

## **Breakfast Habits of Adolescents in Bandung**

**Hurry Mega Insani\*, Lilik Kustiyah, Cesilia Meti Dwiriani**

*Institut Pertanian Bogor, Jl. Raya Dramaga, Babakan, Kec. Dramaga, Bogor, West Java  
16680*

*\* Corresponding Author. E-mail: [huri.mega@gmail.com](mailto:huri.mega@gmail.com) (Hurry Mega Insani)*

---

### **ABSTRACTS**

---

Adolescents have eating behavior problems such as skipping meals, especially breakfast. This behavior can lead to consumption of foods with high fat and sodium content before lunchtime, resulting in obesity in adolescents. In this study, the frequency, time and menu of meals are among the indicators that will be examined by the researcher. This study used a case control design. The research subjects were divided into two treatment groups and one control group. The results showed that more than half of the subjects ate breakfast every day at 6-7 AM in the morning with a menu of rice and side dishes..

---

### **ARTICLE INFO**

---

***Article History:***

*Received April 2020*

*Revised May 2020*

*Accepted May 2020*

*Available online June 2020*

---

***Keywords:***

Adolescents; Breakfast; Eating Habits; Skipping Meals.

## 1. Introduction

Adolescence is a period of increasing independence related to academic performance and economic adequacy as well as physical, emotional and cognitive maturity<sup>(3,7)</sup>. Cobb stated that adolescence is divided into two periods, namely early adolescence with an age range of 11-15 years and late adolescence with an age range of 16-19 years<sup>(4)</sup>. The Ministry of Health of the Republic of Indonesia states that the incidence of overweight with a BMI of 25.1 - 27.0 in urban adolescents aged 13-15 years in West Java Province is 10.63% higher compared to the prevalence of overweight in rural adolescents, which is 9.41%<sup>(11)</sup>.

The incidence of overweight in adolescents can lead to obesity if left untreated. In 2018, the prevalence of obesity in urban adolescents in West Java Province reached 5.25% or 1.5 times higher than the incidence of obesity in rural adolescents<sup>(11)</sup>. The lifestyle of adolescents who usually consume fast food, consumption of foods high in carbohydrates and fat, low physical activity and the habit of skipping breakfast are among the factors that increase the risk of obesity<sup>(13,17)</sup>.

Adolescents often skip breakfast which is closely related to the incidence of obesity, where when adolescents skip breakfast, cause an empty stomach and consumes a lot of food during the day<sup>(1,9,12)</sup>. Irregular eating consumption can increase the incidence of obesity in adolescents.

This study aims to determine the frequency, time and breakfast menu that is usually consumed by adolescents after being given knowledge about the importance of breakfast for adolescents. Knowledge is provided in the form of lectures, websites and pamphlets.

## 2. Literature Review

### 2.1. Adolescents

Adolescents are included into vulnerable group to nutritional problems. Arisman reveal that adolescence is considered to be at a vulnerable group of nutrition due to drastically increased growth, in women, their bodies need preparation for reproductive age, while body growth in men follows two years later so that women reach puberty levels and maturity before men<sup>(2)</sup>. There are three reasons why adolescents are categorized as vulnerable to nutrition, namely (1) Accelerated growth and development of the body requires more energy and nutrients. (2) Changes in lifestyle and food habits require adjustment of energy and nutrient input. (3) Pregnancy, participation in sports, alcohol and drug addiction, increases the need for energy and nutrients, in addition to that not a few adolescents who eat excessively and eventually become obese<sup>(2)</sup>.

Mahan stated the health and nutritional status of adolescents is influenced by the satisfaction of body size, body shape and body image (mental self-concept and perception of one's own body size) which results from the rapid growth and development of the body that occurs which can lead to diet and regular eating behavior<sup>(15)</sup>. This is related to the body image of adolescents. A study shows that adolescents are less satisfied with their body image, especially young women and overweight and obese adolescents<sup>(14)</sup>. Teenage boys in China get pressure on their muscles and gain weight while young women get pressure from the media demanding for they have to lose weight<sup>(19)</sup>.

This causes the government to often organize programs to increase healthy consumption patterns in adolescents to reduce the prevalence of nutritional problems such

as overweight and obesity. One of them is by conducting counseling related to Balanced Nutrition Message.

## 2.2. Breakfast

Good nutritional content in food is necessary for growth and development, health and well-being of each individual, the relationship between nutrition and health involves many components related to food <sup>(6)</sup>. The Ministry of Health of the Republic of Indonesia in Balanced Nutrition Message number 6 recommends that each individual has to get used having breakfast. Breakfast is an activity of eating and drinking which is carried out between waking up in the morning to 9 o'clock to fulfill part of the daily nutritional needs (15-30% of nutritional needs) in order to create a healthy body, active and productive life. For school children, having an adequate breakfast is proven to increase learning concentration and stamina <sup>(10)</sup>. Breakfast can also prevent obesity due to excessive consumption of snacks at lunch time.

The problem of eating behavior experienced by adolescents is passing their meal time, especially breakfast <sup>(9,15,18)</sup>. When adolescents do not eat breakfast, they will feel hungry and consume snacks before lunch which contain lots of high fat, added sweeteners, and sodium which can increase overweight and obesity<sup>(15)</sup>.

## 3. Materials and Methods

This study used a quantitative descriptive method with a case control design. The study was conducted in Bandung and three high schools were selected, namely SMAN 15 Bandung, SMA Pasundan 2 Bandung and SMA Pasundan 8 Bandung which were divided into two treatment groups, namely the lecture group and the website group and one control group. The research was conducted in September 2018 and has received ethical approval from the Research Ethics Commission involving Human Subjects, Bogor Agricultural University No. 040 / IT3.KEPMSM-IPB / SK / 2018.

Subjects are determined using the minimum number of research samples of 30 people who can represent the study population <sup>(5)</sup>. Thus, for the three research samples groups a minimum sample size of 90 people is required.

Breakfast data and subject characteristics were collected by giving questionnaires to research subjects. After the questionnaire was filled in by the subject, the research subjects were given education regarding the importance of breakfast and the consequences of skipping breakfast. In the lecture group, nutrition education was given interpersonal and then given a small quiz after the nutrition education was given. In the website group, research subjects were asked to read the material that has been provided on the [ipbnutriteen.ipb.ac.id](http://ipbnutriteen.ipb.ac.id) website. in the control group, subjects were given leaflets to read.

The data obtained were processed and analyzed using Microsoft Excel 2010 and SPSS 16.0 software.

#### 4. Results and Discussion

Table 1 Distribution of subjects based on frequency, time and breakfast menu

Variable	Lectur	Website	Control	Total
	n (%)	n (%)	n (%)	n (%)
<b>Breakfast frequency in a week</b>				
Never	2 (6.1)	2 (6.1)	0 (0.0)	4 (4.0)
1-2 times	4 (12.0)	1 (3.0)	5 (14.3)	10 (9.9)
3-4 times	6 (18.2)	10 (30.3)	9 (25.7)	25 (24.8)
5-6 times	2 (6.1)	4 (12.1)	6 (17.1)	12 (11.9)
Everyday	19 (57.6)	16 (48.5)	15 (42.9)	50 (49.4)
<b>Breakfast time</b>				
6.00 - 7.00 AM	20 (60.6)	27 (81.8)	30 (85.7)	77 (76.2)
8.00 - 9.00 AM	5 (15.1)	1 (3.0)	2 (5.7)	8 (7.9)
9.00 - 9.15 AM	6 (18.2)	3 (9.1)	3 (8.6)	12 (11.9)
No breakfast	2 (6.1)	2 (6.1)	0 (0.0)	4 (4.0)
<b>Breakfast menu</b>				
Rice, vegetables, side dishes, fruits	1 (3.0)	0 (0.0)	3 (8.6)	4 (4.0)
Rice, vegetables, milk	4 (12.1)	1 (3.0)	1 (2.9)	6 (5.9)
Rice, vegetables, side dishes	10 (30.3)	16 (48.5)	9 (25.7)	35 (34.7)
Rice and side dishes	15 (45.5)	13 (39.4)	19 (54.3)	47 (46.5)
Bread and jam	3 (9.1)	3 (9.1)	3 (8.6)	9 (8.9)

Table 1 shows that more than half of the subjects did not eat breakfast every day. Kurdanti et al in their research suggested that adolescents who do not eat breakfast have a higher risk of obesity<sup>(13)</sup>. This is due to adolescents consuming more unhealthy snacks that are high in sodium and fat to fill their empty stomach in the morning.

The Ministry of Health recommends consuming breakfast at most at 9 am<sup>(10)</sup>. In accordance with the table above, it is known that almost all subjects eat breakfast at 6-7 in the morning. This suggests that most of the subjects know the importance of breakfast. However, in the lecture group and on the website there are 4 subjects who never eat breakfast which can be influenced by various factors, especially family and economic factors. Nutritional knowledge, availability of breakfast and mother's education level can affect meal skipping, especially for young women<sup>(8)</sup>.

About two-thirds of the subject's family prepared breakfast for the subject every day with most of the breakfast menu in the form of rice and side dishes in the subject of the lecture group (45.5%) and control (54.3%) as well as rice, vegetables and side dishes on the subject of the website group. The income and recent education of the subject's parents can be one of the factors that influence the type of menu availability. Silva et al stated that the factors that influence adolescent food consumption include income and the number of families of adolescents<sup>(16)</sup>. The average income of parents in the website group is greater than that of the lecture and control group and the last education of the parents of the website group is university, so that the menu served is more extensive and varied.

## 5. Conclusions

Subjects can practice the recommended breakfast consumption before 9 am according to the recommendation of the Ministry of Health of the Republic of Indonesia. Almost half of the subjects of the lecture and control groups are rice and side dishes, while the website group is rice, vegetables and side dishes. The food menu can be influenced by the income of the parents, where the income of the website group parents is higher than the lecture and control groups.

## 6. Acknowledgment

We would like to express my gratitude to the parties involved, namely parties from SMAN 15 Bandung, SMA Pasundan 2 Bandung and SMA Pasundan 8 Bandung.

## 7. References

- <sup>1</sup>Agusanty SF, Kandarina I, Gunawan IMA. 2014. Faktor risiko sarapan pagi dan makanan selingan terhadap kejadian overweight pada remaja sekolah menengah atas, *Jurnal Gizi Klinik Indonesia*, 10 (3): 139-149.
- <sup>2</sup>Arisman. 2003. *Buku Ajar Gizi dalam Daur Kehidupan*. Jakarta (ID): Penerbit Buku Kedokteran EGC.
- <sup>3</sup>Brown J E. 2011. *Nutrition Through The Life Cycle*. Wadsworth (US): Cengage Learning.
- <sup>4</sup>Cobb N J. 2001. *Adolescence Continuity, Change, and Diversity*. United State of America (US): Mayfield Publising Company.
- <sup>5</sup>Cohen L, Manion L, dan Morrison K. 2007. *Research Methods in Education*. New York (USA): Routledge.
- <sup>6</sup>Contento I R. 2011. *Nutrition Education*. Mississauga, Ontario (CA): Jones and Bartlett Publishers.
- <sup>7</sup>Edelstein S. 2015. *Life Cycle Nutrition, An Evidence-Based Approach, Second Edition*. Wall Street, Burington (AS): Jones and Bartlett Learning.
- <sup>8</sup>Hermina, Nofitasari A, Anggorodi R. 2009. Faktor-Faktor yang Memengaruhi Kebiasaan Makan Pagi pada Remaja Putri di Sekolah Menengah Pertama (SMP), *Puslitbang Gizi dan Makanan*, 32 (2): 94-100.
- <sup>9</sup>Junior IFF, Christofaro DGD, Codogno JS, Monteiro PA, Silveira LS, Fernandes RA. 2012. The Association between Skipping Breakfast and Biochemical Variables in Sedentary Obese Children and Adolescents, *The Journal of Pediatrics*, 161(87): 1-4. Doi: <http://dx.doi.org/10.1016/j.jpeds.2012.04.055>
- <sup>10</sup>Kementerian Kesehatan RI. 2014. *Pedoman Gizi Seimbang*. Jakarta (ID): Kementerian Kesehatan Republik Indonesia.
- <sup>11</sup>Kementerian Kesehatan RI. 2018. *Riset Kesehatan Dasar 2018*. Jakarta (ID): Kementerian Kesehatan Republik Indonesia.
- <sup>12</sup>Kral TVE, Whiteford LM, Heo M, Faith MF. 2011. Effects of eating breakfast compared with skipping breakfast on ratings of appetite and intake at subsequent meals in 8- to 10-y-old children. *The American Journal of Clinical Nutrition*, 2011(93): 284-291. doi: <https://doi.org/10.3945/ajcn.110.000505>
- <sup>13</sup>Kurdanti W, Suryani I, Syamsiatun NH, Siwi LP, Adityanti MM, Mustikaningsih D, Sholihah KS. 2015. Faktor-faktor yang mempengaruhi kejadian obesitas pada remaja,

- Jurnal Gizi Klinik Indonesia, 11 (4): 179-190. doi: <https://doi.org/10.22146/ijcn.22900>
- <sup>14</sup>Latiff A, Muhamad J, Rahman R. 2017. Body image dissatisfaction and its determinants among young primary-school adolescents. *Journal of Taibah University Medical Sciences*, 13(1): 34-41.
- <sup>15</sup>Mahan L K, Raymond JL. 2017. *Krause's Food and the Nutrition Process, Fourteen Edition*. St. Louis, Missouri [AS] : Elsevier.
- <sup>16</sup>Silva FA, Candiá SM, Pequeno MS, Sartorelli DS, Mendes LL, Oliveira RMS, Netto MP, Cândido APC. 2016. Daily meal frequency and associated variables in children and adolescents, *Sociedade Brasileira de Pediatria*, 2017 (93): 79 - 86. doi: <http://dx.doi.org/10.1016/j.jped.2016.04.008>.
- <sup>17</sup>Telisa I, Hartati Y, Haripamilu H. 2020. Faktor risiko terjadinya obesitas pada remaja SMA, *Faletehan Health Journal*, 7 (3): 124-131
- <sup>18</sup>Truswell A S. 2001. *ABC of Nutrition*. London (UK): British Library Cataloguing in Publication Data.
- <sup>19</sup>Xu X, Mellor D, Kiehne M, Ricciardelli L, McCabe MP, Xu Y. 2010. Body dissatisfaction, engagement in body change behaviors and sociocultural influences on body image among Chinese adolescents, *Elsevier: Body Image*, 7 (2010): 156–164. doi:10.1016/j.bodyim.2009.11.003