



Nutrition education and changes in mother's behavior towards fulfillment of vegetable and fruit consumption strategies in preschool children

Edukasi gizi dan perubahan perilaku ibu terhadap strategi pemenuhan konsumsi sayur dan buah pada anak usia prasekolah

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Abstract

The nutritional needs of preschool children are very important for their growth and development. However, the problem is the low consumption of preschool children for fruits and vegetables, so it requires special strategies, for that the role of the family is very important. This study aims to determine the impact of nutrition education and changes in mother's behavior towards fulfillment of vegetable and fruit consumption strategies in pre-school children. This research uses quasi-experimental and observational methods, observations were carried out on 30 September 2019 on 44 preschool children. Data collection was carried out on September 20, 2019, in Early Childhood Education SB in 50 mothers of preschool children. The data is processed in stages; editing, coding, transferring, and tabulating. Univariate data analysis in the form of frequency distribution tables, paired t-test statistical test. The results showed an average value of knowledge before the intervention ($p=0,000$). Observation results show that after nutrition education was given, only 31,8% of preschool children were given vegetable and fruit supplies or processed food vegetables and fruits by the mother when going to school. The conclusion of the study is nutrition education on maternal strategies in increasing consumption of vegetables and fruit in preschool children in early childhood education effectively changing maternal knowledge but has not had a comprehensive impact on changes in mother's behavior.

Keywords: Preschoolers, behavior, consumption, vegetables and fruits

Abstrak

Kebutuhan nutrisi pada anak usia prasekolah sangat penting untuk pertumbuhan dan perkembangannya. Namun, menjadi permasalahan yaitu rendahnya konsumsi buah dan sayur pada anak usia prasekolah. Perlu strategi khusus yang melibatkan keluarga. Penelitian ini bertujuan untuk mengetahui dampak edukasi gizi terhadap perubahan pengetahuan dan perilaku ibu terhadap strategi pemenuhan konsumsi sayur dan buah pada anak prasekolah. Penelitian ini menggunakan metode eksperimen semu dan observasional, pengamatan dilaksanakan pada tanggal 30 September 2019 terhadap 44 orang anak prasekolah. Pengumpulan data dilaksanakan pada tanggal 20 September 2019 di Pendidikan anak usia dini pada ibu anak prasekolah sebanyak 50 orang. Data diolah dengan tahapan; *editing, coding, transferring* dan *tabulating*. Analisa data univariat dalam bentuk tabel distribusi frekuensi, uji statistik *paired t-test*. Hasil, menunjukkan nilai rata-rata pengetahuan sebelum intervensi 10,8 dan setelah intervensi 13,2, dengan nilai $p=0,000$. Observasi juga menunjukkan setelah diberikan edukasi gizi hanya 31,8% anak prasekolah yang diberi perbekalan sayur dan buah atau makanan olahan sayur dan buah oleh ibu ketika pergi ke sekolah. Kesimpulan, edukasi

gizi terhadap strategi ibu dalam peningkatan konsumsi sayur dan buah pada anak usia prasekolah pada Pendidikan Anak PAUD efektif merubah pengetahuan ibu, namun belum berdampak menyeluruh terhadap perubahan perilaku ibu.

Kata Kunci: Anak prasekolah, konsumsi sayur dan buah, perilaku

Introduction

Pre preschool is the most important period for the child's growth and development process. Therefore, proper and healthy nutrition is needed for children. Energy needs for preschoolers are 1400 kcal, carbohydrates as an energy source of 220g, while protein 25g and fat 50 g (Kemenkes RI, 2013). vegetables and fruit as a source of fiber and minerals can cause overweight or obesity in children (Nepper & Chai, 2017).

The government's recommendation through the Ministry of Health is that consumption of fruits and vegetables for pre-school children is 300-400 grams per person per day (Sekarindah, 2008), the cause is the right strategy for children to consume these vegetables and fruit (Roe et al., 2013). In connection with this matter based on the observations of researchers conducted in mid-July 2019 on several preschool children's educational institutions, namely Early Childhood Education in Nanggalo District, Padang City, it was found that very few parents provided their children with vegetables or fruit, or foods derived from processed fruits and vegetables. Parents provide children with existing cakes, pastries and even processed foods from instant noodles. The problem of the lack of fruit and vegetable consumption in preschoolers needs special attention (Wolfenden et al., 2010).

The World Health Organization (WHO) generally recommends the consumption of vegetables and fruits for a healthy life of 400g per person per day, consisting of 250g of vegetables (equivalent to 2 1/2 servings or 2 1/2 glasses of vegetables after being cooked and drained) and 150g of fruit (equivalent to 3 medium Ambon bananas or 1 1/2 medium papaya pieces or 3 medium oranges). For Indonesians, it is recommended to consume 300-400g of vegetables and fruits per person per day for preschoolers and preschool children. About two-thirds of the recommended amount of vegetables and fruits consumption is the portion of vegetables (Kementerian Kesehatan, 2014). To achieve this, the family plays an important role because the food consumed by children is closely related to what is provided by parents (Wyse R et al., 2011).

The availability of vegetables and fruits, especially in the house has a significant relationship with the level of consumption of vegetables and fruits in preschool children, that if the availability of fruits and vegetables is lacking then the exposure of fruits and vegetables to children will also be limited so that it will reduce the children's preferences and preferences for fruits and vegetables. The role of parents is not only to provide but also to prepare such as cutting, washing or processing fruits and vegetables so that they can be eaten directly by children (De Bourdeaudhuij et al., 2008). A similar thing was conveyed by Baranowski (2004) (Dave, 2007), that the level of consumption of fruits and vegetables will increase if not only available but also processed in a form that is attractive and easily eaten by children and varies (Poelman et al., 2019), or combining vegetables and fruits into foods that children love (Anzman-frasca et al., 2012).

Preparing fruits and vegetables for lunch and daily food is a form of convenience provided by parents to children to consume fruit and vegetables (Wyse R et al., 2011) in this regard, this study aims to determine the impact of nutrition education on changes in maternal behavior towards the fulfillment strategy of consumption of vegetables and fruit in pre-school age children. Nutrition education is very important amid skepticism about nutrition education for children (Gripshover & Markman, 2013) because, this will shape the eating habits of children of pre-school and early school age (Łuszczki et al., 2019), and parents must obtain information to know the possible impact of their behavior on eating habits children (Cooke et al., 2004), nutrition education also has an emotional impact on children (Choi et al., 2018). This study aims to determine the impact of nutrition education and changes in mother's behavior towards fulfillment of vegetable and fruit consumption strategies in pre-school children.

Method

The method used in this study is quasi-experimental and observational, using a one-group pretest-posttest design.

The research sample was parents or mothers of preschool children found in three Early Childhood Education in Nanggalo District, Padang City, with 50 respondents. The reason for choosing this place is because Early Childhood Education does not provide food in schools like other schools.

This research begins with the provision of a questionnaire (pretest), after which the researcher conducts education. To determine the effectiveness of education, researchers conducted the same questionnaire (posttest). All these activities were carried out on September 20, 2019, which was focused on one Early Childhood Education, while observations were carried out on September 30, 2019, at in Early Childhood Education in three different locations.

Data processing stages; editing, coding, transferring and tabulating. Data was analysis in the form of frequency distribution tables and statistical paired t-test significance level (α) 0,05 (5%).

Result and Discussion

The characteristics of mothers of nutrition education participants can be described as follows:

Table 1. Mother's characteristics

Characteristics	n	%
Initial of institution Childhood Education		
SB	28	56,0
MF	12	24,0
MD	10	20,0
Educational background		
Senior High School	34	68,0
University	16	32,0
Profession		
Housewife	32	64,0
Government employees	3	6,0
Self employment	15	30,0
Total	50	100,0

It can be seen that from the aspect of preschool children's education institutions origin, 46% of the educational target comes from SB institutions, most of the education is at the senior secondary level (high school) which is 68% and most of the work of parents or mothers of preschool children are housewives, which is 64%. The following will describe the distribution of children's parental knowledge about the needs of vegetables and fruit in preschoolers before and after education.

Table 2. Mother's knowledge of the needs of vegetables and fruits in pre-school children before and after education

Educational Materials on Vegetable and Fruit Consumption	Before (%)		After (%)	
	True	False	True	False
Knowledge of the Benefits of Vegetables and Fruits for Pre-schoolers				
The amount of vegetables consumed by children	54,0	46,0	92,0	8,0
The portion of fruit that must be consumed by children	78,0	22,0	100	0,0
Benefits of Consumption of vegetables and fruit for preschoolers	52,0	48,0	68,0	32,0
Impact when children consume less vegetables and fruit	74,0	26,0	98,0	2,0
The content of vegetables and fruit for digestion	64,0	36,0	82,0	18,0
Knowledge of the strategy of consumption of vegetables and fruit in Pre-school children				
Strategies for children to consume vegetables and fruit	76,0	24,0	94,0	6,0
Good forms of fruit are introduced to children	80,0	20,0	100,0	0,0
Examples of vegetable and fruit modifications that are suitable for preschoolers	50,0	50,0	90,0	10,0
A good time span for introducing vegetables and fruit	6,0	94,0	82,0	18,0
Actions that mothers can take in teaching the importance of consuming vegetables and fruit.	54,0	46,0	68,0	32,0
Safe ingredients used for processing vegetables for preschoolers.	74,0	26,0	100,0	0,0
Steps that can be taken so that children consume vegetables and fruit.	44,0	56,0	68,0	32,0

Table 3. Observation results of preschool student content contents

Initial of institution Early Childhood Education	Number of children observed	Bring processed food, vegetables and fruit	
		Yes (%)	No (%)
SB	22	10 (45,4)	12 (54,5)
MF	12	4 (3,33)	8 (66,6)
MD	10	0 (0)	10 (100)
Total	44	14 (31,8)	30 (68,2)

Based on table 2, it can be seen that there has been a change in knowledge in respondents before and after education. But there is a very interesting thing that is the value of the correct answer to question number 10 which is about: a good period to introduce vegetables and fruits, before education activities only 6% of mothers know about it or more than 94% of mothers do not know the good time to introduce vegetables and fruits to children, after education, there is a very significant change in knowledge to 82% which means that only 8% who answer wrong.

Observation activities carried out suddenly by visiting the child's institution without notice. This activity is carried out with the aim to see the objective behavior of parents. Based on table 3 it is found that the education carried out has not been able to completely change the behavior of

parents of school-age children to equip their children with processed foods for vegetables and fruit, this is evidenced by the number of children carrying vegetable and fruit provisions or foods made from vegetable and fruit material not reaching 32%, there are even Early Childhood Education who do not equip their children with food from home.

Comparison of the average value of parents' knowledge of preschool children before and after nutrition education is very important to know. With this value in mind, it can be estimated to what extent the educational action can change the knowledge of the education participant, although to prove the impact of the educational activity must be seen from statistical tests. A comparison of the value of knowledge before and after education can be seen in the following table 4.

Table 4. Comparison of average scores of parents' knowledge of preschool children before and after education

Parents' knowledge	n	Mean	Std. Deviation	Mean Difference	p-value
Before education	50	10,8	0,28	2,9 ± 0,03	0,000
After education	50	13,2	0,25		

Based on table 4 it can be seen that the value of respondents' knowledge after nutrition education is higher than the value before education. Then the standard deviation of the value of knowledge after education is also smaller than the standard deviation value before education health education. Then to see whether the change in the average value of knowledge before and after education is statistically significant, a statistical test is performed, namely paired t-test, with a significance level (α) 0.05, with p-value= 0,000, meaning that nutrition education on mothers' strategies in increasing the consumption of vegetables and fruit in preschool children effectively changes the knowledge of respondents ($p < 0,05$).

This nutritional education activity has resulted in changes in knowledge about the

mother's strategy in increasing the consumption of vegetables and fruit in pre-school children. This increased knowledge of mothers is due to the ability of respondents to receive and understand information conveyed during education. Nutrition education is a form of health education, a combination of various activities and opportunities based on the principles of education to achieve a goal that individuals, families, groups or communities as a whole have the desire to live healthy and find out how to do it (Efendy & Uchjana, 2003).

Many factors affect the success of the implementation of education in this case health education, according to Effendy and Uchjana Onong (2003) stated that the success of health education is influenced by extension factors, goals and the counseling process. Extension

factors, such as lack of preparation, lack of mastery of the material to be explained, lack of convincing appearance of the target, the language used is not understandable by the target, the voice is too small and cannot be heard and the delivery of counseling material is too monotonous so boring. Target factors, for example, the level of education is too low so it is difficult to receive the message conveyed, the socioeconomic level is too low so it does not pay much attention to the messages conveyed because it is more concerned with the more pressing needs, beliefs and customs that have been embedded so difficult to change, conditions target living environment where behavior change is not possible (Valmórbida & Vitolo, 2014). The third factor is the counseling process, for example, the extension time is not by the desired time of the target, the counseling place is close to the crowd so that it interferes with the extension process, the number of extension targets is too much, the teaching aids are lacking, the methods used are not right so it boring the target and the language used is not understood by the target (Rahmad, 2019). The main and very important factor influencing the effectiveness of nutrition education is the practice of early feeding, parental education, and family income (Valmórbida & Vitolo, 2014).

This study identifies that all parents of students have a level of secondary education and above. Then the props used in this activity are actual fruits and vegetables, modified leaflets with computerized screening and video screenings. The provision of educational material delivered audiovisually is easier to understand. Knowledge is mostly obtained by the sense of sight (30%) then the sense of hearing (10%) (Notoadmodjo, 2011). So that the difference in the average value of the test before education and after education, meaning that long before the education was carried out the parents of preschool children already knew about the consumption of vegetables and fruit.

The results of observations to see the impact of education on the behavior of preschoolers' parents found that there are still many preschoolers carrying vegetables and fruits or processed vegetables and fruit. The researchers assume that this happens due to several factors so that nutrition education received has not been able to be applied. These factors originate from children and parents, such

as gender, dietary behavior, including knowledge related to diet, self efficacy and food selection, so it is necessary to develop a nutrition education program that focuses on increasing knowledge related to diet and self-efficacy and taking into account differences in the food preferences of preschool children by gender (Lee et al., 2016). Another factor in the child is the influence of peers which affects the level of consumption of vegetables and fruit (Krølner et al., 2011), so the action taken is to reduce these effects such as reducing the amount and variety of snack foods (Kerr et al., 2019). Even serving vegetables or fruit in the form of snacks can help pre-school children meet the nutritional intake of vegetables and fruit (Roe et al., 2013).

The low level of vegetable and fruit consumption at pre-school age is also strongly influenced by factors such as early feeding practices, including the duration of breastfeeding which will affect fruit and vegetable intake in the future (Soldateli et al., 2016). The pattern of application of consumption in the family also influences (Pratitasari, 2010). The ability of the family to understand the child's growth and development tasks according to their stages (Friedman et al., 2003).

Another factor that cannot be denied is that parents do not pay too much attention to the child's nutritional problems and the child's weight during pre-school years from in school-age children, this negatively affects food intake, especially vegetables and fruit (Nepper & Chai, 2017). In this connection the problem lies with the family itself so that the family not only knows about the benefits of vegetables and fruits for the child but also does something to apply this knowledge. To overcome this, the role of the family is very decisive because the food consumed by children is closely related to what is provided by parents in this case the availability of fruits and vegetables includes the type and amount (Wyse R et al., 2011).

It is important to consider that health promotion techniques can be better targeted to specific groups in this case pre-school children, who all have the same value when making food choice decisions (Pollard et al., 2018). Food choices, regarding vegetable and fruit intake, need to be studied more deeply, to provide effective nutrition education programs, specifically a set of priorities that are considered especially for groups of preschool children so

that it helps in making decisions in choosing food, in this case vegetables and fruit (Tabak et al., 2012). Then home-based interventions to change people's behavior parents such as feeding practices and the physical environment of the home, changes in policy and environment to foster a respectful relationship between pre-school institutions and parents to improve communication about nutrition and health of children (Dev et al., 2017), then the involvement of parents promotes fruits and vegetables such as inviting children to garden (Ransley et al., 2010), for children a sensory-based food education activity can be carried out to increase the desire to eat vegetables and fruit (Ojansivu et al., 2015). One way is to involve schools and pre-school teachers to put vegetable and fruit ingredients into teaching materials, so that the child has indirectly received nutrition education, which is presented in the form of presentations, posters and books (Eş, 2017).

Conclusion

Nutrition education activities have been able to significantly increase the parents' knowledge of preschoolers, but have not been able to change the behavior of mothers of preschoolers about Mother's strategies in Increasing Fruit and Vegetable Consumption.

Further studies are needed on the observation of preschool and vegetable supplies of preschool children and the child's family background.

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