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HEALTH EDUCATION USING MATCHING IMAGES TO ENHANCE PRESCHOOLERS' KNOWLEDGE ON FRUITS AND VEGETABLES

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ABSTRACT
WHO suggests that people of all ages should consider increasing their intake of fruit and vegetables. It has a positive impact on learning potential and wellbeing in children and adolescents.The consumption of vegetables and fruit by children is influenced by parental knowledge and motivation. The use of educational nutrition games with puzzle-based learning aims to enhance children"s understanding and reduce the sense of obligation. Tthe consumption of vegetables and fruit by children is relatively low in early childhood education in Kebayoran Lama the research project entitled " The Effect Of Health Education Through The Use Of Media Games Matching Images Derived Via This research used a quasi-experimental approach with a one-group pretest-posttest design.Moreover, this research employed a comprehensive sampling technique, which resulted in 25 respondents. The place of this study was kindergarten, Jakarta. The data was collected using a pre-test and post-test questionnaire for media games involving image matching. This study used a paired t-test to determine the impact of health education using media games on knowledge about fruit and vegetables. The results of the pretest and posttest were then analyzed, so the gap between before and after the introduction of fruit and vegetables could be seen. the average knowledge of preschoolers on their score before being given health education about vegetables and fruit shows the mean value of 55.3 with a standard deviation of 21.0, and the average knowledge of preschoolers based on their knowledge score after being given health education about vegetables and fruit shows the mean value of 81.3 with a standard deviation of 15.5. The result of paired T Test shows a p value of 0.000 (p <0.05). There is a significant increase in knowledge level regarding fruit and vegetable in preschool children with image matching game media. There is a change in children"s habit of consuming fruits and vegetables after the image matching game. Image matching games are effective as educational media in increasing children"s knowledge and interest in consuming fruit and vegetables

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1. INTRODUCTION

The World Health Organization (WHO, 2019) suggests that people in all ages should consider increasing their intake of fruit and vegetables. It has a positive impact on learning potential and wellbeing in children and adolescents. Fruits and vegetables are important in a healthy diet. They contain a variety of micronutrients, phytochemicals, and fibre (Nebeling 2002; Septembre-Malaterre, Remize, and Poucheret 2018). It is widely believed that a diet that includes a variety of fruits and vegetables is beneficial for health, growth, and intellectual development

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throughout a person's lifetime. There is also some evidence suggesting it to reduce the risks and incidence of illness and death, caused by non-communicable diseases (NCDs) (Samuel, Otitoju, and Okekunle 2020; WHO 2005; Afshin et al. 2019).

It is worth noting that low consumption of fruit and vegetables among children can lead to a lack of micronutrients necessary for growth, development, and body functions. This may lead them to NCDs (Lopes et al. 2018). It is also important to consider inadequate consumption of these nutrient-rich foods is linked to high consumption of nutrient-poor, high-energy foods, which is linked to childhood overweight and obesity. It is worth noting that there has been a significant increase in the prevalence of overweight and obesity among children and adolescents over the past 50 years. According to the World Health Organization (WHO), this has risen from 4% in 1975 to 18% in 2020 (WHO 2020; Micha et al. 2020). Furthermore, in 2020, 39 million children under the age of 5 were overweight or obese (WHO 2020), with many regions of the world affected.

The Department of Health, Republic of Indonesia, refers to the World Health Organization (WHO) recommendation for school-aged children that they should consume vegetables and fruits in quantities of 300-400 grams per person per day. It is recommended that 400 grams of fruit and vegetables consist of 250 grams of vegetables (equivalent to two and a half portions or two and a half glasses of vegetables after being cooked and drained) and 150 grams of fruit (Ministry of Health, Republic of Indonesia/Peraturan Menteri Kesehatan Republik Indonesia, 2014).

In Indonesia, there is a program called Community Act of Healthy Life (Germas), which encourages people to live healthily by consuming vegetables and fruits. The Department of Health, Republic of Indonesia has indicated that vegetables contain bioactive compounds which act as antioxidants, preventing cell damage. However, it is worth noting that many children do not consume sufficient quantities of vegetables.

It is important to remember that the preschool years (3-6 years old) are a time of rapid social, intellectual and emotional development for children. It is therefore essential to ensure that they receive an adequate supply of nutrients to support optimal growth and development. Nutrition plays a crucial role in this process, with the majority of nutrients obtained from food consumed on a daily basis. It is not uncommon for growth to slow down as children enter their preschool years. This is accompanied by changes in eating habits, with children becoming less enthusiastic about food in general and often preferring foods they already enjoy (Nita and Irwan, 2021).

The consumption of vegetables and fruit by children is influenced by parental knowledge and motivation. Children tend to be selective in their food choices, particularly regarding sweetness, and are often reluctant to consume vegetables due to their perceived unappealing taste. Additionally, a lack of knowledge and information about the nutritional value of vegetables and fruits can also contribute to this reluctance. However, these factors can be modified and shaped through education and the early introduction of vegetables and fruits into children's diets. Educational initiatives are employed to impart knowledge to children about the importance of consuming vegetables and fruits. These early educational interventions serve as a foundation for subsequent behavioral changes in children (Desi et al., 2015).

The role of learning media in supporting the learning process is of significant importance (Tafonao et al., 2019). The utilisation of learning media in the learning process can result in the generation of new desires and interests (Sudarsana et al., 2019). Furthermore, learning media can facilitate motivation and stimulation of learning activities, and even exert psychological influences on students (Puspitarini & Hanif, 2019). Crossword puzzles represent a form of learning media in the form of games that are particularly well-liked by school-age children. Previous research has demonstrated that card games can enhance children's knowledge and practice of school-age children's nutritional intake (Andressakis, 2001). Games represent an effective form of media in promoting nutrition education. It is evident that school-age children tend to act in a playful manner and ask numerous questions, thus necessitating the selection of a methodology that allows them to assume a full role in the learning process. This approach ensures that children appreciate the knowledge and skills acquired through their efforts (Darling-Hammond et al., 2020).

The use of educational nutrition games with puzzle-based learning aims to enhance children's understanding and reduce the sense of obligation. The use of puzzle games as a medium for educational purposes represents an enjoyable and engaging approach to learning that can stimulate the brain without the child being aware of it. The analysis of the situation revealed that the consumption of vegetables and fruit by children is relatively low in Early Childhood Education in Kebayoran Lama. This is due to the fact that children are more inclined to consume sweet foods. Consequently, the research project entitled " The Effect Of Health Education Through The Use Of Media Games Matching Images Derived Via Abstract Learning" was initiated with the objective of enhancing the consumption of fruit and vegetables by young children.

2. METHODOLOGY

This research used a quasi-experimental approach with a one-group pretest-posttest design. Moreover, this research employed comprehensive sampling technique, which resulted in 25 respondents. The place of this study was

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at Cendikia Insan Kindergarten, Jakarta in February 2023. The data was collected using a pre-test and post-test questionnaire for media games involving image matching. The media used is matching images that contain pictures of fruit and vegetables that can be attached to a styrofoam, containing sketches of 5 kinds of fruit and 5 kinds of vegetables. Before starting the game, a pretest was given. The aim was to say the names of the fruits and vegetables in the given image and explain whether the respondents knew the benefits of the fruit and vegetables in the image. The activity continued with the introductions to fruit and vegetables and their benefits using image matching media. Next, a posttest was carried out to measure the level of knowledge of preschool children about fruits and vegetables. This study used a paired t-test to determine the impact of health education using media games on knowledge about fruit and vegetables. The results of the pretest and posttest were then analyzed, so the gap between before and after the introduction of fruit and vegetables could be seen.

3. FINDING AND DISCUSSION

The fruit and vegetable educational activities carried out at the Cendikia Insan Kindergarten in Jakarta engaged 25 children. It was conducted in February 2023 involving 2 teachers and 2 enumerators. The educational material consists of various types of fruit and vegetables, the uses of fruit and vegetables and the nutritional, and the consequences of not consuming sufficient fruit and vegetables. The activity went as expected, the children enjoyed taking part in this activity. The followings are the results of the pretest and posttest:

Table 1 shows that there are 14 female preschoolers (56.0%), and 11 male preschoolers (44.0%).

Table 2 illustrates that the average knowledge of preschoolers based on their score before being given health education about vegetables and fruit shows the mean value of 55.3 with a standard deviation of 21.0. Meanwhile, the lowest score for fruit and vegetable knowledge is 20 and the highest is 80. Therefore, it can be concluded that 95% believe that the mean knowledge score is between 66.5 to 79.8.

Table 3 illustrates that the average knowledge score for preschoolers based on the scores after being given health education about vegetables and fruit shows the mean value of 81.3 with a standard deviation of 15.5. The lowest score for fruit and vegetable knowledge is 50 whereas the highest is 90. Thus, it can be concluded that 95 % it is believed that the mean of knowledge score is between 16.3 to 35.7.

Table 4 reveals that the average knowledge of preschoolers on their score before being given health education about vegetables and fruit shows the mean value of 55.3 with a standard deviation of 21.0, and the average knowledge of preschoolers based on their knowledge score after being given health education about vegetables and fruit shows the mean value of 81.3 with a standard deviation of 15.5. The result of paired T Test shows a p value of 0.000 ($p < 0.05$), so H0 was rejected, meaning that statistically there is an effect of health education using image matching games on fruit and vegetable knowledge among preschoolers.

Table 1. Distribution of preschoolers by gender (n=25)

Gender	Quantity	Percentage (%)
Male	11	56,0
Female	14	44,0
Total	25	100

Table 2. Average Knowledge Score Before Being Given Health Education About Vegetables and Fruit (n=25)

Knowledge score	Mean	Standard Deviation	Min-Max	95% CI
Pre test	55,3	21,0	20-80	66,5 – 79,8

Table 3. Average Knowledge Score After Being Given Health Education About Vegetables and Fruit (n=25)

Knowledge Score	Mean	Standard Deviation	Min-Max	95% CI
Post test	81,3	15,5	50-90	16,3 – 35,7

Table 4. The effect of Giving Health Education using *Games Matching* Image on vegetables and Fruit knowledge among preschoolers (n=25)

Types of test	Mean	SD	P value
Pre test	55,3	21,0	0.000
Post test	81,3	15,5	

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Subject Characteristics

In this study, the data was obtained from 25 preschoolers. Most of them were female, 14 students (56.0%). This research is in line with the one at PAUD in Kramat Jati District, East Jakarta consisting of 80 girls from 150 respondents. The preschool period is a time when children more easily receive information from updates, during which time children are in a condition of achieving rapid growth and development, not only cognitively but also psychologically. Therefore, children can be nurtured, directed and guided towards better attitudes (Azari et al. , 2021). During this period, preschoolers experience rapid physical and personality development. Preschoolers aged between 3-6 years. (Illina & Rusmariana, 2022). Preschoolers already possess the ability to think logically in drawing conclusions from the information obtained. This is in line with other research which states that the pre-school period is a time when the development of emotional abilities, language, social awareness, creativity and intelligence runs very quickly, and it serves as the foundation for subsequent development (Norfitri, 2021). Therefore, it can be concluded that preschoolers are ready for health education regarding nutrition in fruit and vegetables, which can be delivered through games that attract their interest.

Educational games are education given to children and teenagers with the aim of making it easier to increase interest and provide information (Wijayanti et al., 2021). The information obtained by providing health education to children and involving players directly in determining the final outcome of the game being played can be done by providing educational media that is fun and does not bore or saturate children. When children are given an opportunity to decide the final result of a game, they will be stimulated and will not feel bored. A game involving attractive shapes and colors are considered easy for children to understand

One of the games that is fun and easy for children to understand is the matching images game. This game is able to introduce the names of fruits and vegetables and how they keep our body healthy by matching the pictures with their respective benefits. The benefits of fruit and vegetables act as a source of body regulating substances, such as vitamins and minerals (Febriana, 2022; A'ini & Alfy, 2023). Vegetables provide nutritious substances such as vitamin A, vitamin C, vitamin B, calcium and iron, which provide important nutrients with less calories (Trinursari, 2022; A'ini & Alfy, 2023). Lack of vitamins and minerals over a long period of time in the daily diet may cause various nutritional deficiency diseases. Besides, vegetables are also rich in dietary fiber and contain antioxidants that support body health (Surbakti, 2019; A'ini & Alfy, 2023).

This game encourages children to consume an adequate amount of fruit and vegetables. The game is designed as nutritional education that involves players directly in determining the final outcome. By doing this, it will establish the importance of a healthy lifestyle from an early age. Moreover, these habits will shape children's eating behavior which will later influence nutritional care. This healthy behavior can be achieved by educating on the importance of consuming vegetables and fruit (Rofiqoh et al., 2023). According to Piziak (2012), there is a correlation between nutritional education and changes in children's eating habits (Irwandi et al., 2021).

Knowledge Before And After Intervention

Based on the result using matching images games, there changes in the knowledge of the respondents regarding nutrition in fruits and vegetables. This result is represented by table 4 which indicates that the average knowledge of respondents before providing education is as much as 55,3. Meanwhile, after providing education, the average knowledge of the preschoolers increases as much as 81,3. It is obtained by Paired T Test as statistical test analysis that the result is p value 0.000 ($p < 0,05$). Hence H0 is rejected which means that in terms of statistics, there is an effect of health education on games matching image media on the knowledge regarding fruits and vegetables in preschoolers. This study supports others which show that there is a significant change in the average of knowledge during pre test as much as 45,57 then the average of knowledge increases up to 73,51 during post test (Azari et al., 2021)

The tendency level of consuming fruits and vegetables in children is affected by knowledge which can be provided by education. Knowledge level in regards to nutritional components of food becomes a supporting factor in applying a healthy lifestyle (Spronk et al., 2014; Irwandi et al., 2021). Therefore, the level of knowledge regarding nutrition becomes one of factors which can help them have a habit of eating fruits and vegetables in children. Children can easily understand fruit and vegetable knowledge if it is supported by interesting forms such as illustrated animations that can increase interest in learning while playing, which not only increases knowledge but also memory so that children can retain learning material for a longer time compared to teaching methods. conventional (Clark, 2006; Irwandi et al., 2021). Educational games are designed with the concept of learning by doing and fun-learning which attracts attention, is fun and can reduce children's feelings of boredom.

4. CONCLUSION

Based on the result and discussion of this study, it can be concluded that:

1. There is a significant increase in knowledge level regarding fruit and vegetable in preschool children with image matching game media
2. There is a change in children's habit of consuming fruits and vegetables after the image matching game
3. Image matching games are effective as educational media in increasing children's knowledge and interest in consuming fruit and vegetables

REFERENCES

[1] A'ini, Z. F., & Alfy, Z. R. (2023). Pola konsumsi buah dan sayur pada anak PAUD di Kecamatan Kramat Jati, Jakarta Timur. SINASIS 4, 4(1), 165–173.

[2] Azari, H., Melani, V., Gifari, N., & Nuzrina, R. (2021). Nutrition-Run Game Meningkatkan Pengetahuan dan Sikap Pentingnya Sayur dan Buah Pada Anak. Jurnal Riset Gizi, 8(1), 44–47.

[3] Illina, A., & Rusmariana, A. (2022). Gambaran Perkembangan Pada Anak Usia Prasekolah Di Wilayah Kerja Puskesmas Sragi II Desa Gebang Kerep Gambaran Perkembangan Pada Anak Usia Prasekolah Di Wilayah Kerja Puskesmas Sragi II Desa Gebang Kerep. Department of Health Sciences, 68–73.

[4] Irwandi, P., Anwar, Z. D., Rafliananta, D., Fauziah, C., & Dewi, N. W. A. S. (2021). Analisis Upaya Peningkatan Budaya Konsumsi Buah dan Sayur pada Anak melalui Efektivitas Game Gasiputri. Industry and Higher Education, 3(1), 1689–1699. http://journal.unilak.ac.id/index.php/JIEB/article/view/3845%0Ahttp://dspace.uc.ac.id/handle/123456789/1288

[5] Norfitri, R. (2021). Pola Asuh Orang Tua Dan Perkembangan Anak Pra Sekolah. Jurnal Ilmu Kesehatan Insan Sehat, 9(1), 15–19. http://jurnalstikesintanmartapura.com/index.php/jikis

[6] Rofiqoh, A. N. A., Toaha, A., & C, N. A. (2023). Pengaruh Promosi Peningkatan Konsumsi Sayur dan Buah Melalui Media Kartu Kuartet terhadap Perbaikan Pengetahuan dan Konsumsi Sayur dan Buah pada Anak Usia Sekolah di SDN 004 Samarinda Ulu. Jurnal Multidisiplin Indonesia, 2(8), 2290–2302. https://jmi.rivierapublishing.id/index.php/rp

[7] Wijayanti, T. S., Fayasari, A., & Khasanah, T. A. (2021). Permainan Edukasi Ular Tangga Meningkatkan Pengetahuan Dan Konsumsi Sayur Buah Pada Remaja Di Jakarta Selatan. Journal of Nutrition College, 10(1), 18–25. https://doi.org/10.14710/jnc.v10i1.29153

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