting.

Keywords: Stunting, cigarette smoking, secondhand smoke exposure, toddlers

1 Introduction

Child health is one of The priority program of The Indonesia government in sustainable development goals (SDGs). It is stated that at the year of 2030, the goal of development is the termination of malnutrition problem, including decreasing stunting and wasting. Stunting is chronic malnutrition among children identified as stunted body. The identification of stunting is based on the measurement of anthropometric status using World Health Organization-Multicentre Growth Reference Study (WHO-MGRS). [1,2]

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Recently, stunting is one of nutritional problem in children worldwide. Based on WHO reports, Indonesia has ranked third position with high prevalence of stunting in South East Asia Region. In the year of 2020, it was reported that the prevalence of stunting in Cirebon Regency (a regency in West Java, Indonesia) was 24.49% and Cirebon Regency has been listed into 100 regencies/cities with priority for national stunting program. Known risk factors for stunting encompass child characteristic, maternal factors, child care, quality of health care and environment. It is still limited studies evaluating the association between exposure of cigarette smoking and stunting. [3,4,5]

Indonesian Ministry of Health reported that 85.4% smokers are active smokers in the house with other member of family living together and there was at least one smoker in more than half of family. Child bears the burden of secondhand smoke exposure (ShSE) which smoking exposure leads to health problem for children. [6] This study aimed to measure the association between smoking exposure and stunting in Cirebon Regency.

2 Methods

2.1 Study design and study sample

This analytical study was using case-control study. It was held in Suranenggala Community Health Center, Suranenggala District, Cirebon Regency, West Java, Indonesia. This study was conducted from May until June 2021.

The population in the study was toddlers (under 2 years old children) in Suranenggala District. The determination of sample size was based on the sample calculation formula for case-control study. There were 30 subjects for cases and 30 subjects for controls as well.

The cases were toddlers living in Suranenggala District, stunting and having documented and complete *Buku Kontrol Ibu dan Balita* (book owned by every mother and child containing maternal condition during and after pregnancy and child's progression regarding the profile of growth and development, nutritional status and immunization history). The controls were toddlers living in Suranenggala District, non-stunting and having documented and complete *Buku Kontrol Ibu dan Balita*. The stunting status was defined as more than two standard deviations below the WHO Child Growth Standards median. The evaluation of stunting status was measured during this study. The exclusion criteria were toddlers with congenital disorder/disease and toddlers attending Suranenggala Community Health Center for medication of illness, like tuberculosis.

2.2 Study tool

A validated questionnaire was used in this study. The questionnaire contained items determining child characteristics, maternal factors and ShSE factors. Child characteristics consisted of age, gender and immunization status. Subjects' age was divided into two categories, 6-12 months and 13-24 months. The immunization status

was based on data in *Buku Kontrol Ibu dan Balita* and was categorized into 'complete' if subjects had received all primary immunizations (in accordance with subjects' age) and 'incomplete' if subjects had not received one or more than one primary immunization (in accordance with subjects' age). Maternal factors encompassed maternal age during pregnancy, level of education, body height, status of chronic energy deficiency (CED), history of anemia during pregnancy and family income. The maternal age during pregnancy was categorized into 'not at risk' (between 20-30 years old) and 'at-risk' (less than 20 years old or more than 30 years old). Maternal level of education was based on the highest level of formal education that the subjects had received. Maternal body height was divided into ≥ 150 cm and < 150 cm. Status of CED in this study was determined by maternal mid upper arm circumference (MUAC) measurement. The CED was defined if MUAC < 23.5 cm. History of anemia during pregnancy was based on data in *Buku Kontrol Ibu dan Balita*. Anemia in this study was defined as hemoglobin level under 11 g/dL. Family income was categorized as 'low income' if the monthly income was ≤ 2 million rupiah and 'above standard' if the monthly income was > 2 million rupiah. The ShSE factors in this study were parental smoking status, duration of Secondhand smoke exposure. Parental smoking status was based on the history of smoking. Smoking was defined as current smoking. Duration of exposure was divided into '<2 hours a day' and ' ≥ 2 hours a day'. Source of exposure was categorized into 'home' and 'public place'. The type of cigarettes was documented in this study as well.

2.3 Statistical analysis

Bivariate analysis was performed using chi-square test with $\alpha=0.05$ and 95% confidence interval (CI). Variables with p value < 0.005 was considered statistically significant. Statistical analysis was performed using IBM SPSS Statistics 23.0 (IBM Corp., Armonk, NY, USA).

2.4 Ethical consideration

This study was approved by the Medical Research Ethics Committee at the Faculty of Medicine, Universitas Swadaya Gunung Jati, Cirebon, West Java, Indonesia (registration no. 12/EC/FKUGJ/XI/2020).

3 Results and Discussion

3.1 Results

Characteristics of subjects

Table 1. Characteristics of subjects in this study

Variabel	Case n(%)	Control n(%)
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Child characteristics		
<i>Gender</i>		
Male	19 (63.33)	18 (60.00)
Female	11 (36.67)	12 (40.00)
<i>Age of children</i>		
6-12 months	4 (13.34)	16 (53.33)
13-24 months	26 (86.66)	14 (46.67)
Status of immunization		
Complete	10 (33.33)	12 (40.00)
Incomplete	20 (66.67)	18 (60.00)
Maternal factors		
<i>Maternal age during pregnancy</i>		
Not at risk	22 (73.33)	23 (76.67)
At risk	8 (26.67)	7 (23.33)
<i>Maternal level of education</i>		
Elementary school	9 (30.00)	7 (24.13)
High school	20 (66.67)	22 (75.86)
Graduate or post-graduate study	1 (3.33)	0 (0)
<i>Status of CED</i>		
Yes	8 (26.67)	2 (6.67)
No	22 (73.33)	28 (93.33)
<i>Maternal body height</i>		
≥150cm	14 (46.67)	11 (36.67)
<150cm	16 (53.33)	19 (63.33)
<i>History of anemia during pregnancy</i>		
No	24 (80.00)	20 (66.67)
Yes	6 (20.00)	10 (33.33)
<i>Family income</i>		
Low income	17 (56.67)	14 (46.67)
Above-standard income	13 (43.33)	16 (53.33)

Abbreviation: CED —chronic energy deficiency

Based on the table 1, male was predominant in both case (63.33%) and control (60.00%). Subjects with age of 13-24 months were frequent (86.67%). More than half of subjects in both case (66.67%) and control (60.00%) were incompletely vaccinated.

Maternal age during pregnancy at risk was identified in 26.67% of case and 23.33% of control. Status of maternal CED was identified in 26.67% case and 6.67% control. Maternal body height less than 150 cm was found in 53.33% case and 63.33% control. Anemia during pregnancy was detected in 20.00% case and 33.33% control.

Table 2. The profile of secondhand smoke exposure

Variabel	Case n(%)	Control n(%)
<i>Parental smoking</i>		
Yes	24 (80.00)	27 (90.00)
No	6 (20.00)	3 (10.00)
<i>Duration of exposure</i>		
< 2 hours a day	8 (26.67)	17 (56.67)
≥ 2 hours a day	22 (73.33)	13 (43.33)
<i>Source of exposure</i>		
Home	25 (83.34)	24 (80.00)
Public places	5 (16.66)	6 (20.00)
<i>Type of cigarettes</i>		
Kretek cigarette	10 (33.34)	9 (30.0)
Filter cigarette	11 (36.67)	14 (46.67)
Kretek and filter cigarette	3 (10.0)	4 (13.33)
Electric cigarette	6 (20.00)	3 (10.00)

Secondhand smoke exposure was shown at **Table 2**. Parental smoking was identified in 80.0% case and 90.0% control. Duration of ShSE >2 hour a day was predominant (73.33%) in case. More than 80% of subjects got ShSE from home in both case and control. Type of cigarettes among case was filter cigarette (36,37 %), kretek cigarette (33.34%) and both filter-kretek cigarette (10 %), respectively.

The association between variables and stunting

The association between some variables and stunting is available at **Table 3**. There were two variables associated with stunting in this study. Age of children was associated with stunting (OR 7.429, 95%CI 2.078-26.550, p 0.002). Duration of exposure was associated with stunting as well (OR 3.596, 95% CI 1.216-10.638, p 0.018).

Table 3. The association between variables and stunting

Variable	<i>p</i> value	OR (95% CI)
Child characteristics		
<i>Gender</i>		
Male	0.5	0.87
Female		(0.306-2.461)
<i>Age of children</i>		
6-12 Months	0.002	7.43
13-24 Months		(2.078-26.55)
Status of immunization		
Complete	0.395	1.33
Incomplete		(0.465-3.823)
Maternal factors		
<i>Maternal age during pregnancy</i>		
Not at risk	0.5	1.19
At risk		(0.371-3.852)
Maternal level of education		
Elementary school	0.68	NA
High school		
Graduate or post-graduate study		
Status of CED		
Yes	0.065	4.455
No		(0.840-23.610)
<i>Maternal body height</i>		
≥150cm	0.15	0.5
<150cm		(0.18-1.422)
<i>History of anemia during pregnancy</i>		
No	0.191	0.5
Yes		(0.155-1.616)

Family income		
Low-income	0.303	0.609
Above-standard income		(0.242-1.852)
ShSE		
Parental smoking		
Yes	0.236	2.25
No		(0.507-9.993)
Duration of exposure		
< 2 hours a day	0.018	3.596
≥ 2 hours a day		(1.216-10.638)
Source of exposure		
Home	0.50	0.80
Public places		(0.215-2.972)
Type of cigarettes		
Kretek cigarette	0.60	NA
Filter cigarette		
Kretek and filter cigarette		
Electric cigarette		

3.2 Discussion

3.2.1 Characteristics of children and mother related to stunting

Child characteristics, including gender, age, and immunization status, may influence the incidence of stunting. In this study, gender was not associated with stunting. This finding is in accordance with study by Rahayu (2020). This result may be associated with no significant difference on growth between under 5-year-old boys and girls. It implicates that both boys and girls have risk of stunting. [7]

In this study, child with age of 13-24 is associated with increased risk of stunting. Another study by Sujianti (2021) showed similar result. At such age, children are active and starting to eat independently. In the condition of parental ignorance about the importance of clean environment, toddlers become prone to infection. Intake inadequacy is other condition to consider among them. Infection and intake inadequacy may cause malnourished and further stunting. [8,9,10,11]

The Indonesian Ministry of Health formulates maternal age-related risk factor, regarding its impact on the process of pregnancy, into 2 categories, those are at-risk and not at-risk. Based on this category, at-risk pregnancy is defined as maternal age during pregnancy <20 years old or >35 years old. Women <20 years old is physiological-

ly still in growth process. Pregnancy in this age may decelerate this phase and further deteriorates the growth of both mother and fetus. Women >35 years old indicates the incompetent physical condition for pregnancy.

This study revealed that maternal age during pregnancy was not associated with stunting. Study by Stefanus (2021) emphasized similar result as well. The at-risk maternal age of pregnancy may complicate low birth weight as short-term post-partum impact. If it is not managed earlier, it may further cause stunting as long-term impact. In this study, 86% of toddlers were aged 12-59 months. In this study group, it is possible that low birth weight has been resolved well so that it does not cause long-term negative impacts such as stunting.

Mother's height <150 cm is associated with genetic, CED, or chronic infection. Maternal body height related genetic disorder may cause risk of delayed child growth and development and further stunting. Studies by Hanum (2019) and Wiwid Andari (2020) emphasized this. The studies showed that maternal body height is associated with three-times increased risk for stunting. On the contrary, our study indicated that maternal body height was not associated with stunting. Similar result was also pronounced by Erfince (2020). This result may be due to the role of CED and/or chronic infection as predominant risk factors for maternal body height <150cm in this study. [15,18,19,20,21]

The CED during pregnancy is associated with low birth weight and further stunting, if it is not treated. The measurement of MUAC was used as screening method for CED in this study. This study showed that CED was not associated with stunting. Study by L steenkamp (2016) also revealed similar result. It may be due to the screening method used in this study. L steenkamp (2016) stated that MUAC was associated with wasting, not stunting. [22,23]

The economic status, defined by monthly family income in this study, was also documented in this study. This study indicated that economic status was not associated with stunting. Study by Hasbiah (21) stated similar finding as well. This research was conducted in Suranenggala District which is located along the north coast of Java Island. Most of the population are fishermen where people access protein intake adequately. Further, high family income is not associated with the availability of balanced food. [23,29]

3.2.2 Secondhand smoke exposure and stunting

Parental smoking is a tremendous burden in public health, especially stunting. Child in the house with parental smoking is identified as secondhand smoker. This condition facilitates not only the smoke exposure but also the risk of health problem caused by smoking. This study showed that parental smoking was not statistically associated with stunting but seemingly it was clinically important (OR 2.25). This study also revealed that duration of exposure was associated with stunting. A study by Nadhiroh (2020) stated similar finding. More than 2 hours a day of smoke exposure had 3.5 times increased risk for stunting in this study. [25]

Study by Astuti (2020) on families with children under five in Surakarta Regency stated that the source of Secondhand Smoke exposure at home mostly came from

father's cigarette smoke. Prolonged exposure to cigarette smoke leads to increased levels of nicotine in the body. Nicotine can reduce 30-40% of oxygen supply and interfere with the absorption of nutrients such as calcium, minerals, and vitamin C that are important for children's height growth. Secondhand Smoke exposure in constant and long term, especially in the first 1000 days of a child's increases the risk of stunting by 2.04 times. [28]

A study by Shah et al (2019) reported that 79% of children living in households with only partial or no smoking restrictions., and children living with smokers had higher nicotine levels of 0.36 ng/mL than those who did not live with smokers. in vitro and in vivo preclinical studies strongly indicate that nicotine exposure alone can adversely affect the nervous, respiratory, immune, and cardiovascular systems, particularly when exposure occurs during critical developmental periods. Nicotine is a water-soluble bioactive alkaloid with strong parasympathomimetic properties. Mild acute nicotine intoxication can cause nausea, vomiting, respiratory symptoms, and cardiovascular instability, whereas high levels of systemic nicotine can lead to seizures and cardiorespiratory arrest. The severity of nicotine intoxication depends on dose, duration, frequency of exposure, route of exposure, and formulation. Nicotine also affects the immune system in children, Secondhand smoke exposure can alter immune responses by inducing T helper 2 cytokine production¹¹³ and attenuating interferon-g responses in children. Children with secondhand smoke exposure had a higher risk of lower respiratory tract infections. [30,31]

There was a relationship between recurrent respiratory infections and stunting in children. Recurrent respiratory infections cause inflammatory processes and fever, which increase nutritional requirements for metabolism, and the child experiences a decrease in appetite. If this condition is not treated properly, the body will experience continuous nutritional deficiencies and child becoming stunted. [28]

This study found that source of smoking exposure was mostly from home. It indicated that the awareness of parents concerning the risk of ShSE was still lacking. It is highly needed to advocate the government to regulate free-smoking area not only in public place, but also at home.

4 Conclusions

Toddlers with ShSE duration >2 hours a day increased 3.5 times the risk of stunting. It is urged to increase the awareness of the SsHE risk through parental engagement and government regulation for smoking area restriction in both public place and home.

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6 Conflicts of interest

Authors have nothing to declare.

7 Authors contributions

All authors have contributed equally to the conception and design of the study, drafting the article of revising it, and approving the version to be submitted.

References

Kemendes RI. Buletin Stunting. Kementerian Kesehatan Republik Indonesia. 2018;301(5):1163–78.

UNICEF. Situasi Anak di Indonesia —Tren, Peluang, dan Tantangan dalam Memenuhi Hak-hak Anak. UNICEF. 2020;8–38.

Izwardi D. Kebijakan dan Strategi Penanggulangan Masalah Gizi. Widyakarya Nasional Pangan dan Gizi XI, Juli 3-4, 2018, Hotel Bidakara Jakarta. 2018;1–34.

Kementerian Kesehatan Republik Indonesia. Laporan Kinerja Kementerian Kesehatan Tahun 2020. Kementerian Kesehatan Republik Indonesia Tahun 2021. 2021;1–224.

Kementerian PPN/Bappenas. Kajian Sektor Kesehatan Pembangunan Gizi di Indonesia. Kementerian PPN/Bappenas. 2019. 1–78 p.

Muchlis N, Yusuf RA, Rusydi AR, Mahmud NU, Hikmah N, Qanitha A, et al. Cigarette Smoke Exposure and Stunting Among Under-five Children in Rural and Poor Families in Indonesia. *Environment Health Insights*. 2023;17(December 2022).

Rahayu PP, Casnuri. Perbedaan Risiko Stunting Berdasarkan Jenis Kelamin. Seminar Nasional UNRIYO. 2020;135–9.

Sujianti. Analisis Faktor yang Berhubungan dengan Stunting pada Usia Todler. *Indonesia Journal of Nursing Health Science*. 2021;6(2):104–12.

Maimunah. Hubungan Usia dengan Peningkatan Status Gizi Anak Stunting. *Jurnal Antara Kebidanan*. 2022;3(1):1–11.

de Onis M, Branca F. Childhood stunting: A global perspective. *Matern Child Nutrition*. 2016;12:12–26.

Nshimiyiryo A, Hedt-Gauthier B, Mutaganzwa C, Kirk CM, Beck K, Ndayisaba A, et al. Risk factors for stunting among children under five years: A cross-sectional

population-based study in Rwanda using the 2015 Demographic and Health Survey. *BMC Public Health*. 2019;19(1):1–40.

Vasera RA, Kurniawan B. Hubungan Pemberian Imunisasi Dengan Kejadian Anak Stunting Di Puskesmas Sungai Aur Pasaman Barat Tahun 2021. *Jurnal Kedokteran STM (Sains dan Teknologi Medik)*. 2023;6(1):82–90.

Wicaksono F, Harsanti T. Determinants of stunted children in Indonesia: A multi level analysis at the individual, household, and community levels. *Kesmas*. 2020;15(1):48–53.

Kiik SM, Nuwa MS. Maternal factors in stunting among vulnerable children. *Jurnal Keperawatan Indonesia*. 2021;24(2):82–9.

Beal T, Tumilowicz A, Sutrisna A, Izwardy D, Neufeld LM. A review of child stunting determinants in Indonesia. *Matern Child Nutrition*. 2018;14(4):1–40.

Laksono AD, Ibad M, Mursita A, Kusriani I, Wulandari RD. Characteristics of Mother as Predictors of Stunting in Toddler. *Pakistan Journal Nutrition*. 2019;18(12):1101–6.

Habimana S, Biracyaza E. Risk Factors Of Stunting Among Children Under 5 Years Of Age In The Eastern And Western Provinces Of Rwanda: Analysis Of Rwanda Demographic And Health Survey 2014/2015. *Pediatric Health Medicine Therapeutics*. 2019;Volume 10:115–30.

Wanimbo E, Wartiningsih M. Hubungan Karakteristik Ibu Dengan Kejadian Stunting Baduta (7-24 Bulan) Di Karubaga. *Jurnal Manajemen Kesehatan Yayasan RS Dr.Soetomo*. 2020;6(1):83.

Nur Hadibah Hanum. Hubungan Tinggi Badan Ibu dan Riwayat Pemberian MP-ASI dengan Kejadian Stunting pada Balita Usia 24-59 Bulan. *Amerta Nutrition*. 2019;3(2):78–84.

Andari W, Siswati T, Paramashanti BA. Tinggi Badan Ibu Sebagai Faktor Risiko Stunting Pada Anak Usia 24-59 Bulan. *Journal Nutrition College*. 2020;9:235–40.

Berhe K, Seid O, Gebremariam Y, Berhe A, Etsay N. Risk factors of stunting (chronic undernutrition) of children aged 6 to 24 months in Mekelle City, Tigray Region, North Ethiopia: An unmatched case-control study. *PLoS One*. 2019;14(6):1–11.

Steenkamp L, Lategan R, Raubenheimer J. Moderate malnutrition in children aged five years and younger in South Africa: Are wasting or stunting being treated? *South African Journal Clinical Nutrition*. 2016;29(1):27–31.

Indriyan E, Dewi YLR, Salimo H. Biopsychosocial Determinants of Stunting in Children Under Five: A Path Analysis Evidence from the Border Area West Kaliman-

tan. *Journal Maternal Child Health*. 2018;03(02):146–55.

Ade Nasihudin Al Ansori. Studi CISDI: Ayah Perokok Tingkatkan Risiko Stunting pada Anak Hingga 3,73 Persen. 2021.

Nadhiroh SR, Djokosujono K, Utari DM. The association between secondhand smoke exposure and growth outcomes of children: A systematic literature review. *Tobacco Induced Diseases*. 2020;18:1–12.

Muraro AP, Gonçalves-Silva RM V., Moreira NF, Ferreira MG, Nunes-Freitas AL, Abreu-Villaça Y, et al. Effect of tobacco smoke exposure during pregnancy and preschool age on growth from birth to adolescence: A cohort study. *BMC Pediatric*. 2014;14(1):1–9.

Surgeon TUS, Health T. Health effects of secondhand smoke on children - American Nonsmokers' Rights Foundation | no-smoke.org. 2006;(510). Available from: <https://no-smoke.org/health-effects-secondhand-smoke-children/>

Astuti DD, Handayani TW, Astuti DP. Cigarette smoke exposure and increased risks of stunting among under-five children. *Clinical Epidemiology Global Health* [Internet]. 2020;8(3):943–8. Available from: <https://doi.org/10.1016/j.cegh.2020.02.029>

Hasbiah H, Widyarni A, Inayah HK. Hubungan Pengetahuan , Pendapatan Keluarga dan Pola Asuh Dengan Kejadian Stunting pada Balita di Wilayah Kerja Puskesmas Pekauman Kota Banjarmasin Tahun 2021. *Jurnal Kesehatan UNISKA*. 2021;1–11.

Shah S, Kanaan M, Huque R, et al. Secondhand smoke exposure in primary school children: A survey in Dhaka, Bangladesh. *Nicotine Tob Res*. 2019;21(4):416–423. doi:10.1093/ntr/ntx248

McGrath-Morrow SA, Gorzkowski J, Groner JA, et al. The effects of nicotine on development. *Pediatrics*. 2020;145(3). doi:10.1542/peds.2019-1346

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