ARTÍCULO ORIGINAL

Gac Méd Caracas 2022;130(Supl 5):S890-S895
DOI: 10.47307/GMC.2022.130.s5.5

Comparison of knowledge of mothers with stunted and severely stunted toddlers before and after education with brainstorming and audiovisual methods

Comparación del conocimiento de las madres con niños pequeños con retraso del crecimiento y con retraso del crecimiento severo antes y después de la educación con lluvia de ideas y métodos audiovisuales

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SUMMARY

Introduction: *Stunting is the incidence of malnutrition, especially in toddlers, that lasts a long time. Stunting has several impacts, including an increased risk of morbidity in the form of an increased risk of occurrence and mortality that the incidence of infection can cause. This study used brainstorming and audiovisual methods to compare the knowledge of mothers who had stunted and severely stunted toddlers before and after being given a video.*
Methods: *This research method used a cross-sectional experimental study. The sample used in this study was 35 mothers with stunted and severely stunted toddlers that fulfilled the inclusion and exclusion criteria. Brainstorming and knowledge are done by audiovisual methods. Knowledge before and after brainstorming was analyzed by the Wilcoxon test.*
Results: *The Wilcoxon test showed significant differences in knowledge between pre-test and post-test, before and after education with brainstorming and audiovisual methods in mothers who had stunted/severely stunted toddlers, with the p-value <0.05.*
Conclusion: *Brainstorming methods and audiovisual media can be used to educate mothers with stunting children. Mother knowledge about stunting leads to optimal handling of children's growth and development.*

Keywords: *Audiovisual, brainstorming, knowledge, stunting.*

RESUMEN

Introducción: *El retraso del crecimiento se debe a la incidencia de la desnutrición, especialmente en los niños pequeños, que se prolonga durante mucho tiempo. El retraso en el crecimiento tiene varios impactos, incluido un mayor riesgo de morbilidad en forma de un mayor riesgo de aparición y mortalidad debido a la incidencia de infección. Este estudio utilizó la lluvia de ideas y métodos audiovisuales para comparar el conocimiento de las madres que tenían niños pequeños con retraso en el crecimiento y retraso en el crecimiento severo antes y después de ver un video.*
Métodos: *Esta investigación utilizó un estudio experimental transversal. La muestra utilizada en este estudio fue de 35 madres con niños pequeños con retraso del crecimiento y retraso del crecimiento severo que cumplían con los criterios de inclusión y exclusión. La lluvia de ideas y el conocimiento se realizan por métodos audiovisuales. El conocimiento*

DOI: https://doi.org/10.47307/GMC.2022.130.s5.5

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Recibido: 11 de septiembre 2022
Aceptado: 1 de octubre 2022

antes y después de la lluvia de ideas se analizó mediante la prueba de Wilcoxon.
Resultados: *La prueba de Wilcoxon mostró diferencias significativas en el conocimiento entre el pre-test y el pos-test, antes y después de la educación con lluvia de ideas y métodos audiovisuales en madres que tenían niños pequeños con retraso en el crecimiento/retraso severo, con el valor de p <0,05.*
Conclusión: *Los métodos de lluvia de ideas y los medios audiovisuales se pueden utilizar para educar a las madres con niños con retraso del crecimiento. El conocimiento de la madre sobre el retraso en el crecimiento conduce a un manejo óptimo del crecimiento y desarrollo de los niños.*

Palabras clave: *Audiovisual, lluvia de ideas, conocimiento, enanismo.*

INTRODUCTION

Stunting is the impaired growth and development children experience from poor nutrition, repeated infection, and inadequate psychosocial stimulation (1). Children are defined as stunted if their height-for-age is more than two standard deviations below the World Health Organization (WHO) child growth standards median (2). Stunting results from chronic and recurrent malnutrition refers to a child who is too short for their age, leading to the failure to grow physically and cognitively. Length and height are the best predictors of chronic malnutrition/ stunting. Stunting is defined as length/height for age more than two standard deviations below the median reference of the population. The effects of stunting are devastating that can last a lifetime. It prevents children from reaching their full physical and mental potential (3-5). A child is said to be stunted if the age z- score index height is <-2 standard deviations (SD) and severely stunted in <-3 SD. One of the causes of stunting is malnutrition in terms of quality and quantity, high morbidity, or a combination of both. This situation is common in countries with poor economic conditions (6,7).

Stunting is a picture of an incidence of malnutrition, especially in toddlers, that lasts a long time and stunting has several impacts, including an increased risk of morbidity in the form of an increased risk of morbidity and also mortality caused by infection events. However, stunting can also cause cognitive and behavioural disorders in children who tend to have lower socioeconomic status later in life due to decreased productivity (8-11). Thus, growth has not been maximized naturally by approximately 8.9 million Indonesian children or one in 3 Indonesian children. Indonesia has a higher number of stunting than other Southeast Asian countries such as Myanmar (35 %), Vietnam (23 %), and Thailand (16 %). Indonesia is ranked fifth in the world for the number of children with stunting. More than 1/3 of toddlers under five years old in Indonesia are below the standard height. Basic Health Research Riskesdas 2018 in Indonesia, as many as 30.8 % of toddlers, have short experience stature. Previously, the 2013 Basic Health Research showed that the national stunting number was 37.2 %, in 2010 (35.6 %) and 2007 (36.8 %) showed an increase (12,13).

Prevention of stunting rate has been carried out with efforts to increase the knowledge of mothers with toddlers experiencing stunting. This effort is carried out to cut or prevent further toddlers from experiencing stunting. A study stated that one of the healthy methods that can be used is the brainstorming method. In this method, all participants are asked to contribute ideas, insights, and experiences to find a way out of a problem. The discussion results in ideas, insights, and experiences being accommodated and then poured into a mindmap to make learning easier to understand without judging personal thoughts (14,15).

The study explained that some of the advantages of brainstorming include making participants more active in voicing ideas, practicing quick and logical thinking, making participants always ready to give opinions on a problem, increasing motivation of participants, making friends as learning media, healthy competition, a learning atmosphere that is not monotonous. Aside from the advantages, there are also weaknesses in short learning, making participants think not thoroughly. When there are participants who experience delays in learning, information is not conveyed properly. The topic of discussion in learning must be understood by listeners. If the teacher does not provide conclusions, it can confuse participants, and participants need time to find out the right and wrong in a statement. Meanwhile, the media that is often used to support learning is audiovisual media. Audiovisual media

helps to balance hearing and vision in capturing information (16-18). The use of audiovisual media intends to assist participants in absorbing the information conveyed because it involves the senses of hearing and vision. This can be related to the actual situation. Then the video is also dynamic and forms an impression that involves emotions (19-21). Based on the review above, the researcher is interested in researching the effect of stunting education using brainstorming and audiovisual methods on the knowledge of mothers using stunting toddlers.

METHODS

Research Design

This research design used a quasi-experimental type of research. The research design used was a one-group pre-post test design. This design was measured using a pre-test conducted before treatment, and a post-test carried out after each learning series. Thus the results of the treatment can be more accurate. The one-group pre-post test design scheme is shown as follows: the researcher used questionnaires to collect data that respondents had filled out. This approach was carried out to compare stunting education using brainstorming and audiovisual methods on the knowledge of mothers who had stunted and severely stunted toddlers.

Population and Research Sample

The population in this study were all mothers who had stunted and severely stunted toddlers. The consecutive sample in this study was 35 mothers. The inclusion criteria in this study were mothers with stunting toddlers, willing to be respondents, and in good mental condition. The exclusion criteria in this study were mothers with stunting toddlers who were physically and mentally ill, uncooperative, and had the hearing and vision impairments.

Data analysis

Test analysis using different paired mean (pair test) if the data is normally distributed. The normality test uses Shapiro-Wilk. The study used Wilcoxon Test analysis.

Ethical Consideration

This research was approved by Medical Research Ethic Committee - Medical College of Wijaya Kusuma Surabaya Universitas No 82/ SLE/FK/UWKS/2021.

RESULTS

The data used in this study were primary, namely pre-questionnaire and post-questionnaire, and secondary data with a sample of 35 respondents. This study showed (Table 1) that mothers who had stunted and severely stunted toddlers aged <30 years were 21 (60 %), aged between 31-45 years old were 9 (26 %), and those aged >45 years old were 5 (14 %). In addition, the results showed that most of the mothers with stunted and severely stunted toddlers with the latest education of elementary-junior are 5 (14 %), high school education is 27 (77 %), and mothers with a diploma and undergraduate education are 3 (9 %). In addition, the majority of mothers with stunted and severely stunted toddlers who work as housewives are 29 (83 %), entrepreneurs are 2 (5 %), and private employees are 4 (12 %).

Table 1

Characteristic of Mother Who Had Stunted and Severely Stunted

Characteristics of Mother's	n	%
Mother's age		
< 30 years	21	60
31-45 years	9	26
>45 years old	5	14
Maternal Education		
Elementary-Junior High School	5	14
Senior High School	27	77
College	3	9
Mom's Job		
Housewife	29	83
Entrepreneurial	2	5
Private	4	12
Civil servants	0	0
Total	35	100

Knowledge analysis between before and after the education of mothers who had stunted and severely stunted toddlers can be seen in Table 2.

Table 2

Knowledge analysis between before and after education

Knowledge	Pre-test		Post-test		p-value
	n	%	n	%	
Very good	22	62.9	31	88.6	0,005
Good	13	37.1	4	11.4	
Total	35	100.0	35	100.0	

Table 2 showed significant knowledge differences between pre-test and post-test before and after education with brainstorming and audiovisual methods in mothers who had stunted/ severely stunted toddlers, with the p-value <0.05.

DISCUSSION

Stunting is the impaired growth and development children experience from poor nutrition, repeated infection, and inadequate psychosocial stimulation. Children are stunted if their height-for-age is above two standard deviations below the WHO child growth standards median. Height under normal circumstances will increase along with age. Growth in height, unlike weight, is relatively less sensitive to malnutrition in a short period. The effect of nutritional deficiency on height will appear for a relatively long time and can describe toddlers' nutritional status (2). A mother who is too young or too old during pregnancy can cause stunting in children. Too young mothers are usually not ready for pregnancy and do not know how to maintain and care for pregnancy. Meanwhile, mothers who are too old usually have decreased stamina and enthusiasm for caring for their pregnancy (22).

The level of education affects a person in receiving information. Mothers with better levels of education will be easier to receive information than people with lower education levels. This information is used as a provision for mothers to take care of their toddlers daily. This study showed that there are many higher educated mothers whose toddlers are stunted and severely stunted. This phenomenon can happen because mothers' education is not the only factor causing stunting. Many other factors can affect stunting. This study's results align with research conducted in North Pontianak and Yogyakarta, Indonesia, where there was no significant relation between stunting, nutritional status, and mother's education level. This is because mothers' education does not guarantee more knowledge related to nutrition, but willingness, active health promotion, and active counseling are carried out by cadres, midwives, or doctors (3,8,23).

The results showed that most mothers with stunted and severely stunted toddlers work as housewives. These results show that stunting occurs in mothers who do not work. This could be due to poor parenting and an unsupportive environment. Parenting by mothers has a role in the incidence of stunting in toddlers because the mother fully manages food intake in toddlers. Therefore, mothers with good parenting will tend to have toddlers with better nutritional status than mothers with poor parenting. However, in this study, mothers with good parenting did not necessarily have toddlers with smaller stunting problems than mothers with poor parenting. This could be because even though the mother's parenting style is good, poor families have limitations in fulfilling their daily needs. A good parenting style must also be supported by adequate socioeconomic support to fulfill toddlers' needs (8,9).

The results explain that there is an increase in mothers' knowledge before education with brainstorming and audiovisual methods and after education with brainstorming and audiovisual methods. Education using the brainstorming method has the advantage that all members can express their opinions and stimulate them to think critically and participate in health education. In this method, respondents get the information through group discussions, and all respondents have the right to express their opinions without any objection from anyone. The brainstorming method can also trigger respondents to think actively and share so that communication between respondents can create a pleasant

atmosphere (24). The brainstorming method can improve memory and train participants to think and improve concentration, attention, and understanding. This method can also increase participants' confidence when expressing their opinions because expressing opinions or speaking in front of a crowd requires courage. One of the media that can be used for education is audiovisual media. Audiovisual media can help participants stimulate the senses of hearing and vision during the health education process (20). Using audiovisual media can make it easier for participants to receive the material presented because it can activate the sense of hearing and vision of the participants so that they can connect theory with reality. Using audiovisual media in the form of video has the advantage that it can describe the situation according to the existing reality. The video is also dynamic to give the impression and stimulate the participants' emotions (25,26).

CONCLUSION

There are significant differences in mothers who had stunted and severely stunted toddlers before and after education with brainstorming and audiovisual methods. Therefore, this study suggests more health education about stunting prevention and early detection by using brainstorming methods and audiovisual media and monitoring mothers' knowledge and attitudes towards stunting after the intervention. Likewise, important education about handling and parenting so that stunting does not occur in their children so that optimal growth and development are achieved.

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