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Maternal Nutritional Knowledge as a Determinant of Stunting in West Java: Rural-Urban Disparities

Pengetahuan Gizi Ibu Sebagai Determinan Stunting di Jawa Barat: Disparitas Perdesaan-Perkotaan

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ABSTRACT

Background: Maternal nutritional knowledge must be strengthened to lower the problem of stunting. However, there is currently a lack of information regarding the nutritional knowledge of mothers of stunted and non-stunted children in West Java's rural and urban areas.
Objectives: This study compares the nutritional knowledge of mothers of under-five children in West Java across four groups: those who are stunted in rural areas (SR), those who are stunted in urban areas (SU), and those who are not in rural (NR) and urban (NU).
Methods: This cross-sectional study was conducted in Cianjur (rural) and Sukabumi City (urban) in June 2022. Data was collected through interview to 300 mothers of children underfive using pretested questionnaire. Nutritional knowledge comprised of 20 questions about infant and young child feeding and balanced nutrition. One-way ANOVA and Tukey HSD Post Hoc Tests were applied for data analyses using IBM SPSS 22.0.
Results: Overall, both prevalence of stunting in rural and urban was 33.3% and 30.7%, respectively. Mothers in four groups had moderate nutritional knowledge, with total scores ranging from 70.9 to 75.2. Mothers of NU were found to have more nutritional awareness than NR and SR. In comparison to NR, mothers of NU babies are more likely to be aware that their 2- or 3-month-old infants cannot consume bananas or papayas. Compared to SR, more NU mothers are aware that vegetables do not contain protein. There are more mothers of NU know that sweetened condensed milk is not more nutrient rich compared to powder or liquid milk than NR and SR.
Conclusions: Urban mothers have superior nutritional knowledge than rural mothers. Even, knowledge of rural mother with stunted child is the poorest. With the high prevalence of stunting, access to nutritional information should be enhanced, with a focus on the feeding practices of young children.

ABSTRAK

Latar Belakang: *Pengetahuan gizi ibu harus diperkuat untuk menurunkan masalah stunting. Walaupun demikian, saat ini informasi mengenai pengetahuan gizi ibu balita stunting dan non stunting di pedesaan dan perkotaan Jawa Barat masih terbatas.*
Tujuan: *Penelitian ini membandingkan pengetahuan gizi ibu balita di Jawa Barat pada empat kelompok yaitu stunting di perdesaan (SR), stunting di perkotaan (SU), dan non-stunting di perdesaan (NR) dan perkotaan (NU).*
Metode: *Studi potong lintang ini dilakukan di Cianjur (pedesaan) dan Kota Sukabumi (perkotaan) pada Juni 2022. Pengumpulan data dilakukan melalui wawancara kepada 300 ibu balita dengan menggunakan kuesioner yang telah diuji sebelumnya. Pengetahuan gizi terdiri dari 20 pertanyaan tentang pemberian makanan bayi dan balita serta gizi seimbang. Uji One-way ANOVA dan Post Hoc Tukey HSD digunakan untuk analisis data menggunakan IBM SPSS 22.0.*
Hasil: *Secara keseluruhan, prevalensi stunting di pedesaan dan perkotaan masing-masing 33,3% dan 30,7%. Ibu di empat kelompok memiliki pengetahuan gizi dengan kategori sedang dengan skor total berkisar antara 70,9-75,2. Ibu NU ditemukan memiliki pengetahuan gizi yang jauh lebih tinggi daripada NR dan SR. Dibandingkan dengan NR, ibu dari bayi NU lebih mengerti bahwa bayinya yang berusia 2 atau 3 bulan tidak dapat mengonsumsi pisang atau pepaya. Dibandingkan dengan*

SR, lebih banyak ibu NU yang sadar bahwa sayuran tidak mengandung protein. Dibandingkan NR dan SR, lebih banyak ibu NU yang mengetahui bahwa susu kental manis tidak lebih bergizi dibandingkan susu bubuk atau cair.
Kesimpulan: *Ibu di perkotaan memiliki pengetahuan gizi yang lebih unggul daripada ibu di pedesaan. Bahkan, pengetahuan ibu dengan anak stunting di perdesaan adalah yang paling rendah. Dengan tingginya prevalensi stunting, akses terhadap informasi gizi harus ditingkatkan, dengan fokus pada praktik pemberian makan anak dan balita.*

Kata kunci: *MP-ASI, ASI Eksklusif, Makan sehat, Persepsi ibu, Stunting*

INTRODUCTION

Stunting or growth failure is still significant in Indonesia, with a prevalence of up to 24.5% in West Java [1]. 13 out of 27 districts and cities in West Java were listed as the 100 districts and cities with the highest priority for stunting [2].

One of the major causes of stunting is the understanding of mothers about nutrition. Evidence reveals that in Indonesia, poor maternal height and education, premature birth, short birth length, nonexclusive nursing for the first six months, low household socioeconomic level, and nonexclusive breastfeeding are all significant risk factors for child stunting [3]. Good knowledge and a positive attitude toward child nutrition and feeding practices, exposure to nutrition and health information, and a perception of oneself as healthy were maternal characteristics that were positively associated with healthy feeding practices for children 2 to 5 years old in the Karawang District [4]. Nutritional awareness of mother significantly influences the nutritional status of children 3-4 years [5].

There may be differences between urban and rural mothers' nutritional knowledge. According to a study, the majority of the 3,150 mothers who were pregnant or who had children under two years old in rural areas in seven provinces and ten districts didn't realize what stunting was [6]. Stunting discrepancies have been linked to variations in the traits and behaviors of urban and rural populations [7]. Another study also showed that stunting prevalence overall was decreasing in Tanzania, but the gap between urban and rural areas has grown due to the slower rate of decline in the rural areas [8]. This study compares the nutritional knowledge of mothers of under-five children in West Java across four groups: those who are stunted in rural areas (SR), those who are stunted in urban areas (SU), and those who are not in rural (NR) and urban (NU).

METHODS

This cross-sectional study was conducted in Cianjur (rural) and Sukabumi City (urban) in June 2022. At each location, 25 children under the age of five were randomly chosen from each of the six integrated health posts, which were chosen based on the high number of children under the age of five. A pretested questionnaire with an Alpha Cronbach's value over 0.6 was used for interviews with total of 300 mothers of children under five years old. Nutritional knowledge comprised of 20 statements about infant and young child feeding and balanced nutrition. Mothers gave true or false answers to each statement. Further, the recoded answers were used to determine each statement's nutritional knowledge score (which varied from 0-1). The sum of the true answers, multiplied by five, was used to compute the nutritional knowledge test score. Analyses using WHOAnthro to the children's height, which was determined via anthropometric assessment, were used to evaluate nutritional status. Stunted children are those whose height-for-age z-score is less than -2 SD. One-way ANOVA and Tukey HSD Post Hoc Tests were applied for data analyses using IBM SPSS 22.0. IPB University's ethical clearance, Number 680/IT3.KEPMSM-IPB/SK/2022, was acquired.

RESULTS AND DISCUSSION

The average age of mothers across all groups is middle adulthood. Mothers in all groups are roughly the same age, falling within the middle adult range. The highest percentage of mothers in NR, SR, and SU, 35.0%, 48.0%, and 37.0%, respectively, were elementary school graduates, whereas the highest percentage of mothers in NU were senior high school graduates. In all groups, housewives accounted for most mothers. Some mothers had day jobs as sellers. A small percentage of mothers works as laborers, drivers, maids, teachers, massage therapists, cadre, and agricultural field supervisors (Table 1).

Table 1. Socio-economic characteristics of mothers

Socio-Economic Characteristics of Mothers	Rural		Urban	
	Non-Stunted n=100	Stunted n=50	Non-Stunted n=104	Stunted n=46
Age (years), Mean±SD	30.56±6.29	32.78±5.91	31.60±6.91	32.61±6.31
Education, n (%)				
No schooling	0 (0.0)	1 (2.0)	0 (0.0)	0 (0.0)
Not graduated from elementary school	2 (2.0)	2 (4.0)	1 (1.0)	0 (0.0)
Elementary school graduate	35 (35.0)	24 (48.0)	18 (17.3)	17 (37.0)
Junior high school graduate	31 (31.0)	15 (30.0)	36 (34.6)	12 (26.1)
Senior high school graduate	28 (28.0)	7 (14.0)	46 (44.2)	14 (30.4)
University graduate	4 (4.0)	1 (2.0)	3 (2.9)	3 (6.5)

Socio-Economic Characteristics of Mothers	Rural		Urban	
	Non-Stunted n=100	Stunted n=50	Non-Stunted n=104	Stunted n=46
Occupation				
Housewife	81 (81.0)	36 (72.0)	80 (76.9)	35 (76.1)
Government employee	1 (1.0)	0 (0.0)	0 (0.0)	0 (0.0)
Private employee	2 (2.0)	0 (0.0)	3 (2.9)	1 (2.2)
Seller	13 (13.0)	10 (20.0)	16 (15.4)	8 (17.4)
Farmer	0 (0.0)	1 (2.0)	0 (0.0)	0 (0.0)
Service worker	3 (3.0)	3 (6.0)	5 (4.8)	2 (4.3)

Overall, both prevalence of stunting in rural and urban was categorized as high public health problem, 33.3% and 30.7%, respectively [9]. The prevalence in urban (Sukabumi City) was substantially higher than the national survey, namely 19.1%, while the prevalence of stunting in rural (Cianjur District) is roughly similar with the result of the nationwide survey in 2021 (33.7%) [1].

The nutritional knowledge of mothers in four groups was rated as moderate, with a total score ranging from 70.9 to 75.2. The result is almost similar to a previous study conducted in Karawang District with score of 14 out of 19 (73.7%) [4]. Overall, there are five questions, most are related to nutrient-rich foods, role of nutrients, and infant formula, with the least scores. Mothers know the importance of vegetables in the diet; however they are unaware of the nutrients that vegetables are abundant in. Additionally, mothers cannot designate specific foods as sources of animal protein. This finding is comparable to the earlier study, which showed that only 35% of mothers correctly answered questions concerning the contents in meals[10]. Mothers in this study are unaware of the function of iron or the foods that provide it. A comparable finding from a previous study was that just 47% of mothers could provide an example of an iron source [4]. Across groups, there were more than one-fourth of mothers think that quality of infant formula equals breastmilk. It has been known that for a baby's growth and development, the ideal food is breast milk [11]. However, marketing affects societal norms by making infant formula use appear widespread, cutting edge, and on par with or superior than breast milk [12,13]. Milk formula advertising demonstrated the use of emotive imagery, special price promotions, celebrity endorsements, and product quality claims in marketing methods [14].

The mothers of NU were shown to be far more aware of nutrition than the mothers of NR and SR ($p<0.05$). Rural residents' access to health information was less than that of urban residents [15]. When looking at household-level determinants, mothers from rural households tended to have lower socioeconomic characteristics than mothers from urban households, in line with other studies [7,8]. As presented in Table 2, mothers of NU children are significantly more likely to know that their 2- or 3-month-old infants cannot eat bananas or papayas than mothers of NR babies ($p<0.05$). This is consistent with earlier research that shown that only a small percentage of moms were aware of the WHO-recommended age for the beginning of complementary feeding in rural Bangladesh [16]. There was significantly more NU mothers are aware that vegetables do not provide protein than SR mothers are ($p<0.05$). More mothers of NU are aware than mothers of NR or SR that sweetened condensed milk does not contain more nutrients than powdered or liquid milk ($p<0.05$). Since sweetened condensed milk contains few nutrients, it is currently not advised that children under the age of five take it as a single source of nutrition [17].

Table 2. Nutritional knowledge score by area and nutritional status (Mean±SD)

Nutritional Knowledge	Rural		Urban	
	Non-Stunted n=100	Stunted n=50	Non-Stunted n=104	Stunted n=46
Babies that are 2 or 3 months old are permitted to eat bananas or papaya. (*false*)	0.84 ± 0.37^{a}	0.88 ± 0.33^{ab}	0.96 ± 0.19^{b}	0.96 ± 0.21^{ab}
From birth to three months old, newborns only receive breastmilk. (*false*)	0.81 ± 0.39^{a}	0.82 ± 0.39^{a}	0.92 ± 0.27^{a}	0.89 ± 0.32^{a}
Fish and eggs are good for a child's growth. (true)	0.99 ± 0.10^{a}	0.96 ± 0.20^{a}	0.98 ± 0.14^{a}	1.00 ± 0.00^{a}
Breastmilk alone, without any other food or drink, should be given to infants until they are 6 months old. (true)	0.94 ± 0.24^{a}	0.90 ± 0.30^{a}	0.96 ± 0.19^{a}	0.91 ± 0.29^{a}
For children older than six months, complementary feeding is provided. (true)	0.96 ± 0.20^{a}	0.94 ± 0.24^{a}	0.99 ± 0.10^{a}	0.98 ± 0.15^{a}
It is deemed sufficient to breastfeed a child until they turn one year old. (*false*)	0.78 ± 0.42^{a}	0.80 ± 0.40^{a}	0.85 ± 0.36^{a}	0.91 ± 0.29^{a}
Breastmilk equals the quality of infant formula. (true)	0.29 ± 0.46^{a}	0.34 ± 0.48^{a}	0.26 ± 0.44^{a}	0.28 ± 0.46^{a}
Vegetables are essential to consume because they frequently serve as sources of protein. (*false*)	0.08 ± 0.27^{ab}	0.02 ± 0.14^{a}	0.16 ± 0.37^{b}	0.15 ± 0.36^{ab}
Compared to powder or liquid milk, sweetened	0.73 ± 0.45^{ac}	0.66 ± 0.48^{a}	0.89 ± 0.31^{b}	0.87 ± 0.34^{bc}

Nutritional Knowledge	Rural		Urban	
	Non-Stunted n=100	Stunted n=50	Non-Stunted n=104	Stunted n=46
condensed milk is more nutrient-rich. (*false*)				
Protein is a growth-promoting nutrient. (true)	0.94±0.24[a]	0.90±0.30[a]	0.87±0.34[a]	0.89±0.32[a]
Compared to lunch or dinner, breakfast is less important. (*false*)	0.93±0.26[a]	0.92±0.27[a]	0.94±0.23[a]	0.91±0.29[a]
Consuming iodized salt is advised to avoid goiter. (true)	0.88±0.33[a]	0.94±0.24[a]	0.86±0.35[a]	0.83±0.38[a]
Calcium is abundant in milk (true)	0.94±0.24[a]	0.92±0.27[a]	0.93±0.25[a]	0.89±0.32[a]
Iron is necessary for the formation of bone and teeth. (*false*)	0.06±0.24[a]	0.02±0.14[a]	0.06±0.23[a]	0.04±0.21[a]
We need nutrient-dense, varied food in our diets. (true)	0.99±0.10[a]	0.96±0.20[a]	0.99±0.10[a]	0.96±0.21[a]
Eggs, carrots, and green beans are all iron-rich foods. (*false*)	0.16±0.37[a]	0.16±0.37[a]	0.26±0.44[a]	0.22±0.42[a]
Food that we eat every day helps to boost immunity. (true)	0.99±0.10[a]	0.98±0.14[a]	1.00±0.00[a]	0.98±0.14[a]
Milk, fish, and tofu are sources of animal protein. (false)	0.25±0.44[a]	0.22±0.42[a]	0.26±0.44[a]	0.26±0.44[a]
Vegetables are vitamin and mineral sources. (true)	0.97±0.17[a]	0.98±0.14[a]	0.99±0.10[a]	0.98±0.15[a]
Both oil and avocados are sources of fat. (true)	0.89±0.31[a]	0.86±0.35[a]	0.90±0.30[a]	0.91±0.29[a]
Total score	72.1±7.9[a]	70.9±8.7[ac]	75.2±8.1[b]	74.1±8.0[abc]

*Different letters showed significant difference, one-way ANOVA Post Hoc Tukey HSD p<0.05

This study's strength is its detailed information on maternal nutritional knowledge broken down into categories of stunting and non-stunting, as well as rural and urban areas. This will assist in tailoring nutrition education topics for each distinct group of mothers. Previous studies have proven the successful of nutrition education in improving maternal nutritional knowledge [18,19]. Nonetheless, because this study primarily focuses on nutritional understanding, it cannot identify the mothers' attitudes or practices.

CONCLUSIONS

Urban mothers are more knowledgeable about nutrition than rural mothers are. Apparently, knowledge of rural mother with stunted child is the least developed. Given the significant prevalence of stunting, access to nutritional information should be improved with a focus on young children's feeding behaviors. In addition to cadres and midwives from primary health care, other parties, such as academia and public and private partners, should also provide nutrition education. Given this study's primary focus is on nutritional knowledge and so that it is unable to pinpoint the mothers' attitudes or behaviors, further study needs to comprehensively incorporate knowledge, attitudes and behaviors of mothers of both stunted and non-stunted children in urban and rural in more extensive areas.

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CONFLICT OF INTEREST AND FUNDING DISCLOSURE

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