Jurnal Kesehatan Prima

http://jkp.poltekkes-mataram.ac.id/index.php/home/index

p-ISSN: 1978-1334 (Print); e-ISSN: 2460-8661 (Online)

The Effect of WAG (WhatsApp Group) And Face to Face Health Education on Parental Role Model of Fruit Vegetable Consumption

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Received: 05 January 2021/Accepted: 2 March 2021/Published Online: 17 August 2021

Abstract

Prevention of obesity should start early because obesity in children can continue into adulthood. Consumption of vegetables and fruit according to the recommendations is proven to prevent obesity from an early age. The role model of parents is very important in shaping the behavior of eating fruits and vegetables in preschool children. The aim of the study to determine the effect of WhatsApp group and face-to-face health education methods on the role models of parents in consuming fruits and vegetables. The study used a quasi-experimental design pre-post-test without a control group. The number of samples was 115 parents of students spread across 5 kindergarten schools. The results showed 49.6% of parents have graduated from high school with an income of 52.7% above the minimum wage. The results of statistical tests showed that there was an effect of online and face-to-face health education methods on the role models of parents in eating vegetables and fruit with their children (17.92 ± 4.61, p value = 0.00, 95% CI). Health education using online and face-to-face methods can be an intervention in increasing parental role models of fruit and vegetable consumption.

Keywords: Health Education; Preschool Age; Fruit Vegetable Consumption; Obesity; Parental Role Model

INTRODUCTION

Obese children are twice as likely as normal-weight children to be obese adults. Other research has shown that one-third of children who are obese continue into adulthood. Obesity is a world pandemic condition (Hoey, 2014; Oude Luttikhuis et al., 2009; Popkin, Adair, & Ng, 2013).

The prevalence of obesity has continued to increase during the last 30 years (Ng et al., 2014; Popkin et al., 2013). World Health Organization *(*WHO) said that 41 million children are overweight and obese in 2016 worldwide (WHO, 2017). Another study showed that 27% of pre-school children in Ireland are overweight (Evans, Glacken, & Goggin, 2011). The national prevalence of obesity in children under five in 2018 in Indonesia was 8%. The prevalence of overweight under five in West Java was 11.8%. Approximately 10.7% were overweight and 7.9% were obese at the age of 5-12 years. The obesity prevalence in Depok city above the national level (8%) with details of 12.6% overweight for children under five, while 19.01% overweight and 20.34% obese (5-12 years) (Health Research and Development Agency, 2018).

One solution to reduce the prevalence of obesity is to provide a high-fiber diet, which is to

get used to consuming fruits and vegetables (Warta Kesehatan Masyarakat, 2017). Low consumption of fruits and vegetables is a risk factor for obesity (Fund & Research, 2007). A preliminary study was carried out by researchers in the Depok area to see the habits of consuming fruits and vegetables in pre-school children. The survey results showed that the percentage of vegetable and fruit consumption based on the WHO guideline was 13.9% for vegetable consumption and 11.3% for fruit consumption. The results of interviews with parents of pre-school age children showed that children had difficulty eating vegetables and fruit and tended to choose certain types of vegetables and fruit.

Parents' eating behavior greatly influences children's eating behavior. Healthy eating behavior in pre-school age children can be developed through the influence of parental role models (Natale et al., 2014).. Gregory stated that role models of parents reduce the level of confusion and increase children's interest (Gregory, Paxton, & Brozovic, 2010). Another study shows that there is a strong influence between parental role models and the level of fruit and vegetable consumption in pre-school children (Draxten, Fulkerson, Friend, Flattum, & Schow, 2014). Other studies have shown that only children who are directly exposed to healthy foods have the desire to try eating fruits and vegetables (Schindler, Corbett, & Forestell, 2013).

Health education for parents, especially mothers, can be an intervention option in improving family healthy behavior (Indrayani, Legiati, & Hidayanti, 2019; Rumintang, Sopiatun, & Trismaningsih, 2018). Health promotion in parents can influence eating behavior in children. The results of a study using a health education approach to parents of pre-school children regularly showed an increase in the ability of parents to manage weight not only of children but of parents (Hawkins, Apolzan, Staiano, Shanley, & Martin, 2019). Previous studies have shown several obstacles in traditional face-to-face health education methods, such as the distance to the meeting location and the importance of commitment to determining the timing. Various methods of health education were carried out by disseminating information through the bulletin and home visits for 60 minutes (Jones, Price, Okely, & Lockyer, 2009).

Technology-based programs are one way to reduce these barriers. Social media, as a technology product that is widely used lately, is quite a relevant choice to reduce these barriers. Mother is one of the highest smartphone users (Asiodu, Waters, Dailey, Lee, & Lyndon, 2015; Okdie et al., 2014). Smartphones are used to find information about children's health through social media (Mitchell, Godoy, Shabazz, & Horn, 2014). Therefore, health information, especially about children's diet, is very relevant through social media (Li, Barnett, Goodman, Wasserman, & Kemper, 2013).

The role of parents as role models is very important in shaping children's behavior, including eating fruits and vegetables in the home environment. Research on the effectiveness of technology-based parental health education using WhatsApp combined with traditional face-to-face methods in optimizing the role model of consumption of fruit and vegetables in children has not been carried out in Indonesia.The aim of this study to determine the effect of Whatsapp Group (WAG) and face-to-face blended health education on the role models of parents of pre-school age children in consuming fruits and vegetables.

METHOD

This study used a quasi-experimental design pre-test and post-test without a control group. The population was parents of pre-school-age children. The research sample consisted of 115 people spread across five private kindergartens in Depok City from November 2017 until April 2018. Samples were taken using a total sampling technique. The inclusion criteria of respondents were parents of kindergarten students, willing to be respondents, and those who did not have a chronic disease.

Health education materials included the concept of obesity and weight measurement, diets in children according to balanced nutrition guidelines, traffic light diets, the benefits of fruit and vegetables for weight loss, the role of parents at home in consumption and serving of vegetable and fruit (Ikatan Dokter Anak Indonesia, 2014; Jones et al., 2009). The material was delivered using a combination of online and face-to-face methods. The topics were divided into 12 sessions of health education for 6 months.

Health education online delivered using the parent's WhatsApp group. Parents got health information in the form of e-brochures and videos through the WhatsApp group. The researcher checked the response rate of WhatsApp reading on the parent's WhatsApp group to ensure whether the message had been received and seen. Besides, researchers created simple polls to ensure interest in educational content. Participants who do not open messages or fill in polls will be followed up by telephone. Parents could discuss interactively through messages both in groups and private messages.

The face-to-face health education method was carried out by inviting parents to school. Home visits were carried out by researchers if participants were unable to attend the face-to-face sessions. The time of the home visit was agreed upon between the participants and the researcher before the next session was held. The combination of online and face-to-face health education methods in detail can be seen below in figure 1.

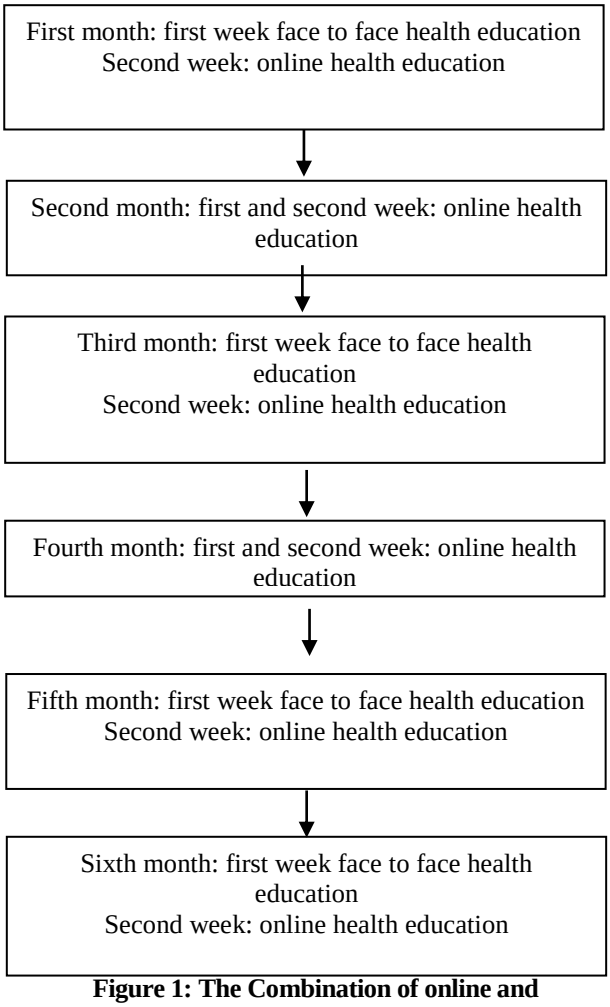

Figure 1: The Combination of online and face to face health education session

Data collection was carried out using a questionnaire which was developed and modified based on previous research (Draxten et al., 2014). The data consisted of parental characteristics and role models in the consumption of fruits and vegetables. The role model questionnaire was measured using a Likert scale with 4 options, namely always, often, sometimes, never. The score

of positive questions for each option was always (4), often (3), sometimes (2), and never (1). Meanwhile, negative questions were given the opposite value, namely always (1), often (2), sometimes (3), and never (4).

Researchers ensure that respondents are ethically protected. Participants have obtained an explanation regarding the research that will be carried out before signing the informed consent form. Researchers have said that respondents can stop at any time without any sanctions. Researchers guarantee the confidentiality of data through anonymity and protected file storage so that only researchers can access the data.

Data analysis was performed using statistical software. Characteristics of parents are presented in the form of percentages. The paired t-test was used to see the effect of online and face-to-face health education on changes in the role model of parents in consuming vegetables and fruit.

RESULTS AND DISCUSSION

Respondents demographic characteristics are shown in Table 1.

Table 1. Characteristics of Respondents(n=115)

Variable	Number (%)
Mother's education	
No school	01 (0.9)
Primary school	08 (07.0)
Junior high school	34 (29.6)
Senior high school	57 (49.6)
College	15 (13.0)
Ethnic group	
Javanese	56 (48.7)
Sundanese	16 (13.9)
Betawi	37 (32.2)
Batak	03 (02.6)
Others	03 (02.6)
Religion	
Moslem	113 (98.3)
Christian	01 (0.9)
Catholic	01 (0.9)
Occupation	
Laborer	19 (16.5)
Trader	24 (20.9)
Government employees/ Soldier/ Police	02 (01.7)
Private employee	51 (44.3)
Others	19 (16.5)
Family income	
Less than the regional minimum wage	54 (47.3)
Equal or more than regional minimum wage	61 (52.7)

Results showed that the majority of parents graduated from high school. Results of previous research show that the majority of respondents graduate from senior high school (49%) (Putri & Lasri, 2016). The parental level of education can influence the process of finding sources of information as well as their perception of the

content of information related to caring for and fulfilling children's nutritional needs.

This study showed that the kindergarten parent's income level is above the provincial minimum wage. A study in Bali showed the majority of family income level is enough category (52% father and 60% mother) (Rachman, Mustika, & Kusumawati, 2017). In contrast with a study held in Nganjuk Regency, East Java, it showed 29% of family income less than IDR 500,000 (Haryana, Kustiyah, & Madanijah, 2019). Family income affects the purchasing power of the family. Sufficient income allows families to provide various types of food including fruit and vegetable.

The majority of the family head's occupation is private employees. This is in line with a study in Medan that showed most of the respondent's work is an entrepreneur (more than 25%) (Fatimah & Siregar, 2020).

Table 2 shows the effect of health education on the role model of parents in consuming fruits and vegetables.

Table 2. Effect of health education on the role model of parents in consuming fruits and vegetables (n=115)

Parent's role model	Mean	Standard deviation	p-value
Before intervention	15.94	3.49	0.00 (<0.0001)
After intervention	17.92	4.61	

The paired t-test showed a p-value <0.0001, which means that there is a significant effect of health education on increasing the role model of parents in consuming fruits and vegetables.

Researchers developed a health education intervention using the parent group WhatsApp network in addition to the face-to-face method. Results of data collection at schools show that 98% of parents are participants of the school group WhatsApp. Results of interviews with school principals show that announcements are more effective in forwarding through group WhatsApp than through letters or inviting parents to school. Several social network users are following the survey results which indicate that mothers are the highest smartphone users with 97% utilizing text messaging facilities (Pew Research Center, 2015). Likewise, mothers also use smartphones to find information on child care and health (Asiodu et al., 2015; Okdie et al., 2014)..

Obstacles were found by researchers when conducting face-to-face health education because some parents could not participate. About 34 (29.6%) parents are workers. The headteacher said that 100% of parents never attended meetings at the start of the academic year as some parents worked. Representatives of parents stated that there were many other activities like cooking, caring for other children, cleaning the house, and various community activities. Results of the research show that the traditional face-to-face method has several obstacles in its implementation like the distance to the meeting site and the importance of commitment to determining the timing of actions (Jones et al., 2009)..

The topic of health education was chosen based on results of interviews and focus group discussions of parents, namely obstacles in preparing food for families. Provision of food can also be affected by the burden of responsibility and commitment or low self-efficacy of parents, specific challenges of time management, including work commitment and insufficient time availability, and lack of support from both family and environment (Perry, Daniels, Bell, & Magarey, 2016). Other factors include lack of knowledge and personal taste, less access to healthy food including

inadequate trust, perceived risks, high prices, and limited time (Farahmand et al., 2015).

Results of this study indicate that parents' habits of eating vegetables and fruit in front of their children vary widely. Nearly half the participants in this study occasionally ate vegetables and fruit either as a snack or at mealtimes, but there were still many who rarely and never ate vegetables and fruit. This will affect the formation of fruit and vegetable eating behavior in children. Results showed that the effect of family habits had a significant relationship with the consumption patterns of fruits and vegetables in children (Attorp et al., 2014). Results of other studies showed that the average consumption of vegetables and fruit in children was higher in the group of children whose parents ate vegetables and fruit with their families (Draxten et al., 2014).

Results of this study were about the relationship between parents' fruit and vegetable consumption behavior and fruit and vegetable consumption behavior for children aged 3-5 years with 114 respondents. The study shows that the level of consumption of fruits and vegetables in both children aged 3-5 years and the mother and father is low. The correlation test shows that the pattern of consumption of fruits and vegetables in the mother, both raw and cooked, is related to the consumption pattern of the child. Father's consumption behavior is related to the consumption pattern of cooked vegetables and fruit in children (Kähkönen et al., 2020).

Results show that there is an effect of health education between online and face-to-face with parental role models before the intervention (mean 15.94 ± 3.49) and after the intervention (mean 17.92 ± 4.61, p = 0.00, p<0.0001). This is in line with the results of other studies on online child nutrition education in parents with results showing a significant effect (Jones et al., 2009; McLean, Edwards, & Morris, 2017). Other research shows that family role models have a strong influence on the formation of healthy diet behaviors in children (Yee, Lwin, & Ho, 2017). Food consumption behavior is formed from an early age through the process of imitating the behavior of parents (Birch & Doub, 2014). Other studies have shown that role models of parents can improve fruit and vegetable consumption behavior in children (Natale et al., 2014).

This study has several methodological limitations that can be considered in the interpretation of the results. The study did not observe confounding factors that might influence the parents' fruit-vegetable consumption model. Besides, this study did not analyze the relationship between respondents' characteristics and parental role models. Therefore, future studies can be considered to see other factors that might influence the parents' role model of fruit and vegetable consumption.

CONCLUSION

Results showed that the majority of parents had a high school education level with an income above the average minimum wage. The behavior of consuming fruit and vegetables with children shows a low percentage both as a snack and at mealtime. Results of statistical tests show that there is a significant effect on the combination of online and face-to-face health education methods on increasing the role model of parents in consuming fruits and vegetables.

Further research can analyze the involvement of parents, schools as well as a learning curriculum based on the introduction of healthy eating and vegetables. Policies for the formation of healthy eating

behaviors should be contained in educational regulations at both the education office level in collaboration with the health office and school regulations by involving parents actively in the theme of learning fruit and vegetables with a variety of research-based learning methods.

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