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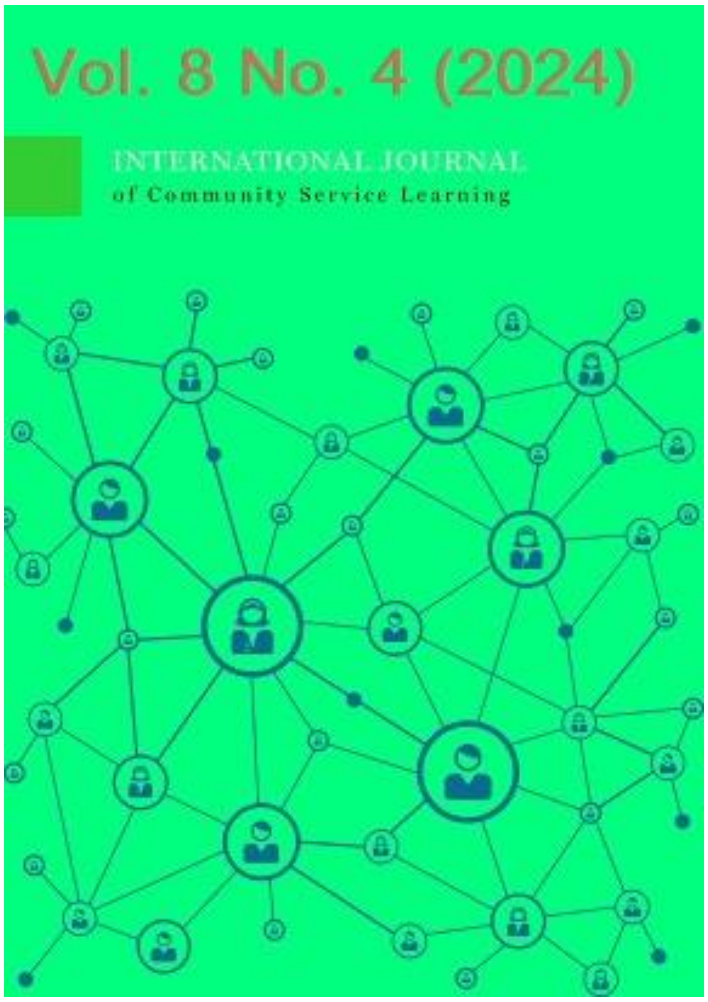

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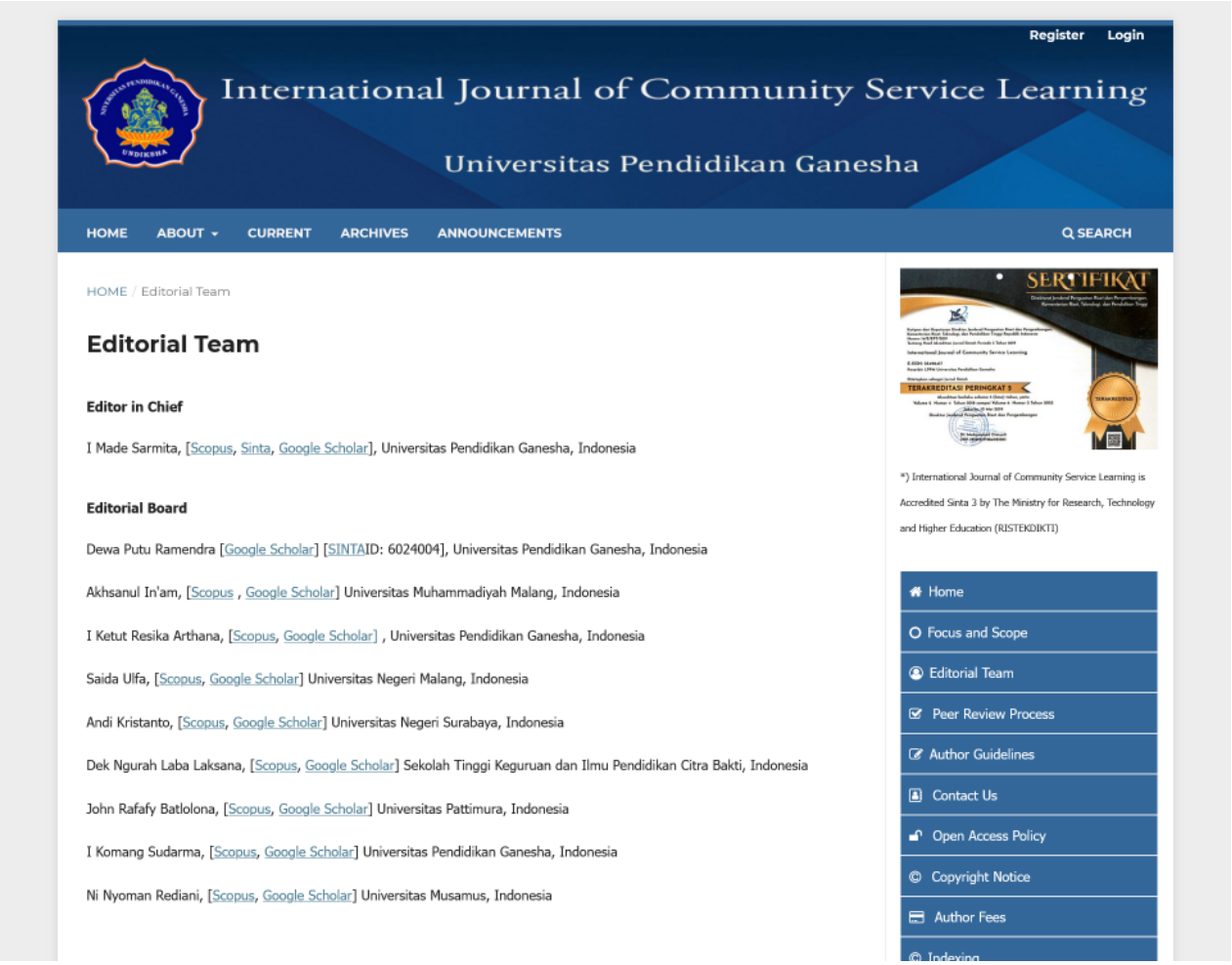

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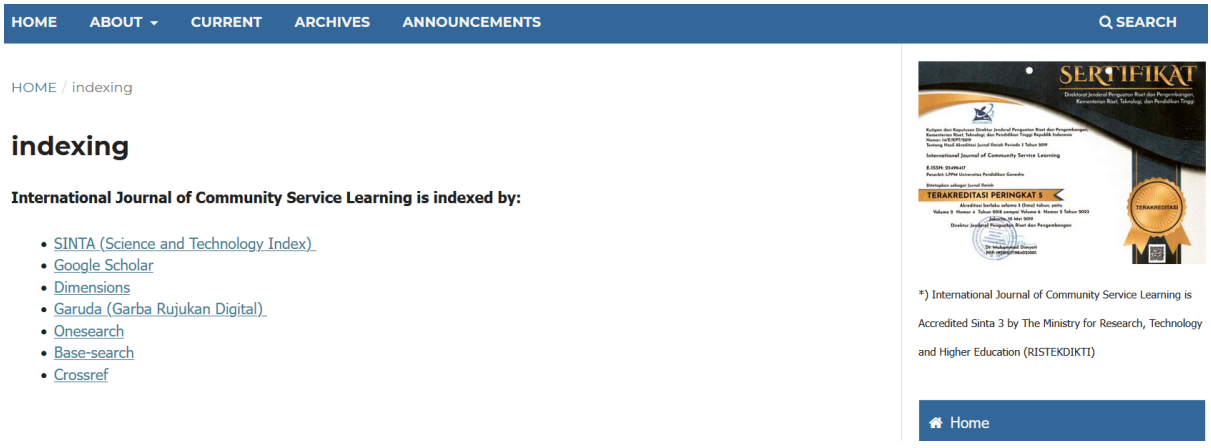

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Increasing Knowledge About Stunting and Growth Charts Through Seminars and Assistance for Parents of Students Aged 3 – 18 Years

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Keywords: Health Education, Growth Charts, Mentorship, Parents, Stunting

ABSTRACT

Stunting and obesity in Indonesia are still unresolved problems This may be caused by a lack of parental knowledge. StResearch regarding increasing parental knowledge about stunting and the use of growth charts is still controversial. This research aims to determine the effectiveness of health education on parental knowledge. This was a one-group experimental pre- and post-test study involving 61 parents of children aged 3-18 years. A modified structured questionnaire was used to assess stunting knowledge scores through seminars and growth chart knowledge scores through mentoring. Data were analyzed using SPSS ver. 29.0.2.0. The Mann-Whitney test was used to compare changes in scores after the seminar and mentoring training. Post-test knowledge score of seminars and mentoring method improved significantly compared with pretest scores ($p < 0.001$ for both analyses). The increase in scores for the mentoring method was three times compared to the seminar method ($p=0.016$). The implication of these findings is that mentoring methods can be considered further on a larger community scale for parent capacity building programs to achieve reduction of malnutrition in Indonesia.

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Increasing Knowledge About Stunting and Growth Charts Through Seminars and Assistance for Parents of Students Aged 3 – 18 Years

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ABSTRAK

Stunting dan obesitas di Indonesia masih menjadi permasalahan yang belum terselesaikan Hal ini mungkin disebabkan oleh kurangnya pengetahuan orang tua. StPenelitian mengenai peningkatan pengetahuan orang tua mengenai stunting dan penggunaan grafik pertumbuhan masih kontroversial. Penelitian ini bertujuan untuk mengetahui efektivitas pendidikan kesehatan terhadap pengetahuan orang tua. Ini adalah studi eksperimental satu kelompok sebelum dan sesudah tes yang melibatkan 61 orang tua dengan anak berusia 3-18 tahun. Kuesioner terstruktur yang telah dimodifikasi digunakan untuk menilai skor pengetahuan stunting melalui seminar dan skor pengetahuan grafik pertumbuhan melalui pendampingan. Data dianalisis menggunakan SPSS ver. 29.0.2.0. Uji Mann-Whitney digunakan untuk membandingkan perubahan skor setelah seminar dan pelatihan mentoring. Skor pengetahuan pasca-tes sebesar seminar dan mentoring metode meningkat secara signifikan dibandingkan dengan skor pretest (p <0,001 untuk kedua analisis). Peningkatan skor metode mentoring tiga kali lipat dibandingkan metode seminar (p=0,016). Implikasi dari temuan ini adalah metode pendampingan dapat dipertimbangkan lebih lanjut dalam skala masyarakat yang lebih besar untuk program peningkatan kapasitas orang tua guna mencapai pengurangan gizi buruk di Indonesia.

ABSTRACT

Stunting and obesity in Indonesia are still unresolved problems This may be caused by a lack of parental knowledge. StResearch regarding increasing parental knowledge about stunting and the use of growth charts is still controversial. This research aims to determine the effectiveness of health education on parental knowledge. This was a one-group experimental pre- and post-test study involving 61 parents of children aged 3-18 years. A modified structured questionnaire was used to assess stunting knowledge scores through seminars and growth chart knowledge scores through mentoring. Data were analyzed using SPSS ver. 29.0.2.0. The Mann-Whitney test was used to compare changes in scores after the seminar and mentoring training. Post-test knowledge score of seminars and mentoring method improved significantly compared with pretest scores ($p < 0.001$ for both analyses). The increase in scores for the mentoring method was three times compared to the seminar method ($p=0.016$). The implication of these findings is that mentoring methods can be considered further on a larger community scale for parent capacity building programs to achieve reduction of malnutrition in Indonesia.

1. INTRODUCTION

Malnutrition in children is still a global health problem including in Indonesia (Grey et al., 2019; Leroy & Frongillo, 2020; Sanctis et al., 2022). The global economic crisis and the COVID-19 pandemic increase the impact of lifestyle changes, including diet, which can increase the risk of malnutrition (Ammar et al., 2020; Rah et al., 2021) Malnutrition is defined as stunting, wasting, or micronutrient deficiencies. Studies show that malnutrition in children causes growth and development failure in toddlers which results in delayed cognitive development, less than optimal intelligence, and an increased risk of non-communicable diseases in adults (Leroy & Frongillo, 2020; Wulandini et al., 2020). Indonesian Nutrition Survey Results [*Indonesian Nutrition Status Survey*, SSGI] for 2022 shows the incidence of stunting inside

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children under five years old in Indonesia is 21.6% (Munira, 2023; Ningtias et al., 2023). Although this figure is lower than in 2021 (30.8%), it still has not reached the target of 14% set by the government (Andriani et al., 2022; Ningtias et al., 2023; Rahman et al., 2022). Various strategies have been implemented carried out by the government such as giving hematinic tablets to young women and pregnant women, early breastfeeding initiation programs, exclusive breastfeeding, and growth and development monitoring programs for toddlers (Oliveira et al., 2022; Pipitcahyani et al., 2022). Another nutritional problem is obesity, although this has not yet become the main program for eradicating nutritional problems by the government. Indonesia is the country with the highest prevalence of obesity among children under five in Southeast Asia. This is worrying because obesity in children can not only increase the risk of non-communicable diseases, such as coronary heart disease, diabetes and cancer in later life, but also has psychosocial impacts (Mustakim et al., 2020; Rahmad et al., 2021). Anthropometric standards for child growth which include weight for age (WW/TB), height for age (TB/TB), and body mass index for age (BAZ) can be used to determine children's nutritional status (Pratiwi et al., 2023; Rohmah et al., 2019). Monitoring children's growth and development is important to identify children who are at risk of experiencing growth and development failure, so that this condition can be treated immediately rather than waiting until they reach malnutrition status. Standard anthropometric tables and child growth charts can be a reference in determining a child's nutritional status (Anggraeni et al., 2020; Arnita et al., 2021).

A low level of parental knowledge can be a factor in the formation of an unhealthy lifestyle in children. Low socio-economic status, lack of clean water, low level of parental education, and unhealthy attitudes and behavior are factors causing obstacles to growth, including stunting (Asif & Farooq, 2019; Colozza & Padmita, 2020). The study of de Vries Mecheva et al. regarding behavior and environmental factors associated with overweight and obesity in 1,674 children aged 6 – 13 years in Jakarta, it was found that parental knowledge as part of assessing the availability of household obesogenic foods, was positively and significantly associated with BAZ scores at the 75th percentile and 90 (Astarani et al., 2020; Yani et al., 2021). This is different from the research of Arnita et al. which does not show a significant relationship between maternal knowledge and preventing stunting in toddlers. Education is one method that can be used to increase a person's knowledge. It is known that training in the use of growth charts is adequate for health cadres and teachers but is still lacking for parents (Casadei & Kiel, 2021; Vaivada et al., 2020). A study on training in the use of growth charts involving 50 housewives in Banda Aceh, Indonesia, found that 60.5% of women had low knowledge about growth charts, but through training, women's knowledge increased by 14% compared to before. training ($p = 0.001$). The latest research on increasing knowledge about stunting and growth charts through seminars and mentoring for parents of students aged 3–18 years can be focused on innovative technology and community-based approaches. The novelty of this research involves the use of interactive digital media, such as educational applications or online platforms, to expand the reach and effectiveness of outreach. Additionally, this research could explore the influence of a personalized approach to mentoring, where parents receive data-based guidance regarding their child's growth, collected through digital monitoring systems. This intervention is designed not only to increase understanding of the importance of preventing stunting, but also to encourage behavior change through peer group support, gamification programs, and cross-sector collaboration with health workers, schools and local communities. Thus, this research has the potential to make a significant contribution in reducing the prevalence of stunting through empowering parents as agents of change. Therefore, this study aims to evaluate the effectiveness of health education on parents' knowledge about stunting and growth charts, using seminar methods and assistance for parents of students in Tangerang, Banten, Indonesia. Another aim of this research is to compare the effectiveness of seminar method education with mentorship method education in increasing parents' knowledge.

2. METHOD

This is a pre-experimental study with a one-group design before and after the test conducted at a private school in the city of Tangerang, Banten, between March 2023 and May 2024. This research has received ethical approval from the Faculty of Medicine, Trisakti University with no. 059/KER/FK/II/2023. The research subjects were parents of students aged 3 - 18 years or had educational levels from playgroups to vocational high schools.. These parents agreed to take part in the study by signing informed consent. Data collection was carried out using a non-sequential method. There were 64 parents who agreed to participate as research subjects by signing an informed consent form. However, there were three subjects who were excluded due to incomplete filling in of the questionnaire so that the final number of subjects who took part in the final analysis was 61 subjects. Health education regarding stunting is provided by pediatricians, while growth chart training is provided by clinical nutritionists. Intensive assistance was provided in training sessions on the use of growth charts, which involved 5 specialist doctors or "masters" and 2 medical

students. Indicators of the success of this research are the holding of seminars and mentoring programs, a significant increase in stunting knowledge and the use of growth charts after providing a health education program (p-value <0.05). Health education was evaluated using a questionnaire distributed to parents before and after health education. The main features of the main science questionnaire Stunting was evaluated using a modification of the Hall et al. questionnaire. Contains 14 questions with a weight of 20 for the definition of stunting and short stature, and a weight of 5 for knowledge of the causes, prevention and impact of stunting. The maximum value for knowledge about stunting is 100. Knowledge questionnaire on the use of growth charts consists of 4 questions, namely one question each regarding plotting growth charts for weight against age (W/U), plotting height against age (H/A), evaluating nutritional status for BB/U. and evaluate the nutritional status of H/A. For a 3 year old boy with a weight of 11 kg and a height of 80 cm, question no. Figures 1 and 2 are a way of plotting weight and height on the WHO growth chart for W/A and H/A. Question no. 3: From the results of the growth graph plotting evaluation, it can be concluded that the child's weight status is 1. Overweight; 2. Normal body weight; 3. Wasted 4. Very wasted; 5. Don't know. Question no. 4: From the results of the growth graph plotting evaluation, it can be concluded that the child's height status is 1. Tall stature 2. Normal; 3. dwarf; 4. Severe stunting; 5. Don't know. The weight for plotting (questions number 1 and 2) is 20, while the weight for evaluating nutritional status (questions number 3 and 4) is 30, so the maximum score is 100.

Validation of the questionnaire was carried out by three people with a background in nutrition education and three people with a non-nutrition education background, namely three experts in their fields (one child specialist, one clinical nutrition specialist, and one master in nutrition) and three people from the department nutrition. people with non-nutrition educational backgrounds. Data were analyzed using the SPSS software program version 29.0.2.0. Normality of data distribution was evaluated with the Kolmogorov-Smirnov test at a significance level of $p<0.05$. The Mann-Whitney U test was used to evaluate differences in median knowledge about stunting and use of growth charts between age groups and between education level groups. The Wilcoxon signed-rank test was used to evaluate differences between paired groups. The results were considered significant at $p<0.05$.

3. RESULT AND DISCUSSION

Result

This educational program was attended by 64 parents of students aged 3 – 18 years. Three parents did not fill out the questionnaire so it was decided to exclude these three parents so that the analysis was only carried out on 61 respondents. The majority or 42.6% of parents who took part in this research had children with kindergarten education. The majority of subjects were female (91.8%), aged <40 years (54.1%), had middle to upper education (85.2%), and did not work (55.7%), presented in Table 1.

Table 1. Subject Characteristics (n=61)

Characteristics	Mean ± SD	N (%)
Children's education level (n, %)		
Play group		5 (8.2)
TK		26 (42.6)
elementary school		8 (13.1)
First Middle School		14 (23.0)
Senior High School		8 (13.1)
Age (years)	39 ± 6	
Age category in years (n, %)		
< 40		33 (54.1)
≥ 40		28 (45.9)
Education level (n, %)		
Base		9 (14.8)
Medium - high		52 (85.2)
Gender (n, %)		
Man		5 (8.2)
Woman		56 (91,8)
Employment (n, %)		
Unemployed		34 (55.7)
Work		27 (44.3)

Note: Basic education level: not completed high school or equivalent; medium - high education level: minimum high school graduate or equivalent.

The majority of subjects (82%) had heard/read/knew about stunting which is defined as short stature due to malnutrition (Table 2). There were 13 subjects (21.3%) who did not know the definition of stunting. Likewise for short stature, the majority of subjects (83.6%) had heard/read/known about short stature which is defined by lower height and does not match the child's age. Ten subjects (16.4%) did not know the definition of short stature, and 8.2% of subjects considered short people identical to dwarves. On questions regarding the causes, prevention and impact of stunting, the majority of subjects' answers regarding the causes of stunting were unbalanced or inadequate nutrition, frequent illness, and congenital or hereditary. Steps to prevent stunting can be taken by taking vitamins, playing and doing physical activity, and maintaining cleanliness. The majority of responses to the impact of stunting are low IQ, frequent illness, and impaired growth. There were 26.2% of subjects who stated that stunting had no effect on children's health, growth or intelligence. Knowledge about stunting is presented in Table 2.

Table 2. Knowledge about Stunting

Question	N, %
Have you ever heard/read/learned about stunting (n, %)	
Of	50 (82.0)
NO	11 (18.0)
The definition of stunting that you think is most appropriate (n, %)	
Stunting is a result of malnutrition	28 (45.9)
Stunting is not only a result of malnutrition	8 (13.1)
Height does not match the child's age	11 (18.0)
Stunting is the same as dwarfism	1 (1.6)
Don't know	13 (21.3)
Have you ever heard/read/knew about short stature (n, %)	
Of	51 (83.6)
NO	10 (16.4)
The definition of short stature that you think is most appropriate (n, %)	
Short stature is the result of malnutrition	12 (19.7)
Short stature is not just a result of malnutrition	13 (21.3)
Height does not match the child's age	21 (34.4)
A child who is short is a dwarf	5 (8.2)
Don't know	10 (16.4)

	Of	NO
Causes of stunting (n, %)		
Nutritional imbalance or malnutrition	53 (86.9)	8 (13.1)
Often sick	32 (52.5)	29 (47.5)
Few opportunities to play and learn	15 (24.6)	46 (75.4)
Congenital or hereditary	31 (50.8)	30 (48.2)
Stunting prevention (n, %)		
Take vitamins	58 (95.1)	3 (4.9)
Eat large portions	24 (39.3)	37 (60.7)
Play or exercise	58 (95.1)	3 (4.9)
Keep clean	57 (91.4)	4 (6.6)
Effect of stunting (n, %)		
Low intelligence quotient (IQ).	31 (50.8)	30 (48.2)
Prone to disease	37 (60.7)	24 (39.4)
Growth is disrupted	55 (90.2)	6 (9.8)
No effect	16 (26.2)	45 (73,8)

There were 93.4% of subjects who had never attended training in using growth charts, as seen in Table 3. Although 63.9% of subjects had seen growth charts, 80.3% did not know how to use growth charts and 75.4% had never seen charts. growth used. Knowledge about the use of growth charts is presented in Table 3. Parents are guided by mentors during training in the use of growth charts by plotting graphs of weight for age and height for age. Subjects were also asked to evaluate the child's nutritional status after plotting. In this study we found an increase in knowledge about stunting and the use of growth charts, presented in Table 4.

Table 3. Knowledge about Using Growth Charts (n=61)

Question	N (%)
Have you ever attended training on the use of growth charts (n, %)	
Once	4 (6.6)
Never	57 (93,4)
Have you seen the graph of growth (n, %)	
Of	22 (36.1)
NO	39 (63.9)
Do you know how to use a growth graph (n, %)	
Of	12 (19.7)
NO	49 (80.3)
Use of growth graph (n, %)	
Often	1 (1.6)
Sometimes	4 (6.6)
Seldom	10 (16.4)
Never	46 (75.4)

Table 4. Knowledge Scores on the Stunting and Growth Graph (n=61)

Method	Variable	Prates	Post test	D	P[A]	P[B]
Seminar	Stunting	70 (55 – 75)	85 (70 – 95)	10 (0 – 35)	<0,001[INSIDE**]	0,016[MW*]
Mentoring	Growth graph	0 (0 – 70)	70 (35 – 100)	30 (0 – 60)	<0,001[INSIDE**]	

Note: Non-normally distributed data are presented as median (p25 – p75); [INSIDE]: Wilcoxon signed rank test was used to evaluate differences in pre- and post-test knowledge about stunting and growth charts; [A]: comparison of knowledge before and after the test about stunting and growth charts; [B]: comparison of the delta value of stunting knowledge with knowledge of growth charts; [MW]: Mann-Whitney test is used to compare delta knowledge scores on stunting and knowledge scores on growth charts; *: Results considered statistically significant at p<0.05; **: p<0,001.

Discussion

The seminar and mentoring methods in this research succeeded in increasing parents' knowledge by 21.4% and 700% respectively. Seminars and mentoring are one method for increasing subject knowledge (Bhagyalakshmi et al., 2019; Handryastuti et al., 2020). Parents' knowledge about stunting before the seminar was quite good, with a median pre-test score of 70. The government's intensive program regarding stunting seems to have had an impact on parents' knowledge. This is in line with previous research which shows that 65.5% of women in Simpang Kawat, Jambi City, have knowledge about how to prevent stunting. Previous research also showed that 90.1% of subjects aged >15 years in South Tangerang had good knowledge about stunting. However, the results differ from previous research which showed that 97.9% of subjects did not know anything about stunting. This difference may be due to the location and year of sampling. This research was conducted in urban areas around the capital city of Jakarta between 2023 and 2024, while research by Hall et al. collected data from 10 provinces in Indonesia which also include rural areas, while the data was collected in 2014 (Hall et al., 2022; Vries Mecheva et al., 2019). The definition of stunting is short stature or very short stature, as determined from growth charts, caused by chronic malnutrition associated with low socio-economic levels. economical status, poor maternal health, history of recurrent illnesses, poor nutritional intake, and inappropriate feeding practices. Stunting is caused by malnutrition that occurs early in life. The intrauterine period is the first critical stage in a child's growth and development. Stunted children have a greater risk of experiencing retarded motor development, both gross and fine motor function. If muscles do not develop properly then motor function will not be optimal (Hendarto, 2018; Wangge, 2020). Stunting is part of short stature, but not all short stature sufferers fall into the short stature category growth. In this study it was found that most of the subjects had heard of it stunting, more than 60% gave the wrong answer regarding the definition of stunting, and one in five subjects did not know anything about stunting. The results of this study are in line with research by Hall et al. where there are still many subjects who do not do it. The results of this study are in line with research by Hall et al. where there are still many subjects who do not know the definition of stunting. There were 47.5% of subjects who still believed that a history of repeated illnesses was not the cause of stunting and

50.8% thought that stunting was a congenital or hereditary disorder (Sagita & Afriyan, 2020; Upadhyay et al., 2021; Wardhani & Yusra, 2019). The interesting thing about this research is that although knowledge about the definition of stunting is still low, knowledge about the causes of stunting, prevention of stunting and the impact of stunting is relatively good. Education regarding the definition of stunting must be carried out more widely in society.

There are several results in this study that should be considered. The majority of subjects answered that taking vitamins, exercising and maintaining cleanliness could prevent stunting. Until now, the relationship between vitamin D and stunting is still controversial. Mokhtar et al. showed that low serum vitamin 25(OH)D concentrations were more common in stunted children aged 6–36 months, but on the contrary, Pratiwi et al. did not find a significant relationship between vitamin D concentration and stunting in children with thalassemia. Similarly, in a meta-analytic study by Song et al. in seven observational studies, no significant relationship was found between vitamin D status and the risk of stunting. Vitamin D is a fat-soluble vitamin that is stored in the body, so long-term administration at high doses can increase the risk of toxicity (Seum et al., 2021; Song et al., 2018). Determination of vitamin D concentrations and therapeutic monitoring should be carried out before and during administration of vitamin D supplements to avoid toxic effects. Stunting is known to have an impact on both individuals and the environment, such as low cognitive function, impaired immune response, and overweight or obesity in adulthood which may be related to non-communicable diseases. Research conducted by Mustakim shows that that children who experience stunting have cognitive scores that are much lower than children who do not experience stunting. The results of the latest research are in line with the results of previous research who conducted a cross-sectional study to compare cognitive development in stunted and malnourished children with normal-bodied children aged one month to 3 years. The results of his research show that stunted children tend to have lower motor skills, cognitive function and adaptive behavioral abilities when compared to children with malnutrition but normal bodies (Laksono et al., 2019; Mokhtar et al., 2021). Another meta-analysis study showed similar results, where each increase of one HAZ unit at age over 2 years was associated with an increase in cognitive scores of 0.01 SD at age 3.5 – 12 years and an increase in language scores of 0.05 SD at age 5 – 15 years. In our study, most subjects (90.2%) agreed that stunting can cause growth disorders, but only 50.8% and 60.7% of subjects associated stunting with low IQ and susceptibility to disease. Moreover, one in four subjects considered stunting to have no impact. Providing adequate information must be implemented to increase public awareness of the impact of malnutrition on children.

This kind of health education is interesting for subjects who do not know about growth charts. This can be seen from the fact that more than 90% of subjects had never previously participated in growth chart training. More than two thirds of subjects were unaware of the use of growth charts. The pre-test results also showed poor knowledge with a median (p25-p75) 0 (0 -70). The low score of parental knowledge regarding the use of growth charts was also shown by previous research with an average score of 13.94 out of a maximum score of 30. Training in the use of growth charts is also still low in the group of PAUD teachers (Liman et al., 2020; Liman & Abikusno, 2021), with more than 50% of subjects not knowing or doubting the use of growth charts. We further analyzed the relationship between age and education level with the level of knowledge about stunting and use of growth charts. Table 5 shows that age is not related to knowledge about stunting, use of growth charts, changes in knowledge scores about stunting, and changes in knowledge scores for using growth charts. Parents with a medium to high level of education had a knowledge score about stunting that was 40 percent higher than parents with a basic education level ($p=0.045$). Knowledge scores regarding the use of growth charts also appeared to be higher in groups with higher education levels ($p=0.039$). The relationship between parental education level and knowledge has also been shown by several other studies (Anggraeni et al., 2020; *Ministry of Health of the Republic of Indonesia*, 2020) Mothers as caregivers have knowledge of all decisions related to providing healthy eating patterns, including breastfeeding, protective parenting including giving vitamin A, complete immunization, improving sanitation, and using iodized salt. A better level of education is also a determining factor in children's growth and achieving better health. Age is known to influence a person's level of knowledge. Anggraeni et al.'s study. shows that younger people (aged 17 – 35 years) have a higher level of knowledge than people aged 36 – 56 years (Seum et al., 2021; Vaivada et al., 2020). However, in our study there was no relationship between age and parental knowledge about stunting ($p>0.005$). This may be caused by differences in education levels and the number of subjects affected by stunting. The relationship between age and education level and level of knowledge (n=61) is presented in Table 5.

Basic education level: not completed high school or equivalent. Middle – high education level: minimum high school graduate or equivalent. Data that are not normally distributed are presented as median (p25 – p75). The Mann-Whitney test was used to compare knowledge scores between age groups and between education level groups. *: Results were considered statistically significant at $p<0.05$. The degree of increase in knowledge scores for using growth charts and knowledge of stunting was not

influenced by the subject's age (p>0.05). However, the group of subjects with primary education levels saw an increase of 3.5 times compared to the group of subjects with secondary to high education levels (p<0.05). This shows that the health education provided can be easily accepted regardless of the educational level of the subject, so that this method can be widely used in society. Educational coverage regarding stunting and the use of growth charts can be used as a strategy to increase parents' awareness of children's growth and development, so that in the long term it can reduce the incidence of malnutrition in Indonesia. This is in accordance with the Sustainable Development Goals (SDGs) for Indonesia, especially Sustainable Development Goal 3, namely good health and well-being.

Table 5. Relationship Between Age and Education Level with Level of Knowledge (n=61)

Variable	Stunting	Growth graph	D stunting	D Growth graph
Age in years				
< 40	70 (55 – 75)	0 (0 – 45)	10 (0 – 32,5)	30 (0 – 60)
≥ 40	70 (50 – 70)	30 (0 – 80)	20 (1,3 – 38,8)	30 (2,5 – 70)
Level of education				
Base	50(42,5 – 70)*	0 (0 – 0) *	15 (0 – 40)	70 (60 – 100) *
Intermediate-high	70 (56,3 – 75)	0 (0 – 80)	10 (0 – 30)	20 (0 – 60)

The implication of these findings is the existence of seminars and mentorship can be considered further in *A* program to increase the capacity of parents on a wider community scale regardless of age and level of education, to achieve a reduction in malnutrition in Indonesia. The strength of this research lies in the health education provided by experts in the field and carried out intensively, with a companion to subject ratio of 1:4 versus 1:5. Training and equalization of perceptions about questionnaires and their use Growth charts are carried out within the executive team before providing health education. The limitation of this research is that health education was carried out within a certain period of time. Further research on training should be carried out to obtain an optimal level of parental knowledge. Limitations in this study include challenges in ensuring active parental participation, especially for those who have busy schedules or limited access to digital technology. In addition, variations in parental literacy and understanding levels can influence the effectiveness of educational programs, so diverse approaches are needed to meet individual needs. Another factor is limited resources, such as adequate assistant staff and program sustainability in certain communities. Based on these limitations, it is recommended to develop a hybrid strategy that combines online and offline approaches, such as face-to-face seminars supported by digital modules. Apart from that, there needs to be intensive training for accompanying staff to improve their competence, as well as stronger collaboration with local stakeholders to ensure program sustainability. Efforts to increase parental literacy can also be done through simple and interesting educational materials, such as animated videos or infographics, which are easy to access and understand. Further evaluation by knowing changes in the subject's behavior and the child's nutritional status needs to be carried out to achieve long-term success of this research.

4. CONCLUSION

Seminars and mentoring have succeeded in increasing the knowledge of students' parents, both about stunting and growth charts. This parent capacity building program should be implemented in society on a larger scale, so that in the long term it can reduce the prevalence of malnutrition in Indonesia, especially in the elderly population. Seminars and assistance for parents of students aged 3–18 years are an effective approach in increasing knowledge about stunting and children's growth charts. The intervention, which was designed with a combination of direct education and personal assistance, succeeded in increasing parents' understanding of the importance of preventing stunting, monitoring growth, and implementing appropriate parenting and nutrition patterns. The research results also emphasize the importance of an adaptive, inclusive and sustainable approach to address the challenges of limited literacy, access to technology and the diversity of parents' needs. Therefore, this research contributes to strengthening family empowerment strategies as an effort to support optimal child growth and development and prevent stunting in society.

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Increasing Knowledge About Stunting and Growth Charts Through Seminars and Assistance for Parents of Students Aged 3 –18 Years

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Increasing Knowledge About Stunting and Growth Charts Through Seminars and Assistance for Parents of Students Aged 3 – 18 Years

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ABSTRAK

Stunting dan obesitas di Indonesia masih menjadi permasalahan yang belum terselesaikan Hal ini mungkin disebabkan oleh kurangnya pengetahuan orang tua. StPenelitian mengenai peningkatan pengetahuan orang tua mengenai stunting dan penggunaan grafik pertumbuhan masih kontroversial. Penelitian ini bertujuan untuk mengetahui efektivitas pendidikan kesehatan terhadap pengetahuan orang tua. Ini adalah studi eksperimental satu kelompok sebelum dan sesudah tes yang melibatkan 61 orang tua dengan anak berusia 3-18 tahun. Kuesioner terstruktur yang telah dimodifikasi digunakan untuk menilai skor pengetahuan stunting melalui seminar dan skor pengetahuan grafik pertumbuhan melalui pendampingan. Data dianalisis menggunakan SPSS ver. 29.0.2.0. Uji Mann-Whitney digunakan untuk membandingkan perubahan skor setelah seminar dan pelatihan mentoring. Skor pengetahuan pasca-tes sebesar seminar dan mentoring metode meningkat secara signifikan dibandingkan dengan skor pretest (p <0,001 untuk kedua analisis). Peningkatan skor metode mentoring tiga kali lipat dibandingkan metode seminar (p=0,016). Implikasi dari temuan ini adalah metode pendampingan dapat dipertimbangkan lebih lanjut dalam skala masyarakat yang lebih besar untuk program peningkatan kapasitas orang tua guna mencapai pengurangan gizi buruk di Indonesia.

ABSTRACT

Stunting and obesity in Indonesia are still unresolved problems This may be caused by a lack of parental knowledge. StResearch regarding increasing parental knowledge about stunting and the use of growth charts is still controversial. This research aims to determine the effectiveness of health education on parental knowledge. This was a one-group experimental pre- and post-test study involving 61 parents of children aged 3-18 years. A modified structured questionnaire was used to assess stunting knowledge scores through seminars and growth chart knowledge scores through mentoring. Data were analyzed using SPSS ver. 29.0.2.0. The Mann-Whitney test was used to compare changes in scores after the seminar and mentoring training. Post-test knowledge score of seminars and mentoring method improved significantly compared with pretest scores ($p < 0.001$ for both analyses). The increase in scores for the mentoring method was three times compared to the seminar method ($p=0.016$). The implication of these findings is that mentoring methods can be considered further on a larger community scale for parent capacity building programs to achieve reduction of malnutrition in Indonesia.

1. INTRODUCTION

Malnutrition in children is still a global health problem including in Indonesia (Grey et al., 2019; Leroy & Frongillo, 2020; Sanctis et al., 2022). The global economic crisis and the COVID-19 pandemic increase the impact of lifestyle changes, including diet, which can increase the risk of malnutrition (Ammar et al., 2020; Rah et al., 2021) Malnutrition is defined as stunting, wasting, or micronutrient deficiencies. Studies show that malnutrition in children causes growth and development failure in toddlers which results in delayed cognitive development, less than optimal intelligence, and an increased risk of non-communicable diseases in adults (Leroy & Frongillo, 2020; Wulandini et al., 2020). Indonesian Nutrition Survey Results [*Indonesian Nutrition Status Survey*, SSGI] for 2022 shows the incidence of stunting inside

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children under five years old in Indonesia is 21.6% (Munira, 2023; Ningtias et al., 2023). Although this figure is lower than in 2018 (30.8%), it still has not reached the target of 14% set by the government (Andriani et al., 2022; Ningtias et al., 2023; Rahman et al., 2022). Various strategies have been implemented carried out by the government such as giving hematinic tablets to young women and pregnant women, early breastfeeding initiation programs, exclusive breastfeeding, and growth and development monitoring programs for toddlers (Oliveira et al., 2022; Pipitcahyani et al., 2022). Another nutritional problem is obesity, although this has not yet become the main program for eradicating nutritional problems by the government. Indonesia is the country with the highest prevalence of obesity among children under five in Southeast Asia. This is worrying because obesity in children can not only increase the risk of non-communicable diseases, such as coronary heart disease, diabetes and cancer in later life, but also has psychosocial impacts (Mustakim et al., 2020; Rahmad et al., 2021). Anthropometric standards for child growth which include weight for age (WW/TB), height for age (TB/TB), and body mass index for age (BAZ) can be used to determine children's nutritional status(Pratiwi et al., 2023; Rahmah et al., 2019). Monitoring children's growth and development is important to identify children who are at risk of experiencing growth and development failure, so that this condition can be treated immediately rather than waiting until they reach malnutrition status. Standard anthropometrics tables and child growth charts can be a reference in determining a child's nutritional status (Anggraeni et al., 2020; Arnita et al., 2021).

A low level of parental knowledge can be a factor in the formation of an unhealthy lifestyle in children. Low socio-economic status, lack of clean water, low level of parental education, and unhealthy attitudes and behavior are factors causing obstacles to growth, including stunting (Asif & Farooq, 2019; Lozza & Padmita, 2020). The study of de Vries Mecheva et al. regarding behavior and environmental factors associated with overweight and obesity in 1,674 children aged 6 – 13 years in Jakarta, it was found that parental knowledge as part of assessing the availability of household obesogenic foods, was positively and significantly associated with BAZ scores at the 75th percentile and 90 (Astarani et al., 2020; Yani et al., 2021). This is different from the research of Arnita et al. which does not show a significant relationship between maternal knowledge and preventing stunting in toddlers. Education is one method that can be used to increase a person's knowledge. It is known that training in the use of growth charts is adequate for health cadres and teachers but is still lacking for parents (Casadei & Kiel, 2021; Vaivada et al., 2020). A study on training in the use of growth charts involving 50 housewives in Banda Aceh, Indonesia, found that 60.5% of women had low knowledge about growth charts, but through training, women's knowledge increased by 14% compared to before. training (p =0.001). The latest research on increasing knowledge about stunting and growth charts through seminars and mentoring for parents of students aged 3–18 years can be focused on innovative technology and community-based approaches. The novelty of this research involves the use of interactive digital media, such as educational applications or online platforms, to expand the reach and effectiveness of outreach. Additionally, this research could explore the influence of a personalized approach to mentoring, where parents receive data-based guidance regarding their child's growth, collected through digital monitoring systems. This intervention is designed not only to increase understanding of the importance of preventing stunting, but also to encourage behavior change through peer group support, gamification programs, and cross-sector collaboration with health workers, schools and local communities. Thus, this research has the potential to make a significant contribution in reducing the prevalence of stunting through empowering parents as agents of change. Therefore, this study aims to evaluate the effectiveness of health education on parents' knowledge about stunting and growth charts, using seminar methods and assistance for parents of students in Tangerang, Banten, Indonesia. Another aim of this research is to compare the effectiveness of seminar method education with mentorship method education in increasing parents' knowledge.

2. METHOD

This is a pre-experimental study with a one-group design before and after the test conducted in private school in the city of Tangerang, Banten, between March 2023 and May 2024. This research has received ethical approval from the Faculty of Medicine, Trisakti University with no. 059/KER/FK/II/2023. The research subjects were parents of students aged 3 - 18 years or had educational levels from playgroups to vocational high schools.. These parents agreed to take part in the study by signing informed consent. Data collection was carried out using a non-sequential method. There were 64 parents who agreed to participate as research subjects by signing an informed consent form. However, there were three subjects who were excluded due to incomplete filling in of the questionnaire so that the final number of subjects who took part in the final analysis was 61 subjects. Health education regarding stunting is provided by pediatricians, while growth chart training is provided by clinical nutritionists. Intensive assistance was provided in training sessions on the use of growth charts, which involved 5 specialist doctors or "masters" and 2 medical

students. Indicators of the success of this research are the holding of seminars and mentoring programs, a significant increase in stunting knowledge and the use of growth charts after providing a health education program (p-value <0.05). Health education was evaluated using a questionnaire distributed to parents before and after health education. The main features of the main science questionnaire Stunting was evaluated using a modification of the Hall et al. questionnaire. Contains 14 questions with a weight of 20 for the definition of stunting and short stature, and a weight of 5 for knowledge of the causes, prevention and impact of stunting. The maximum value for knowledge about stunting is 100. Knowledge questionnaire on the use of growth charts consists of 4 questions, namely one question each regarding plotting growth charts for weight against age (W/U), plotting height against age (H/A), evaluating nutritional status for BB/U. and evaluate the nutritional status of H/A. For a 3 year old boy with a weight of 11 kg and a height of 80 cm, question no. Figures 1 and 2 are a way of plotting weight and height on the WHO growth chart for W/A and H/A. Question no. 3: From the results of the growth graph plotting evaluation, it can be concluded that the child's weight status is 1. Overweight; 2. Normal body weight; 3. Wasted 4. Very wasted; 5. Don't know. Question no. 4: From the results of the growth graph plotting evaluation, it can be concluded that the child's height status is 1. Tall stature 2. Normal; 3. dwarf; 4. Severe stunting; 5. Don't know. The weight for plotting (questions number 1 and 2) is 20, while the weight for evaluating nutritional status (questions number 3 and 4) is 30, so the maximum score is 100.

Validation of the questionnaire was carried out by three people with a background in nutrition education and three people with a non-nutrition education background, namely three experts in their fields (one child specialist, one clinical nutrition specialist, and one master in nutrition) and three people from the department nutrition. people with non-nutrition educational backgrounds. Data were analyzed using the SPSS software program version 29.0.2.0. Normality of data distribution was evaluated with the Kolmogorov-Smirnov test at a significance level of p<0.05. The Mann-Whitney U test was used to evaluate differences in median knowledge about stunting and the use of growth charts between age groups and between education level groups. The Wilcoxon signed-rank test was used to evaluate differences between paired groups. The results were considered significant at p<0.05.

3. RESULT AND DISCUSSION

Result

This educational program was attended by 64 parents of students aged 3 – 18 years. Three parents did not fill out the questionnaire so it was decided to exclude these three parents so that the analysis was only carried out on 61 respondents. The majority or 42.6% of parents who took part in this research had children with kindergarten education. The majority of subjects were female (91.8%), aged <40 years (54.1%), had middle to upper education (85.2%), and did not work (55.7%), presented in Table 1.

Table 1. Subject Characteristics (n=61)

Characteristics	Mean ± SD	N (%)
Children's education level (n, %)		
Play group		5 (8.2)
Kindergarten		26 (42.6)
elementary school		8 (13.1)
First Middle School		14 (23.0)
Senior High School		8 (13.1)
Age (years)	39 ± 6	
Age category in years (n, %)		
< 40		33 (54.1)
≥ 40		28 (45.9)
Education level (n, %)		
Base		9 (14.8)
Medium - high		52 (85.2)
Gender (n, %)		
Man		5 (8.2)
Woman		56 (91,8)
Employment (n, %)		
Unemployed		34 (55.7)
Work		27 (44.3)

Note: Basic education level: not completed high school or equivalent; medium - high education level: minimum high school graduate or equivalent.

The majority of subjects (82%) had heard/read/knew about stunting which is defined as short stature due to malnutrition (Table 2). There were 13 subjects (21.3%) who did not know the definition of stunting. Likewise for short stature, the majority of subjects (83.6%) had heard/read/known about short stature which is defined by lower height and does not match the child's age. Ten subjects (16.4%) did not know the definition of short stature, and 8.2% of subjects considered short people identical to dwarves. On questions regarding the causes, prevention and impact of stunting, the majority of subjects' answers regarding the causes of stunting were unbalanced or inadequate nutrition, frequent illness, and congenital or hereditary. Steps to prevent stunting can be taken by taking vitamins, playing and doing physical activity, and maintaining cleanliness. The majority of responses to the impact of stunting are low IQ, frequent illness, and impaired growth. There were 26.2% of subjects who stated that stunting had no effect on children's health, growth or intelligence. Knowledge about stunting is presented in Table 2.

Table 2. Knowledge about Stunting

Question		N, %
Have you ever heard/read/learned about stunting (n, %)		
Of		50 (82.0)
NO		11 (18.0)
The definition of stunting that you think is most appropriate (n, %)		
Stunting is a result of malnutrition		28 (45.9)
Stunting is not only a result of malnutrition		8 (13.1)
Height does not match the child's age		11 (18.0)
Stunting is the same as dwarfism		1 (1.6)
Don't know		13 (21.3)
Have you ever heard/read/knew about short stature (n, %)		
Of		51 (83.6)
NO		10 (16.4)
The definition of short stature that you think is most appropriate (n, %)		
Short stature is the result of malnutrition		12 (19.7)
Short stature is not just a result of malnutrition		13 (21.3)
Height does not match the child's age		21 (34.4)
A child who is short is a dwarf		5 (8.2)
Don't know		10 (16.4)
	Of	NO
Causes of stunting (n, %)		
Nutritional imbalance or malnutrition	53 (86.9)	8 (13.1)
Often sick	32 (52.5)	29 (47.5)
Few opportunities to play and learn	15 (24.6)	46 (75.4)
Congenital or hereditary	31 (50.8)	30 (48.2)
Stunting prevention (n, %)		
Take vitamins	58 (95.1)	3 (4.9)
Eat large portions	24 (39.3)	37 (60.7)
Play or exercise	58 (95.1)	3 (4.9)
Keep clean	57 (91.4)	4 (6.6)
Effect of stunting (n, %)		
Low intelligence quotient (IQ).	31 (50.8)	30 (48.2)
Prone to disease	37 (60.7)	24 (39.4)
Growth is disrupted	55 (90.2)	6 (9.8)
No effect	16 (26.2)	45 (73,8)

There were 93.4% of subjects who had never attended training in using growth charts, as seen in Table 3. Although 63.9% of subjects had seen growth charts, 80.3% did not know how to use growth charts and 75.4% had never seen charts. growth used. Knowledge about the use of growth charts is presented in Table 3. Parents are guided by mentors during training in the use of growth charts by plotting graphs of weight for age and height for age. Subjects were also asked to evaluate the child's nutritional status after plotting. In this study we found an increase in knowledge about stunting and the use of growth charts, presented in Table 4.

Table 3. Knowledge about Using Growth Charts (n=61)

Question	N (%)
Have you ever attended training on the use of growth charts (n, %)	
Once	4 (6.6)
Never	57 (93,4)
Have you seen the graph of growth (n, %)	
Of	22 (36.1)
NO	39 (63.9)
Do you know how to use a growth graph (n, %)	
Of	12 (19.7)
NO	49 (80.3)
Use of growth graph (n, %)	
Often	1 (1.6)
Sometimes	4 (6.6)
Seldom	10 (16.4)
Never	46 (75.4)

Table 4. Knowledge Scores on the Stunting and Growth Graph (n=61)

Method	Variable	Prates	Post test	D	P[A]	P[B]
Seminar	Stunting	70 (55 – 75)	85 (70 – 95)	10 (0 – 35)	<0,001[INSIDE]**	0,016[MW]*
Mentoring	Growth graph	0 (0 – 70)	70 (35 – 100)	30 (0 – 60)	<0,001[INSIDE]**	

Note: Non-normally distributed data are presented as median (p25 – p75); [INSIDE]: Wilcoxon signed rank test was used to evaluate differences in pre- and post-test knowledge about stunting and growth charts; [A]: comparison of knowledge before and after the test about stunting and growth charts; [B]: comparison of the delta value of stunting knowledge with knowledge of growth charts; [MW]: Mann-Whitney test is u[illegible] to compare delta knowledge scores on stunting and knowledge scores on growth charts; *: Results considered statistically significant at p<0.05; **: p<0,001.

Discussion

The seminar and mentoring methods in this research succeeded in increasing parents' knowledge by 21.4% and 700% respectively. Seminars and mentoring are one method for increasing subject knowledge (Bhagyalakshmi et al., 2019; Handryastuti et al., 2020). Parents' knowledge about stunting before the seminar was quite good, with a median pre-test score of 70. The go[illegible]ment's intensive program regarding stunting seems to have had an impact on parents' knowledge. This is in line with previous research which shows that 65.5% of women in Simpang Kawat, Jambi City, have knowledge about how to prevent stunting. Previous research also showed that 90.1% of subjects aged >15 years in South Tangerang had good knowledge about stunting. However, the results differ from previous research w[illegible]n showed that 97.9% of subjects did not know anything about stunting. This difference may be due to the location and year of sampling. This research was conducted in urban areas around the capital city of Jakarta between 2023 and 2024, while research by Hall et al. collected data f[illegible]m 10 provinces in Indonesia which also include rural areas, while the data was collected in 2014 (Hall et al., 2022; Vries Mecheva et al., 2019). The definition of stunting is short stature or very short stature, as determined from growth charts, caused by chronic malnutrition associated with low socio-economic levels. economical status, poor mat[illegible]al health, history of recurrent illnesses, poor nutritional intake, and inappropriate feeding practices. Stunting is [illegible]used by malnutrition that occurs early in life. The intrauterine period is the first critical stage in a child's growth and development. Stunted children have a greater risk of experiencing retarded motor development, both gross and fine motor function. If muscles do not develop properly then motor function will not be optimal (Hendarto, 2018; Wangge, 2020). Stunting is part of short stature, but not all short stature sufferers fall into the short stature category growth. In this study it was found that most of the subjects had heard of it stunting, more than 60% gave the wrong answer regarding the definition of stunting, and one in five subjects did not know anything about stunting. The results of this study are in line with research by Hall et al. where there are still many subjects who do not do it. The results of this study are in line with research by Hall et al. where there are still many subjects who do not know the definition of stunting. There were 47.5% of subjects who still believed that a history of repeated illnesses was not the cause of stunting and

50.8% thought that stunting was a congenital or hereditary disorder (Sagita & Afriyan, 2020; Upadhyay et 2021; Wardhani & Yusra, 2019). The interesting thing about this research is that although knowledge about the definition of stunting is still low, knowledge about the causes of stunting, prevention of stunting and the impact of stunting is relatively good. Education regarding the definition of stunting must be carried out more widely in society.

There are several results in this study that should be considered. The majority of subjects answered that taking vitamins, exercising and maintaining cleanliness could prevent stunting. Until now, the relations between vitamin D and stunting is still controversial. Mokhtar et al. showed that low serum vitamin 25(OH)D concentrations were more common in stunted children aged 6–36 months, but on the contrary, Pratiwi et al. did not find a significant relationship between vitamin D concentration and stunting in children with thalassemia. Similarly, in a meta-analytic study by Song et al. in seven observational studies, no significant relationship was found between vitamin D status and the risk of stunting. Vitamin D is a fat-soluble vitamin that is stored in the body, so long-term administration at high doses can increase the risk of toxicity (Seum et al., 2021; Song et al., 2018). Determination of vitamin D concentrations and therapeutic monitoring should be carried out before and during administration of vitamin D supplements to avoid toxic effects. Stunting is known to have an impact on both individuals and the environment, such as low cognitive function, impaired immune response, and overweight or obesity in adulthood which may be related to non-communicable diseases. Research conducted by Mustakim shows that that children who experience stunting have cognitive scores that are much lower than children who do not experience stunting. The results of the latest research are in line with the results of previous research who conducted a cross-sectional study to compare cognitive development in stunted and malnourished children with normal-bodied children aged one month to 3 years. The results of his research show that stunted children tend to have lower motor skills, cognitive function and adaptive behavioral abilities when compared to children with malnutrition but normal bodies (Laksono et al., 2019; Mokhtar et al., 2021). Another meta-analysis study showed similar results, where each increase of one HAZ unit at age over 2 years was associated with an increase in cognitive scores of 0.01 SD at age 3.5 – 12 years and an increase in language scores of 0.05 SD at age 5 – 15 years. In our study, most subjects (90.2%) agreed that stunting can cause growth disorders, but only 50.8% and 60.7% of subjects associated stunting with low IQ and susceptibility to disease. Moreover, one in four subjects considered stunting to have no impact. Providing adequate information must be implemented to increase public awareness of the impact of malnutrition on children.

This kind of health education is interesting for subjects who do not know about growth charts. This can be seen from the fact that more than 90% of subjects had never previously participated in growth chart training. More than two thirds of subjects were unaware of the use of growth charts. The pre-test results also showed poor knowledge with a median (p25-p75) 0 (0 -70). The low score of parental knowledge regarding the use of growth charts was also shown by previous research with an average score of 13.94 out of a maximum score of 30. Training in the use of growth charts is also still low in the group of PAUD teachers (Liman et al., 2020; Liman & Abikusno, 2021), with more than 50% of subjects not knowing or doubting the use of growth charts. We further analyzed the relationship between age and education level with the level of knowledge about stunting and use of growth charts. Table 5 shows that age is not related to knowledge about stunting, use of growth charts, changes in knowledge scores about stunting, and changes in knowledge scores for using growth charts. Parents with a medium to high level of education had a knowledge score about stunting that was 40 percent higher than parents with a basic education level (p=0.045). Knowledge scores regarding the use of growth charts also appeared to be higher in groups with higher education levels (p=0.039). The relationship between parental education level and knowledge has also been shown by several other studies (Anggraeni et al., 2020; *Ministry of Health of the Republic of Indonesia*, 2020) Mothers as caregivers have knowledge of all decisions related to providing healthy eating patterns, including breastfeeding, protective parenting including giving vitamin A, complete immunization, improving sanitation, and using iodized salt. A better level of education is also a determining factor in children's growth and achieving better health. Age is known to influence a person's level of knowledge. Anggraeni et al.'s study. shows that younger people (aged 17 – 35 years) have a higher level of knowledge than people aged 36 – 56 years (Seum et al., 2021; Vaivada et al., 2020). However, in our study there was no relationship between age and parental knowledge about stunting (p>0.005). This may be caused by differences in education levels and the number of subjects affected by stunting. The relationship between age and education level and level of knowledge (n=61) is presented in Table 5.

Basic education level: not completed high school or equivalent. Middle – high education level: minimum high school graduate or equivalent. Data that are not normally distributed are presented as median (p25 – p75). The Mann-Whitney test was used to compare knowledge scores between age groups and between education level groups. *: Results were considered statistically significant at p<0.05. The degree of increase in knowledge scores for using growth charts and knowledge of stunting was not

influenced by the subject's age (p>0.05). However, the group of subjects with primary education levels saw an increase of 3.5 times compared to the group of subjects with secondary to high education levels (p<0.05). This shows that the health education provided can be easily accepted regardless of the educational level of the subject, so that this method can be widely used in society. Educational coverage regarding stunting and the use of growth charts can be used as a strategy to increase parents' awareness of children's growth and development, so that in the long term it can reduce the incidence of malnutrition in Indonesia. This is in accordance with the Sustainable Development Goals (SDGs) for Indonesia, especially Sustainable Development Goal 3, namely good health and well-being.

Table 5. Relationship Between Age and Education Level with Level of Knowledge (n=61)

Variable	Stunting	Growth graph	D stunting	D Growth graph
Age in years				
< 40	70 (55 – 75)	0 (0 – 45)	10 (0 – 32,5)	30 (0 – 60)
≥ 40	70 (50 – 70)	30 (0 – 80)	20 (1,3 – 38,8)	30 (2,5 – 70)
Level of education				
Base	50(42,5 – 70)*	0 (0 – 0) *	15 (0 – 40)	70 (60 – 100) *
Intermediate-high	70 (56,3 – 75)	0 (0 – 80)	10 (0 – 30)	20 (0 – 60)

The implication of these findings is the existence of seminars and mentorship can be considered further in *A* program to increase the capacity of parents on a wider community scale regardless of age and level of education, to achieve a reduction in malnutrition in Indonesia. The strength of this research lies in the health education provided by experts in the field and carried out intensively, with a companion to subject ratio of 1:4 versus 1:5. Training and equalization of perceptions about questionnaires and their use Growth charts are carried out within the executive team before providing health education. The limitation of this research is that health education was carried out within a certain period of time. Further research on training should be carried out to obtain an optimal level of parental knowledge. Limitations in this study include challenges in ensuring active parental participation, especially for those who have busy schedules or limited access to digital technology. In addition, variations in parental literacy and understanding levels can influence the effectiveness of educational programs, so diverse approaches are needed to meet individual needs. Another factor is limited resources, such as adequate assistant staff and program sustainability in certain communities. Based on these limitations, it is recommended to develop a hybrid strategy that combines online and offline approaches, such as face-to-face seminars supported by digital modules. Apart from that, there needs to be intensive training for accompanying staff to improve their competence, as well as stronger collaboration with local stakeholders to ensure program sustainability. Efforts to increase parental literacy can also be done through simple and interesting educational materials, such as animated videos or infographics, which are easy to access and understand. Further evaluation by knowing changes in the subject's behavior and the child's nutritional status needs to be carried out to achieve long-term success of this research.

4. CONCLUSION

Seminars and mentoring have succeeded in increasing the knowledge of students' parents, both about stunting and growth charts. This parent capacity building program should be implemented in society on a larger scale, so that in the long term it can reduce the prevalence of malnutrition in Indonesia, especially in the elderly population. Seminars and assistance for parents of students aged 3–18 years are an effective approach in increasing knowledge about stunting and children's growth charts. The intervention, which was designed with a combination of direct education and personal assistance, succeeded in increasing parents' understanding of the importance of preventing stunting, monitoring growth, and implementing appropriate parenting and nutrition patterns. The research results also emphasize the importance of an adaptive, inclusive and sustainable approach to address the challenges of limited literacy, access to technology and the diversity of parents' needs. Therefore, this research contributes to strengthening family empowerment strategies as an effort to support optimal child growth and development and prevent stunting in society.

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