

THE 2<sup>nd</sup> INTERNATIONAL CONFERENCE OF HUMANITIES AND SOCIAL SCIENCE "Freedom to Learn in Education, Social, Religious, Culture, and Language Perspective"

# ADOLESCENTS' AND SCHOOL STAKEHOLDERS' VIEWS ON FOOD SNACKING IN INDONESIAN SCHOOLS: A QUALITATIVE STUDY OF THE 2015 GLOBAL SCHOOL-BASED SURVEY (GSHS)

1<sup>st</sup> Rachmalina Soerachman<sup>1</sup>, 2<sup>nd</sup> Salut Muhidin<sup>2</sup>, 3<sup>rd</sup> Jerico Franciscus Pardosi<sup>3</sup> {rrra001@brin.go.id<sup>1</sup>, <u>salut.muhidin@mq.edu.au<sup>2</sup></u>, jerico.pardosi@qut.edu.au<sup>3</sup>}

National Research and Innovation Agency (BRIN), Indonesia<sup>1</sup>, Department of Management, Macquarie Business School, Macquarie University; Australia<sup>2</sup>, School of Public Health and Social Work, Faculty of Health, Queensland University of Technology, Australia<sup>3</sup>

Abstract. The study aimed to explore adolescents and school stakeholders' views on food snacking in the context of Indonesian schools. We conducted in-depth interviews to 21 informants. The informants were 14 students aged 13 to 17 years and 15 service providers/officers from schools and communities in Cianjur and Makasar. The results were summarized based on the Theory of Planned Behavior (TPB), attitudes, subjective norms, and behavior intention relating to food snacking perception at school. Students shared both positive and negative attitudes toward food snacking. Affordability and availability were the top reasons for positive attitude, whilst food contents and healthiness have triggered their negative attitude. Apart from attitudes as an internal factor, external factors have also a great contribution in their snacking perception. Healthy, unhealthy food and canteen cleanliness were the most common terms students and providers identified as social influencers to their perceptions on food snacking. Finally, Students had their own perception about the available foods in school.

Keywords: Adolescents, Food snacking, Indonesia, School

# **INTRODUCTION**

There are many health issues among adolescents that are considered as major public health challenges. It includes among others smoking, unhealthy dietary habit, violence, mental health related behavior and insufficient individual hygienic and sanitation, lack of physical activity, drug abuse and alcohol abuse. In Indonesian context, programs toward adolescents health have actually been implemented since early 1960s and it includes health care delivery as well as school-based program (Ministry of Health, 2015)).

The 2013 Indonesia's Basic Health Survey or known as *Riskesdas* (Penelitian B, 2013) indicates several health issues among youth population aged 13–18 years, such as smoking (favorably among males group), unhealthy diet or lack of fruits and vegetable consumption, lack of physical activity, obesity, injury and mental emotional disorder. In terms of smoking behavior, the 2013 *Riskesdas* reported that about 9.8% males and 0.1% females aged 13-15 years were smokers, while 37% males and 0.4% females aged 16–18 were smokers. Prevalence of physically inactive youth (aged 10–24 years) were 39.4% males and 36.5% females. Most of youth (97.3%) consume fruits and vegetables less than five servings per day as recommended by WHO. (Kusumawardani, unpublished result).

Most of adolescents in Indonesia are students. They spend around 40 hours at school per week; 8 hours during 5 days school or 7 hours during 6 days school (Perpress No 87 / 2017 During school hour they need consume the food for breakfast, snacks and lunch. They have the dramatic

physical growth and development of adolescent which makes significant increase the need of energy, protein, vitamins and minerals (Janet Sugarman Isaacs, Child and Preadolescent Nutrition: conditions and Intervention, (Nutrition Through the Life Cycle: third edition, Thompson Wadsword,). In the other hand, sometime they skip the breakfast or lunch. The student is vulnerable to nutritional problems.

In regards to adolescents' health program in Indonesian schools, different stakeholders at schools express slightly different understanding and awareness towards adolescent health. As part of school health program, school meal programs can be a source of healthy foods to students (who may not have other regular sources of food) and can promote daily attendance, class participation, and academic achievement (WHO, 2004). Another issue relate with food in school is food safety. Unsafe food can lead morbidity, disability and mortality which is caused by bacteria, virus and chemical contamination include preservatives. Foodborne diseases can lead to long-lasting disability and death. Chemical contamination can cause acute poisoning or long-term diseases such as cancer. (WHO, 30 April 2020, <u>https://www.who.int/en/news-room/fact-sheets/detail/food-safety</u>).

Indonesian teachers, students, and parents are in an agreement that health is essential for adolescents. In general, teachers and parents have better understanding about health than students. They all mention that smoking, drugs, alcoholic drink, and unhealthy foods are the main health-risk behavior among adolescents. In terms of unhealthy food consumption, the students often mention that the food preference were their main reasons which include accessibility (available and affordable), tasty, and filling (Kusumawardani, unpublished result). Based on the 2015 Indonesia's Global School-based Health Survey (GSHS) study, 56.2% females students in Indonesia consumed 'fast food' during the past 7 days, and 39.2% males students never/rare/seldom had breakfast during the past 30 days (Ministry of Health, 2015)

Although families are considered as the major source of sociocultural influences on eating behaviours among adolescents, in fact schools' environment can also affect their eating patterns. It includes the way a school is organized, its policies, and its practices. (Gorman, N, 2007) Overweight acquired during childhood or adolescence may persist into adulthood and increase risk later in life for coronary heart disease, diabetes, gallbladder disease, some types of cancer, and osteoarthritis of the weight-bearing joints. Nutritional deficiencies because of food insecurity (protein-energy malnutrition, iron, Vitamin A, and iodine deficiency) affect school participation of the children (Taras H, 2005).

Another study confirmed that schools are well placed to influence the eating behaviours of students. It has potentials to control the types of foods to be provided at school (via canteens and/or school lunches), as well as foods that are brought into the school environment (Cacavas K, 2011). This study applied the "Theory of Planned Behavior (TPB)" to explore adolescents and stakeholder views on food snacking in school (Azjen, 1985)). Therefore, a qualitative study design was applied to investigate detailed description of students' and relates stakeholders' views of snacking food in school.

### **RESEARCH METHOD**

This qualitative study was part of the 2015 Global School-based Health Survey (GSHS). The 2015 GSHS is a collaborative research between the National Institute of Health Research and Development, Ministry of Health of the Republic of Indonesia and US Centres for Disease Control (CDC) as well as World Health Organisation Indonesia Office. The 2015 GSHS Survey aims to provide data on Indonesian students' health risk behaviours and protective factors. The qualitative study was applied to capture information not presented in the survey data such as views, perspectives, and values on snacking food at school.

For this study, two schools from Bandung District, West Java Province and two schools from Makasar City, South Sulawesi Province were selected. We selected schools with the highest number of students in the selected Provinces of the 2015 Global School-based Health Survey (GSHS) in 26 Provinces. The two selected provinces were West Java and South Sulawesi to describe different tradition and cultural perspectives.

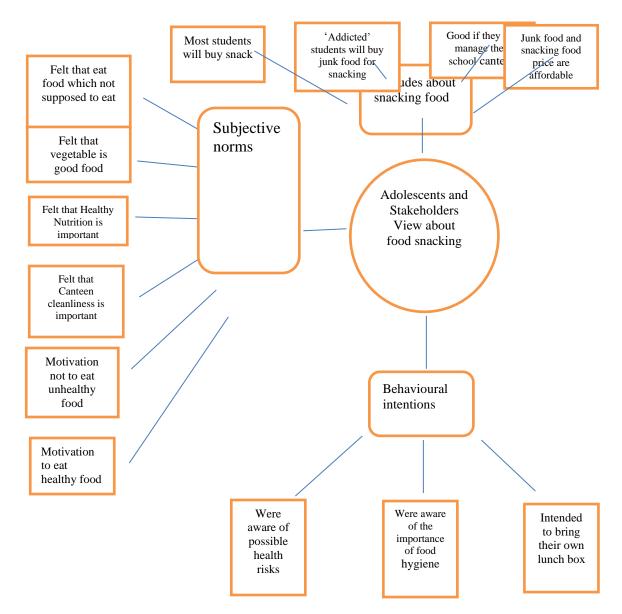
Twenty-nine informants were interviewed and recruited using purposive sampling from four selected schools. They included Parents, School Principal, Students, Teachers, School personnel (non-teachers), Ministry of Education officer, Provincial Health Officer, District Education officer, District Health Officer and primary Health Centre. The in-depth interviews were conducted over two weeks in October 2015 with each interview lasted between 30 and 60 minutes.

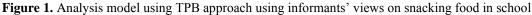
In-depth Interview was applied to explore information from informants and at the same time observations had been conducted to describe the school environment, infrastructure and facilities. Information covered the following aspects such as beliefs and values of health-related behavior; roles of family/parents; roles of school community such as the principal, teacher, staff); roles and function of Primary Health Centre; dietary habit in schools; Sport and physical activity; Smoking; Injury; Needs for better school health program. The observation of school condition (including the canteen) and secondary data collection were also used to be part of data triangulation.

The qualitative data analysis includes data cleaning and management (transcription and coding), data categorizing, data matrix and flow chart, variable identification, and relationship between variables, exploring logic and explanation. The first author transcribed interviewes recordings verbatim. The first author read the transcripts several times to identify potential codes. The authors discussed the codes to identify overaching themes related to food snacking and habit. Additional codes were identified as data queries, including perception of food, eating behaviour, awareness of health risk, the availability and affodability prices of junk food/snacks. All quotes were then encoded and analyzed using thematic analysis. Sub-themes were identified and interpreted accordingly.

Ethical clearance for the qualitative study as part of the 2015 Indonesia GSHS was obtained from the Ethics Committee, National Institute of Health Research and Development (No: LB.02.01/5.2/KE.158/2015), Ministry of Health, Indonesia.

# **RESULT AND ANALYSIS**





### 1.1. Attitudes about Snacking

Most informants in Cianjur and Makassar shared their negative attributes of food snacking at school, including those who bought junk food for snacking:

"Students here really like Cheetos (snack food), instant noodle and soto mie [noodle soup], and the drink is fruity (sugary/soda drink). Because those are sold here [at school's canteen], and we are not allowed to buy from outside and there are also no foods' vendors or stalls outside the school" (Male student, Makassar-MKS)

The students indicated that the prices of those junk foods (such as tofu meatball, instant noodles, Chiki (flavored chips), cimol/cireng (traditional snacks made from tapioca starch) and snacking food) are affordable as stated by informants from Cianjur and Makasar:

"I'm used to eat snacks at break time. Buy bakso tahu [tofu meatball]. The price is only three thousand rupiah" (Male student, Cianjur-CJR)

"Students like to eat noodles, fried noodles, meatballs, and drink Sosro tea which are affordable for them, while almost students like all favored snack" (Male student, MKS)

The negative attributes were mentioned by most students in Cianjur and Makasar who bought snacks from their school canteen. Some students and teachers stated that snacking was good as long as they could manage their own school canteen:

"Some foods which are sold in the canteen are not healthy. For example, the spicy foods like cimol use many ingredients, and we don't know how it was made, and what ingredients are" (Female student, CJR)

"My friends like meatball or something like that, which is put inside plastic and then eat it with ketchup. Without soup. The ingredients are only ketchup and hot sauce" (Female student, CJR)

"It will be better if the canteen can sell ready foods like rice or something like that"

(Male student, CJR)

The findings show that school practices did not always support healthy eating behaviour. One informant from Cianjur explained that foods and snacks in the canteen were often not supposed to be eat due to unhealthy, but there were not any other options of healthy food available as pointed out by an informant in Makasar:

"We have a canteen here, there is meatball with noodle, egg and instant noodle. We know that it is not healthy but we still eat it (\*laugh\*). Yes, there are also spicy. I am not used to it, but others are used to it. For drinks, they usually drink ultra-milk (long life milk)." (Female student, MKS)

Several informants in Makasar also raised their concern about unhealthy food in their school canteen with less healthy food choices in the menu compared to junk food and soda beverages with high sugar.

#### 1.2 Subjective Norms

Relating to subjective norms, the findings suggest the inconsistent views particularly by students on healthy food and snacks. Most participants in Cianjur believed that canteen cleanliness as an important element for healthy food snacking at the school setting:

"In that cafeteria some foods are clean and some are not. As S said there are meat balls (bakso?), anyway. If cleanliness based on S, then it is not clean, I do not know, but there's chicken noodle and S saw directly in that tea there are worms so it's not clean" (Female student, CJR)

In contrast, some canteen managers have argued that their canteen was already clean and complied the school's requirement.

Beside the norms of cleanliness, most students also suggested that nutrition is important, so eating vegetables is important, because vegetables are considered as healthy food. One of the informants in Cianjur suggested

"... good food is rich in vegetables, especially foods which make from home and made by mother. The mother bought it from the market and certainly choose vegetables that good in nutritious balanced., A sample of bad food as I last said is seblak, which is less healthy than deep fried crackers, soo dry and was made half cook...right, so there is a danger content that I ever heard from IPS teacher" (Male student, CJR).

Eating healthy and unhealthy foods snacking in the canteen had been mentioned by several students. Some students had intention not to eat unhealthy foods which were sold in the canteen, so they would bring their own lunch box as illustrated below:

"At the canteen I only buy water because I bring my own lunch. Almost every day I bring it. But if the class finished earlier, then I don't bring my lunch. At the canteen, there are some foods are healthy I think, there are also unhealthy foods such as meatballs, instant noodle, which kids like it because there is no other choice. There is no change of menu" (Female student, MKS)

Despite the fact that some students still chose to eat the food snacking sold in their school canteen, the ingredients and preservatives of snack which students had never knew have also made them felt motivated not to eat unhealthy snacking food as reported by informant in Cianjur:

"I think healthy is if we have regular feeding, enough rest, and not to eat the preservatives foods. Actually, home made snack is better, so we know the ingredients and it is also clean" (Canteen manager, CJR).

Another informant in Cianjur was also mentioned

"There are fried meatballs that we can't control whether the material is healthy ingredients or not" (School Principal, CJR).

The canteen manager and school manager mentioned that no preservatives or dye in their foods' ingredients when they were asked about unhealthy snacking food. Therefore, they made a variation on their foods at school canteen, for example:

"However, if you want a regular sell here, selling the usual foods which kids like, it's should be sterile, and clean like this" (Canteen Manager, CJR),

"the school selects and see what's on sale in the cafeteria" (Canteen Manager, MKS) and

"all foods sold here should be based on the school cafeteria manager, so the school has very important role" (Canteen Manager, MKS).

In relation to the canteen management, some school managers confirmed that they did not use preservatives in preparing the foods in their canteen. Other informants focused on the cleanliness of the school canteen or cafeteria by changing the menu every three months to ensure that students are not getting bored with the menu.

### **1.3 Behavior Intentions**

In regard to possible health risks, a few students in Makassar and Cianjur noted several risks of snacking food which could affect their health. Several students are aware about possible health risks of their food snacking, such as the use of plastics to put the foods, the use of ketchups and hot

sauces which they do not know the ingredients, the use of plenty of oil on friend snaking as illustrated by the following quotes:

"My friends like meatball or something like that. Which put in the plastic then eat with ketchup. Without soup. The ingredients only ketchup and hot sauce" (Female student, CJR),

"The unhealthy food is like junk food. For example, fast food like KFC" (Male student, CJR).

Some students in Makassar and Cianjur also noted:

"..here in the canteen, the most favorite foods are instant noodles and fritter-fried foods, snacks or chips" (Female student, CJR) and

" The most frequently purchased is usually rice, Chicky chips, nuggets, sausages, and meat' (Male student, CJR).

"..the favorite food here is noodle soup" (Male student, MKS)

They are aware of the risk of oily snacks and manufactured snacks (e.g., instant noodles, chips) which may contain of chemical that may affect their health as stated by some students in Makassar:

"it is better to sell healthy foods that are not using oil, which usually use for fried foods, or less use oil, so it's like selling healthy foods that's it" (Female student, MKS).

The canteen manager is already aware of students' opinion about the risk of manufacturers snack food and oily food:

"yes, we sell foods from cassava, yam, all of those foods are manufactured Mam, we already reminded ourselves to reduce manufactured foods" (School teacher, CJR);

"There is a canteen in this school, that does not sell the preservatives foods, mam." (Male student, MKS);

"food/drinks that are sold here are not using preservatives, dyes/food coloring, because we've ever checked and the results are already pass" (Canteen Manager, MKS).

Some canteen managers, school's teachers and students had noted about the importance of foods and canteen hygiene. Personal hygiene, the use of running water, canteen cleanliness are very important part of the canteen for students' health. As mentioned by canteen managers that

"hygiene should be maintained, school should be supervised, should wash their hands and all should be washed under running water" (Canteen Manager, MKS).

Another canteen manager informant said

"foods/drinks here are made by our staff. We had 6 employees, who made them all and all of them had to be hand-washed and food-washed under running water" (Canteen Manager, MKS).

It was supported by another school teacher which stated:

"the school is very concerned to the cleanliness and the security of the canteen, because there are not allowed of outside food sellers at the school" (School teacher, MKS)

While canteen manager noted that cleanliness is important, as they said: "...We manage the cleanliness of our canteen..." (Canteen Manager, MKS)

Some students seemed understand the importance of bring their own lunch box for their school's lunch time. Several students in Makassar and Cianjur mentioned that they would have healthy food if they could bring their own meal from home, it will make they rarely had snacking at school:

"I bring meal, rice and water from home" (Male student, CJR);

"At the canteen I only buy water, because I bring my own lunch. Almost every day I bring it" (female student, MKS);

"...My parents asked me to have breakfast every morning no matter what. My breakfast at 6 am. Sometimes I had porridge and my mother cooked it or buy it from the neighbor. I always have rice and egg for my breakfast" (Female student, CJR)

"...I rarely had breakfast. Only drink energen (a cereal package). Because I have to go to school around 7am in the morning" (Male student, MKS)

Another reason why they bring their own meal box is to raise togetherness among students in Cianjur when they had lunch together as part of connectedness and their social network, as they said

"I always tell my friends whenever I will bring my own lunch. Then we can eat together along with my class friends" (Female student, CJR);

"I rarely snacking because I often bring my own lunch from home or we are eating in 'kopsis' (school café) nearby" (Female student, CJR).

The canteen manager agreed that bring lunch box from home is important for students. She has ever got health education from Food and Drug (BPOM) Officer about the importance of preparing food and meal for our children. This informant stated that

"...there is an explanation from BPOM to school, about how to prepare foods for children. Most children were told to bring their own lunch box from home, like in junior high school 1 Ciparay which have good sanitation, as the Sanitation Ambassador of the national sanitation, yes... well that's there, so they emphasized to bring their lunchbox, and they bring it" (Stakeholder, CJR).

This study identifies key issues representing attitudes, subjective norms and behavior relating to students and school stakeholders' perceptions on food snacking at school such as inadequate knowledge on healthy food, reluctant to eat healthy food and favored junk food because of the price and consumed by most students. School has been identified as an important place for providing and promoting healthy foods to young people (Browne, 2017) Easy access to affordable healthy foods at school is recommended in obesity management strategies. In many countries, have made school-based setting is one of the best buy strategies for improving adolescent's health status. In Indonesia, national policy and strategy of adolescents' health has included a school-based health programs such as food supplement and the *'little doctor'* program for elementary school, health screening for new students, *'Trias UKS', 'PKPR', 'CERDIK at school'* and other health projects that focused on children and adolescent health in school setting. (Kusumawardani, unpublished result).

This study showed that a strong health policy and intervention strategy at the national level is not always followed by adequate practices in the school setting. Challenges from the health sector include monetary constraint, human resources inadequacy, bureaucracy and management

constraints. Similarly, the education sector expressed challenges such as monetary constraints, health capacity, collaboration and technical barriers, as well as health illiteracy.

The literature indicates that food retailers in secondary schools are an important influence on dietary behavior for young people because they are potentially easily accessible by students before and during lunch which also reported by informants in this study (Keane, 2014).

These findings provide insights into how adolescents and relevant stakeholders view of food snacking in the school, within the context of adolescent health problem in Indonesia. The findings may have implications for interventions strategies targeting healthy snacking food behavior among students and other health promotion strategies. The importance of providing healthy food in school canteen, particularly for students' is should be emphasized of this study. Several factors occurred in providing healthy eating, because school practices did not always support healthy eating. This norm is similar with study of Tongan Adolescents in provided unhealthy foods in their school canteen (Cacavas, 2011).

Although students recognized that they should not eat snacking food frequently, but many students still had unhealthy eating behavior. This is occurred because most of them are eating and snacking junk foods every day at school. Interestingly, they often drink a bottle of water and very rarely drink kind of preservatives drinking product, even though they still eat the manufactured foods or snacks which are available at their school canteen. Traditional snacks made from tapioca starch (*aci*) such as *Cimol* (Fried aci), *Seblak* that is made from crackers and noodle and sometimes fried rice are the most common foods that students had been eating or snacking every day at school. Food choices sometimes multifaceted, complex and situational (Patrick, 2005). Students eating behavior may suffer influences from their environment. Easy access, affordability, availability to foods is an influencing factor of the environment.

Traditional snacks like *seblak, cimol* or fritter are the most sold because that's all the most affordable for students. All students get the snacking money from their parents. Part of the strong attitude about snacking food, nearly all students use their pocket money to buy snacks or foods during their school break time to replace their breakfast. The most important reason behind students eating or snacking behavior at school is the affordability of junk foods which are sold in the canteen. It was supported by the canteen manager who commented that the foods' price should be affordable for students, so they can buy snack or eat during the break, because most of the students in Makasar and Cianjur are not having breakfast at home. Reasonable prices were seemed occurred in the context of high demand for snacking foods, sweet snacks and manufactured products which are sold in the school canteen (Fletcher, 2014).

Both areas (Cianjur and Makasar) are selling the traditional unhealthy foods in their school canteens, while water and bottle tea are the most favorites drinks. They are snacking while they had break time because they did not have any breakfast yet before they went to school. Some of them mentioned they don't have any time for breakfast at home. A similar condition of skipping breakfast has been reported among Swedish and Turkish adolescent. Skipping breakfast may lead to risk of obesity and cardio-metabolic health(Musaiger,2011). In one study, Smith et al. (Smith, 2010) found that participants who skipped breakfast in both childhood and adulthood had a larger waist circumference and higher fasting insulin, total cholesterol, and LDL cholesterol concentrations than those who ate breakfast regularly. In addition, regular breakfast intake has a positive association with attention-concentration, memory, and school achievement among school children.

In Indonesia already start developed School feeding program since 1992 as a pilot project. In 2016, the ministry of education and culture launched the Nutritional Program for School Children (PROGRAS), an initiative to increase balanced nutritional intake, improve healthy life behavior and children's learning abilities. School meal in Indonesia start piloted in two provinces and four districts. In 2018, this program reached 100,136 schoolchildren of 632 primary school in 64 districts. The program provides a nutrition breakfast three times a week covering 25% of the recommended daily intake for school-age children, and uses locally-sourced fresh ingredient. (World Food Program, National School Meals Program in Indonesia, Cost-Benefit Analysis, December 2018).

Yessi Octaria et all reported the study of a school-based adolescent nutrition intervention in urban Indonesia. The sites of study are 10 secondary schools in urban city of Bogor. They reported

that one of informant explain about a breakfast program in school. The program held every Friday. A breakfast program aims to encourage students to bring healthy food with vegetables and fruit and protein sources. They breakfast together in school yard or class room. In this session they also encourage to share food each other. This study also reported that in another school difficult to arrange a breakfast program. The key of school nutrition program is collaboration between school, parents and another stakeholder.

Makiko Sekiyama et all, also evaluated school feeding program in Indonesia to measure the impact of PROGAS. The results of analysis found a significant increase in energy and protein intake among PROGRAS (Mekikko Sekiyama et all, school feeding program in Indonesia, Jpn. J. Nutr. Diet., Vol.76 Supplement 1 S86-S97 (2018: doi:10.5264/eiyogakuzashi.76.S86).

Although most students have strong attitudes about snacking food, some students in Makasar and Cianjur are used to bring their own lunch box from home because they have had foods at home before they went to school. The availability of foods that are sold at school canteen may affect the quality and type of food consumed. Those type of foods, particularly if they come from manufactured labels, may lead to excessive consumption which practically no limits on a student's choices. This is an important concern for students whose may lead to poor health outcomes, overweight and obesity (Patrick, 2005; Letona, 2014).

Several studies showed that school canteen sometimes served a large range of high-fat and high sugar foods, which will increase intakes of energy dense and nutrition-poor foods (such as instant noodles, potato chips, sweets, and fast foods) (Misra, 2011; Rathi, 2016). However, as behavioral intentions in this study nearly all students and relates stakeholders were aware of health risk of food, especially the snacking food available or sold at school. They are aware of the preservatives of chemicals things in food or snack, even though the canteen manager mentioned that no preservatives or dye in their ingredients of foods. Therefor they make a variation on their food at school canteen.

Some behavioral intentions like bring their own lunch box, did not trust the food what are sold in the canteen are strong among students in Makasar and Cianjur. Due to raise awareness of health risk in snack or food which sell at canteen, some students intended to bring their own lunch box. They believed that it's important and healthier. Some students did not trust the food that are sold in the canteen, because they thought its stinky from dirty used oil. Another health risk which they believed is that school canteen sells many manufactured foods such as nugget, sausages, meat etc. Furthermore, they were also questioning the process of cooking whether healthy or not healthy. Students' dissatisfaction with school canteen food provision was a recurring theme in this study. The issue of 'unhealthy' food was strongly implicated in this study. Based on theory of planned behavior, student as an individual are much more likely intend to have healthy behaviors if they have positive attitudes about behavior, believe that subjective norms are favorable towards those behavior and believe they are able to perform their behavior correctly like bringing their own lunch box and choose to eat healthy snacking food (Azjen, 1985).

Finally, canteen manager has the important roles in school canteen, especially to prevent the availability of unhealthy snacking food in school canteen. They should select the food which will be sell at the canteen. The canteen manager should have a requirement for the food which will be sell at the canteen. Nearly all students, relates stake holders and school canteen manager had a good awareness of the importance of hygiene in health. Personal hygiene, cleanliness, safety and food hygiene are important in their school canteen. It will be tested and supervised by relevant stakeholders from Ministry of Health or Ministry of Education for the hygiene of school canteen. Training related to the importance of school canteen for canteen manager which held by relates stakeholders is also very important.

Since canteen school has important rule in school health and nutrition, SEAMEO REFCON developed a manual of a healthy canteen which based on 4 pillars: 1) School and management commitment, 2) human resources; 3) facilities and infrastructure; 4) food quality (SEAMEO REFCON, Kantin Sehat Sekolah, https://ngts.seameo-recfon.org/id/kantin-sekolah/).

The school environment (policy, sociocultural, economic, and physical) can play an important role in the encouragement, and provision of healthy food options, especially when healthy nutrition is normative, modelled, and enforced. Schools have the potential to influence students' eating patterns by encouraging and providing healthy food options. Ensuring that students have

access to foods of high nutritional quality sourced either at school or from home, and restricting access to local food outlets that supply generally unhealthy products would be beneficial for students.

Establish practising good food safety and offering healthy food choices in school canteen is a model to show how facilities can be improved in communities. Partnership between parents, schools, organizations and business can be useful for the schools and communities. School have rule In related with Health -Promoting Schools, the WHO emphasized that nutrition can be used as an entry point to build school's capacity plan and implement more health promotion strategies and interventions which will respond to identify the needs and contribution to both health and education (WHO,2016). Once they aware of the importance of students' nutrition as a priority for education and health, followed by planning the intervention. Planning 'healthy nutrition promotion strategies' in school canteen is one of the essential parts of a Health-Promoting School in Makasar and Cianjur

### CONCLUSION

In both locations, students had their own perception about the available foods in school. In term of healthy food, students perceived that vegetable referred as a healthy food, while junk food was assumed as unhealthy food. Students had various definitions of healthy food, whereas some students defined it as food without preservatives things, while the other students mentioned fruit and vegetables are healthy food that should be sell in school canteen. Establishing good food safety practice and offering healthy food choices in school canteen is a model to show how facilities can be improved in communities.

#### Limitations

This study was based on 29 informants using in-depth interviews concerning their views on snacking food at the school setting. The focus of this study was exploring different background of informants which may not necessarily represent the views of relevant stakeholders at the school setting using selected schools from two out of 26 provinces in Indonesia. However, the findings of this qualitative study provide Further studies on a range of relevant stakeholders in different regions of Indonesia may provide more details information including their views on issues related to snacking food at schools.

#### Acknowledgments

The authors acknowledge and remembrance to our beloved friend Nunik Kusumawardani for her encouraging ideas of her GSHS 2015 research who had passed away in 2020. The support of all schools, students, and fellow researchers is gratefully acknowledged. The authors acknowledge the support received from the WHO- Representative to Indonesia and from Indonesian Ministry of Health, particularly the support provided by Centre for Public Health Research and Development, National Institute of Health Research and Development.

#### **Declaration of Conflicting Interests**

The author(s) declared no potential conflicts of interests with respect to the authorship and/or publication of this article.

#### Funding

This project received funding support through sharing budget between Indonesia Ministry of Health and World Health Organization (Reference number: 2015/558219-0).

### References

- Ajzen I (1985). From intentions to actions: A theory of planned behavior. Action control: Springer; p. 11-39.
- Browne S, Staines A, Barron C, Lambert V, Susta D, Sweeney MR.(2017). 'School lunches in the Republic of Ireland: a comparison of the nutritional quality of adolescents' lunches sourced from home or purchased at school or 'out'at local food outlets". Public health nutrition;20(3):504-14.
- Ministry of Health (2015). *Global School based Student Health Survey 2015. Preliminary Report* National Institute of Health Research and Development Ministry of Health Republic of Indonesia.
- Penelitian B, Kesehatan P (2013). *Riskesdas*. Jakarta: Badan Penelitian dan Pengembangan Kesehatan Kementerian Kesehatan RI. 2013;1.
- WHO (2004). "Sexually Transmitted Infections Among Adolescents: The Need for Adequate Health Services." Available from: Available on-line at: <u>http://www.who.int/child-adolescent-health/New Publications/ADH/ISBN 92 4 156288 9.pdf</u>.
- Gorman N, Lackney JA, Rollings K, Huang TTK (2007). "Designer schools: the role of school space and architecture in obesity prevention". Obesity;15(11):2521-30.
- Taras H (2005). "Nutrition and student performance at school". Journal of school health. 75(6):199-213.
- Cacavas K, Mavoa H, Kremer P, Malakellis M, Fotu K, Swinburn B, et al. Tongan (2011). "adolescents' eating patterns: opportunities for intervention". Asia Pacific Journal of Public Health. ;23(1):24-33.
- Ajzen I.(1985) From intentions to actions: A theory of planned behavior. Action control: Springer; p. 11-39.
- Browne S, Staines A, Barron C, Lambert V, Susta D, Sweeney MR. (2017) "School lunches in the Republic of Ireland: a comparison of the nutritional quality of adolescents' lunches sourced from home or purchased at school or 'out'at local food outlets". Public health nutrition. 20(3):504-14.
- Keane E, Kearney PM, Perry IJ, Kelleher CC, Harrington JM (2002). Trends and prevalence of overweight and obesity in primary school aged children in the Republic of Ireland from 2002-2012: a systematic review. BMC public health. 2014;14(1):974.
- Patrick H, Nicklas TA. A review of family and social determinants of children's eating patterns and diet quality. Journal of the American College of Nutrition. 2005;24(2):83-92.
- Fletcher A, Jamal F, Fitzgerald-Yau N, Bonell C. (2014) "'We've got some underground business selling junk food': qualitative evidence of the unintended effects of English school food policies". Sociology. 48(3):500-17.
- Musaiger A, Bader Z, Al-Roomi K, D'Souza R (2011). "Dietary and lifestyle habits amongst adolescents in Bahrain". Food & nutrition research.;55(1):7122.
- Smith KJ, Gall SL, McNaughton SA, Blizzard L, Dwyer T, Venn AJ. (2010) "Skipping breakfast: longitudinal associations with cardiometabolic risk factors in the Childhood Determinants of Adult Health Study". The American journal of clinical nutrition. ;92(6):1316-25.
- Letona P, Chacon V, Roberto C, Barnoya J (2014). "Effects of licensed characters on children's taste and snack preferences in Guatemala, a low/middle income country.". International journal of obesity. ;38(11):1466.
- Misra A, Singhal N, Sivakumar B, Bhagat N, Jaiswal A, Khurana L )2011). "Nutrition transition in India: Secular trends in dietary intake and their relationship to diet-related non-communicable diseases". Journal of diabetes;3(4):278-92.
- Rathi N, Riddell L, Worsley A.)2016) "What influences urban Indian secondary school students' food consumption?–A qualitative study". Appetite.;105:790-7.
- WHO (2016). WHO Information Series on School Health document four. Healthy nutrition: An essential element of a health-promoting school Geneva: WHO, FAO.