

CHILDREN'S OPINION ON VEGETABLES CONSUMPTION: A QUALITATIVE STUDY ON SCHOOL-AGERS IN CITY OF SEMARANG

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Abstract: It is recommended that children consume adequate amount of vegetables. However, the problem still remained in every single family and community. Many studies to find out its causes have been done. Unfortunately, most of them were conducted on parents only. Little is known from children's own perspective. Children's perspective is important to help adults in choosing vegetables for the children. Thus, this study aimed to explore children's opinion on vegetables consumption. Qualitative design was employed. Samples were selected using purposive technique sampling. Nine participants aged 6-12 years were interviewed in a focus group discussion. Data were analysed using qualitative data analysis by Miles and Huberman. The FGD indicates three themes: why kids dislike vegetables, sort of vegetables which kids love to consume, reasons why kids want to eat vegetables. Health education and involving children in their own food preparation is promising way to improve vegetables intake. Further research is to develop a new form of health education and a program in which children are involved to choose and prepare their own vegetables.

Keywords: bitter; children; consumption; school-agers; taste; vegetables.

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1. INTRODUCTION

World Health Organization (World Health Organization, 2019a) recommends everyone should increase intake fruit and vegetables as it improves learning potential and wellbeing on children and adolescent, reduces primary health problem in children (obesity, cardiovascular disease, cancer, and eating disorder), and lead children become healthy adult and elderly. As many

as 1,7 million of death all over the world were caused by the low of fruit and vegetables consumption (World Health Organization, 2019b). A study on school-agers showed that their intake pattern of fruit and vegetables highly associated to risk of obesity (Anggraeni et al., 2010).

Department of Health, Republic Indonesia refers World Health Organization (WHO) recommendation for school-agers that they need vegetables and fruits as many as 300-400 gram/person/day. 400 gram-fruits and vegetables consist of 250 gram-vegetables (2,5 portion or 2,5 glasses of vegetables after being cooked and drained) and 150 gram-fruits (Ministry of Health, Republic Indonesia/*Peraturan Menteri Kesehatan Republik Indonesia*, 2014) While Diet Guidance for Americans recommends the healthy vegetables come from five vegetables subgroups including dark green; red and orange; beans, peas, and lentils; starchy, and others which include all fresh, frozen, canned, and dried options in cooked or raw forms, including 100% vegetable juices (UDSA, 2020).

In Indonesia, there is a program called Community Act of Healthy Life (Germas), by Department of Health, Republic of Indonesia which invites people to live healthily by consuming vegetables and fruits. Department of Health, Republic of Indonesia stated that vegetables contain of bioactive compound which is an antioxidant to prevent cell damage (Department of Health, Republic of Indonesia/*Kementerian Kesehatan Republik Indonesia*, 2019).

Nevertheless, many children do not consume vegetables as recommended. UNICEF reported about 21 percent of school-going adolescents eat vegetables less than once a day (UNICEF, 2021). A study on parents and primary school children in Germany discovered that factors affecting children's vegetables intake were vegetables provided and offered by their parents at home (Mittmann et al., 2014). Another reason of low vegetable intake in school children was reported by a study in North Serbia. The children who consumed less vegetables than its recommendation showed that they received more advice from parents and teacher to take more vegetables (Sumonja & Novaković, 2013). While in Indonesia, children's vegetable intake influenced by children's knowledge and parental education (Mohammad & Madaniyah, 2015) and parental practice of consuming vegetables (Indira, 2015).

The primary study conducted in Hamlet (RW) VII Urban Village (Kelurahan) Sukorejo, Sub District Gunungpati, Semarang, Indonesia revealed that as many as 89% of children are seldom to consume vegetables. UNICEF pointed that school-agers are at the critical stage of a second window of growth, psychological development, and forming lifelong dietary and lifestyle habit opportunity. Adequate nutrition allows brain and bodies grow well, support children's achievement at school both education and cognition. In the case of stunting, the nutrition help stunted children to catch their grow (UNICEF, 2021). Several studies had found out factors affecting vegetables consumption in children. However, little is known about children's opinion on vegetables consumption. Children's perception about vegetables might reveal core problems of not liking vegetables and enable adults to choose and provide vegetables for their kids. Therefore, this study aims to explore school-age children's opinion on vegetables intake.

2. METHODS

This study was conducted in Hamlet (RW) VII Urban Village (Kelurahan) Sukorejo, Sub District Gunungpati, Semarang using qualitative design: narrative descriptive. The sample was school agers (6-12 years old) and selected using purposive sampling technique. The inclusion criteria including: school agers (6-12 years old), child who disliked eating vegetables, and was able to speak clearly. While the exclusion criteria including: sick child. In order to obtain the

sample which fulfilled the criteria, the researcher asking for assistance from cadets. The cadets chose the participants from all neighborhood (RT). There were 9 (nine) children who met the criteria. Consent was obtained from parents due to participants' age which were under 17 years old. Then, the children were invited in a small focus group discussion (FGD) located in urban village hall (Balai Kelurahan) and being asked with semi structure questions. The FGD was chosen as data collection technique in order to give relax nuance for children and to encourage children who keep silent to also state their opinion as other children do.

At first the researcher was asking the names of vegetables pictures, such, water spinach, carrots, beans, spinach, broccoli, cabbage, and mustard in order to ensure they were familiar with such vegetables. Then, the participants were asked if they liked each vegetable. Data was analysed using data analysis by Miles and Huberman. The analysis includes: data collection, data presentation, data reduction, and verification (Miles et al., 2014). The credibility as a part of validity in qualitative study was conducted by giving back the result to all participants. The result was all participants confirmed the finding as what their thought were.

3. RESULTS AND DISCUSSION

3.1. Results

There were nine participants consists of 4 girls and 5 boys. Demographic data of the participants is described in Table 1.

Table 1 Participant Characteristics

No.	Participant	Age (years old)	Gender	Grade
1	A	6	Male	1
2	B	7	Male	2
3	C	7	Male	2
4	D	6	Female	1
5	E	6	Female	1
6	F	6	Female	1
7	G	7	Male	2
8	H	6	Female	1
9	I	8	Male	3

The focus discussion with children demonstrates various opinion on vegetables consumption. Three themes emerged are reasons why kids dislike vegetables, sort of vegetables which kids love to consume, reasons why kids want to eat vegetables.

Reasons why kids dislike vegetables

There are two reasons why they dislike eating vegetables: vegetables are un-tasty and bitter. The following is children's statements about the un-tasty vegetables:

Kid A: *"I don't like vegetables. They taste bad"*, Kid B: *"No, I don't like". "Un-tasty"*, Kid C: *"I don't like them", "They are un-tasty"*, Kid E: *"Don't like", "Tastes not good."*

Other children mentioned that vegetables taste bitter, as stated the following Kid D: *"I don't like that (vegetable)" "It tastes bitter!"*, Kid F: *"I hate vegetables." "Coz, they taste bitter"*, Kid G: *"I don't eat vegetables" "Bitter!"*, Kid H: *"No" (answering do you like vegetables?) "Bitter"*, Kid I: *"No" (answering do you like vegetables?) "same as H" (Bitter)*

Sort of vegetables which kids love to eat

Despite their dislike on vegetables, the children mentioned sort of vegetables they like to eat, like water spinach, spinach, and carrot. These are their statements: Kid A and Kid F: “*I like water spinach*”, Kid D, Kid E, Kid H and Kid I: “*I like spinach*”, Kid C and Kid G: “*I like carrot*”

Reasons why children love vegetables

The children have their own reasons why they want to eat vegetables. There are two reasons: the taste is good and vegetables are healthy as stated below:

Kid A: “It’s healthy” Kid B: “it’s tasty”; Kid C: “It’s healthy”; Kid D: “It’s tasty”; Kid E: “It’s tasty”; Kid F: “It’s healthy”; Kid G: “It’s healthy”; Kid H: “It’s healthy”; Kid I: “It’s healthy”.

3.2. Discussion

The aim of this study is to explore school-age children’s opinion on vegetable consumption. The investigation results on three themes, which are reasons why kids dislike vegetables, sort of vegetables which kids love to consume, reasons why kids want to eat vegetables.

Reasons why kids dislike vegetables

The kids stated that the reasons why they dislike vegetables were because it is un-tasty and bitter, unlike fruits which tasted sweet. This finding is in accordance with a study in Denmark and Lithuania which resulted children do not include fruits and vegetables as their preferences (Ragelienė, 2021). The participants seemed to be in a group of tasters as they said the vegetables were bitter and they were rare eating vegetables. A study in USA discovered children who were categorized as non-taster consumed more vegetables than those who were taster (Bell & Tepper, 2006).

Those taste issue has various reasons, such as natural taste of development, parental role model, dan vegetables choices. Assumption of Birch (1999) as cited by Bergström et al. (2012) was children tends to sweet meal in order to get adequate energy and obtain feeling of safety. On contrary, bitter taste indicate poison. Bitter taste of vegetables comes from compounds name glucosinolates and isothiocyanates. It is evident in Brassica vegetables. However bitterness taste sensitivity is influenced by individual (Wieczorek et al., 2018).

According to studies, vegetables acceptability is affected by human development. A study using 6-propyl-2-thiouracil for bitterness sensitivity proved that children had more frequency of bitter sensation than adult and most of the children avoided bitter vegetables or greens (Negri et al., 2012). This because the sweet preference obtained at the earlier age of children (Mennella et al., 2016) and this is proven as a part of evolutionary selection (Mennella & Bobowski, 2015). However, there was a study that indicated gender and social economic status were more significant affecting children’s vegetables intake (Feeney et al., 2014) as a study in Irish that figured there was no difference between TAS2R38 genotype or PROP taster status group in vegetables consumption (O’Brien et al., 2013). Furthermore, a research by Grimm et al., (2014) proved that vegetables introduction at earlier age was not related to its intake at age of 6.

Further, parental role model proved that had significant function to increase children vegetables consumption. Children who were given an example by their parents will consume more vegetables than those who were not (Draxten et al., 2014). Meanwhile a study by Albani et al., 2018 found that self-concept and affective attitudes played important role to increasing students’ motivation to consume fruit and vegetables daily.

Sort of vegetables which kids love to consume

This study indicates children have their own favourite vegetables although they do not like vegetables in general. Those vegetables are water spinach, spinach, and carrot. This preference might be affected by repeated exposure of certain meals by parents to their children. This exposure allows children used to with the taste (Barends et al., 2019; Fildes et al., 2014; Keller, 2014). Water spinach, spinach, and carrot are typical vegetables served on the table in Indonesian family. Indonesian mothers provide those kinds of vegetables more often than other vegetables for their children during the week. Other study discovered that parents have important role on children's food choice. The children were told to eat certain vegetable. Therefore, they follow parents' instruction. The children also mentioned they like the nutritious meal because their mothers cook it good (Atik & Ozdamar Ertekin, 2013).

Water spinach, spinach, and carrot becomes the most favourite vegetables. Water spinach has evidenced to reduce heavy metal absorption (Yang et al., 2012). A study in Nigeria, heavy metals has increased the risk of having cancer (Adesiyani et al., 2018). While in India, a study discovered that slight concentrate of heavy metals in a surface water might be harmful for human (Singh & Kumar, 2017). Spinach is highly consumed by Indonesian people has huge benefits. A review disclosure that spinach functioned as anti-obesity, anti-inflammatory, anti-cancer, glucose lowering, and antioxidant (Roberts & Moreau, 2016). Spinach contains Vitamin K which has significant role in blood clotting (Miano, 2016; Seegers, 2013). Further, carrots has similar benefits as water spinach and spinach, which are antioxidant, anticarcinogen, and immunoenhancer (da Silva Dias, 2014).

Reasons why kids want to eat vegetables

The kids confirmed they preferred certain vegetables such as carrot, spinach, and water spinach because with various reasons: it tasted sweet and were considered as healthy food. The participants revealed they preferred sweet taste. This corresponds to a study that discovered the sweet preference develops by age. The opposite, sweet sensitivity was not related to age development (Vennerød et al., 2018). The participants stated that the consumed vegetables due to its advantage. This is similar to study result of Holsten et al., (2012) which revealed the children pick vegetables and fruit because of its advantages. The finding indicates that their willingness to eat vegetables was influenced by doctrine stated vegetables is healthy although only for certain vegetables. Therefore, optimism is here. Children might be educated that other variant of vegetables are also good for their healthy. The education might start at early age, preschool stage. Droog et al., (2013) using picture book to introduce vegetables and fruits for this stage. This method is in accordance with development milestone of pre-schooler who are very imaginative (Hockenberry & Wilson, 2015).

Later when children are in school age, they can be involved in some project as according to Erikson's theory of psychosocial development, children will perform children's development stage is creating something as a personal achievement (Hockenberry & Wilson, 2015). Hutchinson et al. (2015) using this milestone in their study by implementing a project which required school-agers to participate in school garden and resulted the increase of vegetables consumption. While at home, a collaboration between parents and children in preparing food might increase children's vegetables consumption (Olfert et al., 2019).

Another milestone in psychosocial development based on Erikson, children loves to work with age maters. This help them learn from peer easily. Therefore, Staiano et al. (2016) use this milestone to attract children learn about vegetables in order to improve their vegetables intake.

They compared two group students, watching a video displaying their peers consumed vegetables and not watching students. The first group demonstrated vegetables intake more progressed than those who did not watch video. Another activity involving peer project showing the improvement vegetables intake on children was repeating cooking together in a camp program (Ehrenberg et al., 2019).

4. CONCLUSION

This study aims to investigate school-age children's opinion on vegetables consumption. The exploration resulted on three themes which are reasons why kids dislike vegetables, sort of vegetables which kids love to consume, reasons why kids want to eat vegetables.

Health education and involving children in their own food preparation is promising way to improve vegetables intake. Further study is to develop a new form of health education and a project involving children to prepare their own vegetables meals in order to improve vegetables intake in school-agers.

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