



Education Program B2SA Goes to School of Knowledge Level and Habit Bring Meal

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Abstract

Background: The food consumption pattern of the community including school children until now still shows a tendency of less diversity in terms of food types and nutritional balance. This B2SA (*Beragam, Bergizi, Seimbang, Aman*) food consumption pattern functions to direct food utilization patterns to meet the standards of quality, diversity, nutritional content, safety and halal, in addition to efficiency to prevent waste in daily household expenses. Objective: To determine the effect of education about B2SA Goes To School on knowledge level and habits bring meal boxes in 7th grade students at SMP Negeri 1 Magelang City. Method: Quasi Experiment design, the research design used is quantitative with one group pre posttest without control, a population of 256 class VII students, a sample of 152 students with purpose sampling, the instrument uses a pre and post questionnaire on B2SA knowledge and habits bring meal boxes. Bivariate analysis using the non-parametric Wilcoxon test. Results: There is a significant difference between knowledge level pre-intervention and post-intervention as shown in the Wilcoxon analysis with a significance result of p-value = 0.000 (0.05) meaning that there is a significant influence of education about B2SA Goes To School on increasing student knowledge and regarding the influence of education about B2SA Goes To School on the habit of bringing food, a significance value of p-value = 0.000 was found, which means that there is a significant difference in the habit of bringing supplies before and after education about B2SA Goes To School. Conclusion: There is an influence between education about B2SA Goes To School on the habit of bringing food and the habit of bringing school supplies at SMP Negeri I Kota Magelang

Keywords: B2SA, Meal Supplies, Knowledge Level, Class VII.

1. INTRODUCTION

Nutritional problems in children have entered two phases, namely the problem of undernutrition that still needs to be overcome, plus the discovery of overnutrition problems, namely obesity which can occur not only in adulthood but also in children (Fadilah and Sefrina, 2022). Childhood is increasingly the center of government attention regarding various problems that afflict the nation's next generation, one of the main children's problems is about child nutrition. Low child nutrition, the number of children with stunting status and have been affected by severe diseases from an early age have made the central and regional governments look for solutions so that the nutrition and health of Indonesian children are maintained and children grow up healthy (Inten and Permatasari, 2019).

Poor nutritional intake that can result in malnutrition by maintaining a diet and choosing foods rich in nutrients so as not to experience malnutrition (Ministry of Health, 2017). School children, especially Junior High School (SMP), mostly consume non-nutritious food, some do not eat breakfast first and eat irregularly before leaving for school. School children like to snack in the canteen and consume more oily foods such as fried foods,

sausages and snacks which result in excess fat intake, and also still consume fast food so that it makes obesity (Widnatusifah, 2020).

The prevalence of nutritional status based on Body Mass Index (BMI) in junior high school children aged 13-15 years in Indonesia was obtained in the categories of nutritional status very thin 1.7%, thin 6.1%, overweight or obese 12%, and obesity 4.9%. Nutritional problems experienced by adolescents, especially junior high school students, are more and less nutritional status that is influenced by food consumption (Rachmayani et al., 2018).

One of the government's programs to overcome nutrition and children's health problems is by encouraging activities to bring provisions to school. The activity is in accordance with the Regulation of the Minister of National Education (Permendiknas) No. 39 of 2008 concerning Student Development, in article 3 it is stated that student development materials include physical quality, health, and nutrition based on diversified sources of nutrition, even since 2013, the government launched National Provision Day which is commemorated every April 12 with the aim of raising awareness of the importance of Indonesian children's health, especially nutrition and hygiene from the child's food (Nurcandrani et al., 2023).

The food consumption pattern of the community, including school children, still shows a tendency to lack diversity in the type of food and its nutritional balance (B2SA). This B2SA food consumption pattern serves to direct the pattern of food utilization to meet the rules of quality, diversity, nutritional content, safety and halal, in addition to efficiency to prevent waste in daily household expenses. This B2SA food consumption pattern also directs that the use of food in the body (*food utility*) can be optimized, by increasing awareness of the importance of diverse consumption patterns with balanced nutrition including energy, protein, vitamins and minerals and safe (Ndoen et al., 2023).

Nutritional status is a condition of the body where the body is influenced by nutrients consumed through food, can affect human resources which are very closely related to intelligence, creativity, and productivity (Wahyuni et al, 2024). A very wide impact will occur if this nutritional problem continues, in stunting children will experience disturbances in body and brain growth due to malnutrition for a long period of time, slow thinking and growing shorter than children of their age, this impact can affect the quality and intelligence of children in the future. The long-term impact is that children's growth and development are disrupted physically, mentally, and intellectually, have low immunity, disrupted work productivity, and are at risk of suffering from non-communicable diseases (NCDs) such as high blood pressure, diabetes, coronary heart, stroke, and cancer (Timur, 2024).

Nutrition problems are very complex problems that occur in the life cycle and must be overcome immediately because nutritional problems can arise at all ages from the womb, toddlers, school children, adolescents, to the elderly (Normaisa, 2021). Governments around the world are committed to eliminating the number of malnutrition problems in every age group through the Sustainable Development Goals (SDGs). One of the main nutritional problems that can threaten and impact human economic and social life is stunting, in addition, obesity is a nutritional problem that can have an impact on future health and become a health problem in the world (Triatmaja et al., 2018).

Nutritional problems can be caused by two factors, namely direct factors, namely the incompatibility of the amount of nutrition that the body gets with its proper needs. One of the indirect factors that can cause nutritional problems is the knowledge and attitude of school children. Lack of knowledge about B2SA nutritional needs in school children based on rules and quality varieties, nutritional content/nutrients, various types, and food safety (Winengsih, 2022). The results of the research by Maharani et al. (2019) found that there is a very significant influence of knowledge on children's nutritional status, lack of knowledge about nutritious foods can have an impact on choosing the wrong food and containing low nutrients in the food will cause nutritional problems characterized by poor and poor nutritional status of children.

In the past, bringing provisions to school was synonymous with only kindergarten students, but now bringing provisions to school is also carried out by elementary and junior high school students as part of character education as well as so that children's health and nutrition are well maintained. Bringing food to school turns out to have many benefits for children's health and growth. The benefits of bringing children to school are healthier and more hygienic food, varied food, increasing energy and increasing children's concentration, maximizing rest time and being more economical, but not all school children understand and know about what intake should be able to be a food provision, so education is needed (Pratama et al., 2020).

Guidelines for healthy food for children based on food diversification are efforts to increase the availability and consumption of food that is diverse, nutritious, balanced, and based on the potential of local resources, the term Food B2SA (*Beragam, Bergizi, Seimbang, Aman*). Diverse food means that there are various types of food, both animal and plant, as a source of carbohydrates, proteins, vitamins and minerals. The food consumed must be of various types because each food has a different nutritional content so that our nutritional needs can be met. Nutritious means that it contains macro and micronutrients needed by the

body. Balanced means that it is consumed in sufficient accordance with the needs of each individual while still paying attention to the proportions according to the contents of my plate. Safe means that it must be free from physical, chemical, and microbiological contamination so that the food processing and storage process must be carried out properly (Kurniawan et al., 2023).

Efforts to increase the diversity of food consumption are carried out through promoting the diversification of food consumption, increasing public knowledge and awareness to consume a variety of foods with the principle of balanced nutrition, improving skills in the development of local processed foods, developing and disseminating appropriate technologies for local food processing. The promotion of food diversity is carried out by various methods through various media, both print, electronic, social media, and outdoor media. In addition, promotion can be carried out through direct communication, such as movements, campaigns, exhibitions, pilot projects or pilot facilities, and others (Winingsih et al., 2020).

Good eating habits taught from an early age will continue into adulthood. One of the points is that school children are obliged to bring food and drinks from home to school as a provision for children, of course, giving their own confidence that the cleanliness of student food is guaranteed. Bringing lunch to school allows school friends to be able to control children's nutritional intake in the midst of the rise of instant food and unhealthy snacks. Bringing lunch to school can reduce the consumption of sodium, sugar, fat, as well as preservatives and dyes that are commonly found in children's snacks (Kurniawan, 2023).

Consumption of quality food is very important to support the growth and development of a healthy, active, intelligent and productive body. The quality of consumption is influenced by the diversity of food types consumed, the more diverse the types of food consumed, the easier it is for the body to obtain various other nutrients that are beneficial to health. In order to increase public knowledge of the importance of diverse, nutritious, balanced and safe food consumption (B2SA) and encourage and increase community creativity in developing or creating B2SA menus (Laswati, 2022).

A preliminary study conducted in September 2024 obtained data that most of the grade VII students of SMPN 1 Magelang City did not know about nutrition with the concept of B2SA, only understood about balanced nutrition and the contents of my plate. The results of the interview with the homeroom teacher from Class VII E conveyed that many students did not bring provisions, some students were thin and obese, this indicates that there are still nutritional problems in school children at SMPN 1 Magelang City.

The purpose of writing this scientific article is to find out the influence of education on knowledge level and habits bring meal at SMP N 1 Magelang City.

2. METHOD

This study uses a Quasi Experimental design, the research design used is quantitative with one group pre posttest without control, because in this study there is no comparison group (control). The population of this study is 256 students. The sampling technique used purposive sampling. The sample in this study was calculated using a <https://www.openepi.com/SampleSize/SSMean.html> application with a Confidence Interval (CI) of 95% obtained by a total of 152 students.

The measuring tool for knowledge about B2SA is in the form of a questionnaire adapted and modified from the instrument used by Astuti (2024). This questionnaire consists of 20 statements arranged in a true and false format. The implementation of the research was carried out from September-December 2024. Located in the hall of SMP N I Magelang.

Independent variable: education about B2SA (Nominal Scale) and the two bound variables, namely knowledge level (Ratio Scale) and habit bring food (Nominal Scale). Univariate analysis depends on the type of data, for numerical data the mean or average, median, and standard deviation values are used and before the hypothesis test is carried out, the researcher conducts a normality test using the Kolmogorov-Smirnov test to determine the type of hypothesis test used, a value of $p < 0.05$ is obtained, then the data is abnormally distributed and the hypothesis test used is the non-parametric Wilcoxon test.

3. RESULTS AND DISCUSSION

This research was carried out during September-December 2024 at SMP N I Magelang with a total of 152 respondents. The results of univariate and bivariate analysis were obtained as follows.

a. Research Results

Table 1. Distribution of Respondent Frequencies in Class VII of SMP Negeri I Magelang

It	Respondent characteristics	Frequency (n)	Percentage (%)
Student Characteristics			
A	Gender		
1	Man	61	40.1
2	Woman	91	59.9
Sum		152	100

Based on table 1, it is known that of the 152 students, it can be known that the gender at SMP N 1 Magelang City is almost entirely female as many as 91 students (59.9%) and in the male category as many as 61 students (40.1%).

Table 2. Overview of Age, Height and Weight of Grade VII Students of SMP N 1 Magelang City Magelang City

Variable	n	Value					
		Mean	Median	Mode	SD	Min	Max
Age	152	12,30	12	15	0,52	11,00	13,00
Height	152	153,98	155	155	7,86	130	173
Weight	152	44,47	44	40	9,46	25	85

Source : Primary Data

Based on table 2, it can be seen that the average age is 12.30 years, the median age is 12 years, the age that often appears is 15 years, the lowest age is 11 years and the highest age is 13 years. The average height is 153.98 centimeters, the median value of height is 155 centimeters, the height that often appears is 155 centimeters, the lowest height is 130 centimeters and the highest height is 173 centimeters. The average body weight is 44.47 kilograms, the median weight is 44 kilograms, the weight that often appears is 40 kilograms, the lowest weight is 25 kilograms and the highest weight is 85 kilograms.

Table 3. Overview of IMT Students of Grade VII Junior High School N 1 Magelang City, Magelang City

No	Variable	Category	N	%
1	Gender	Man	61	40,1
		Woman	91	59,9
2	Body Mass Index	Thin	81	53,3
		Usual	65	42,8
		Fat	6	3,9

Source : Primary Data

Based on table 3, the characteristics of the body mass index were more than half, 81 students (53.3%) in the thin category, 65 students (42.8%) in the normal category, and 6 students (3.9%) in the obese category.

Table 4. Overview of Knowledge Level Before and After Being Given Educational Actions about B2SA Goes To School Class VII SMP 1 Magelang

Variable	Category	Group			
		Pre Test		Post test	
		N	%	N	%
Knowledge	Less	36	23,7	23	15,1
	Enough	98	64,5	97	63,8
	Good	18	11,8	32	21,1
	TOTAL	152	100	152	100

Source : Primary Data

Based on table 4, it is known that for an overview of knowledge level before the educational intervention about *B2SA Goes To School*, more than half of the respondents in the adequate category were 98 children (64.5%), in the poor category 35 children (23.7%) and in the good category as many as 18 respondents (11.8%). The overview of knowledge level after educational interventions about *B2SA Goes To School* was more than half in the adequate category with a total of 97 children (63.8%), in the good category as many as 32 children (21.1%) and in the poor category as many as 23 respondents (15.1%).

Table 5. Overview of habit bring meal before and after being educated about *B2SA Goes To School* at SMP N 1 Magelang City

Variable	Category	Group			
		Pre Test		Post test	
		N	%	N	%
Habit Bring Meal	Not	12	7,9	4	2,6
	Sometimes	55	36,2	31	20,4
	Yes	85	55,9	117	77,0
	TOTAL	152	100	152	100

Source : Primary Data

Based on table 5, it is known that for an overview of habit bring meal before the educational intervention about *B2SA Goes To School*, more than half of them were in the yes category with 85 children (55.9%), in the sometimes category as many as 55 children (36.2%) and in the not category there were 12 respondents (7.9%). The description of habit bring meal after educational interventions about *B2SA Goes To School* was almost entirely in the yes category with a total of 117 children (77.0%), in the occasional category as many as 31 children (20.4%) and in the no category as many as 4 respondents (2.6%).

Table 6. Wilcoxon Test on the Effect of Education on *B2SA Goes To School* on Knowledge Level of Grade VII Students at SMP Negeri 1 Magelang City (N:152)

Variable	Treatment	N	Means	SD	Median (Minimum-Maximum)	p-value
Knowledge Level	Pre test	152	65,09	10,38	65 (40-95)	0,000
	Post test	152	69,04	11,51	70 (35-100)	
	Difference		3,95			

Source : Primary Data

From the results of the analysis of the Wilcoxon test above, it was concluded that the average level of pre-intervention knowledge received a score of 65.09 and entered the category of sufficient knowledge level, while the average level of post-intervention knowledge received a score of 69.04 and entered the category of sufficient knowledge level. Between pre-intervention and post-intervention, there was a difference (*mean*

defference) of 3.95 in the increase in knowledge level. The results of the analysis showed that there was a significant difference between the level of pre-intervention and post-intervention knowledge as shown in the *Wilcoxon analysis* with a significance result of $p\text{-value} = 0.000(0.05)$. Although both are in the sufficient category, the difference shown between before and after the action is very significant, and the knowledge score has also experienced a significant increase. In conclusion, there is a significant influence of education about B2SA Goes To School on the improvement of knowledge.

Table 7. Daytime Tabulation of *Wilcoxon Test*
The Effect of Education on B2SA Goes To School on Habit Bring Meal to Grade VII
Students at SMP Negeri 1 Magelang City

Students at SMN Negeri 1 Magelang City									
Pre	Post								p-value
	Not		Sometimes		Yes		Total		
	N	%	N	%	N	%	N	%	
Not	3	25,0	1	8,3	8	66,7	12	100	0,000
Sometimes	0	0	21	38,2	34	61,8	55	100	
Yes	1	1,2	9	10,6	75	88,2	85	100	
Total	4	2,6	31	20,4	117	77,0	152	100	

From the results of the cross-tabulation analysis above, it can be seen that habit of bringing food before being given education in the category of not a total of 12 students, after being given education, it can be known that more than half of the 8 people (66.7%) have habit bring meal to yes. Habit bring meal before being educated in the category sometimes as many as 55 students, after being educated it can be known that more than half of the 34 people (61.8%) have habit bring meal to yes. Furthermore, habit bring meal before being given education in the yes category is 85 students, after being given education, it can be known that almost all 75 people (88.2%) have habit bring meal to yes. A statistical test using *Wilcoxon* regarding the influence of education about B2SA Goes To School on habit bring meal was found to have a significance value of $p\text{-value} = 0.000$ which means that there was a significant difference in habit bring meal before and after providing education about B2SA Goes To School.

b. Characteristics of respondents in grade VII of SMP Negeri I Magelang

The characteristics of gender repondents in SMP N 1 Magelang City are mostly female, amounting to 91 students (59.9%). In many cultures, including in Indonesia, women are often considered to be more involved in domestic affairs, including in terms of preparing food. This has formed a mindset that women care more and play a greater role in maintaining a healthy diet for themselves and their families. Therefore, **female** students may be more quick to receive and implement education about healthy eating (B2SA)

compared to male students, who tend to be less involved in activities related to food management (Suprpto, D, et al, 2020).

More female students involved in the *B2SA Goes To School* program can influence the diet of students' peers. When female students have a higher level of knowledge and start bringing healthy provisions, students can influence their fellow students (both girls and boys) to follow the same habits. Peers have an important role in forming social habits, and if most female students bring healthy meals, male students may be more encouraged to follow these habits, even if students are not very interested at first (Lestari A, 2019).

The age of the respondents in this study was 12-15 years old. This age is included in the category of early adolescence (11-14 years) and middle adolescent (15-17 years old) (Irianto, 2014). Typical characteristics of adolescents at this age (13-16 years old) include Physical changes at this age, namely adolescents at this age experience rapid body growth, such as changes in height, the formation of muscle mass in men, as well as changes in body shape in women, such as breast and menstrual development and begin to think more abstract and logical, able to consider the consequences of students' actions, even though they are sometimes still impulsive (Ngastiyah, 2023).

The results of this study were obtained by the most respondents were early adolescents, which was 12.30 years old. The characteristic of children in early adolescence is that there are emotional changes, namely adolescents often experience drastic mood swings, with feelings of anxiety, confusion, or even higher stress, more susceptible to intense feelings, both positive and negative, due to increased hormones. There is an identity search, namely adolescents are very attentive to the opinions of their peers and tend to explore various self-identities, both in terms of interests, appearance, and personality. Students can feel anxious about how others perceive students and social development, namely relationships with peers are very important. Adolescents are starting to prioritize friendship and social relationships outside the family. Conflicts with parents or family can also occur more frequently, because students strive to be more independent (Ngatiah, 2023).

Respondents with normal BMI indicated that students had a balanced nutritional status, which is usually associated with more regular and healthy eating habits. This could be because at the age of 12, many students begin to be taught about the importance of maintaining a healthy body, both through the right diet and sufficient physical activity. B2SA as part of nutrition education in schools, encourages students to continue to

maintain nutritional balance in students' diets, which may contribute to normal BMI. Students with a normal BMI are more likely to follow the principles taught in the B2SA program, such as the importance of consuming foods with diverse and balanced nutrition. Students tend to have a better understanding of healthy eating patterns and are more committed to implementing them in their daily lives, including in the habit of bringing nutritious meals (Sha'Bani and Sumarmi, 2016).

c. Analysis of Knowledge Level Before and After Educational Actions on B2SA “Goes To School”

The results of the analysis showed that there was a significant difference between the level of pre-intervention and post-intervention knowledge as shown in the *Wilcoxon analysis* with the significance result of $p\text{-value} = 0.000 (0.05)$. The age characteristics of the majority of 12 years old allow students to understand well the basic concepts in B2SA education, such as the importance of consuming various types of nutritious foods. At this age, students already have a basic knowledge of the importance of nutrition in food, and educational programs such as *B2SA Goes To School* can deepen that knowledge, providing students with more information on how to choose healthy foods.

This study shows that by participating in this educational program, students who are 12 years old can increase students' knowledge about the benefits of diversity and nutritional balance in food. This has a direct impact on changes in students' eating habits, where students are more likely to bring healthier and more nutritious provisions (Lestari A, 2021).

The B2SA “Goes To School” program is designed to increase students' knowledge of healthy and nutritious eating, by emphasizing four key principles namely Diverse, Nutritious, Balanced, and Safe. This program aims to educate students about the importance of the diversity of food consumed by students and how to choose nutritious foods to support the health of students' bodies.

Before being educated about *B2SA Goes To School*, most students tend to have limited knowledge about the principles of balanced nutrition and food diversity. Some students may have heard about the importance of eating a healthy diet, but students' understanding is usually limited to more general concepts such as the importance of eating rice or avoiding fast food. In this phase, students may not fully understand the relationship between the foods they consume and long-term body health, such as the importance of consuming various types of vegetables and fruits, as well as foods that contain balanced nutrition (carbohydrates, proteins, healthy fats, vitamins, and minerals). In addition,

students may also lack knowledge of aspects of food safety, such as proper processing methods to maintain the quality and safety of foodstuffs (Asmarudin et al., 2018).

After participating in the B2SA “Goes To School” education program, there was a significant increase in knowledge level of grade VII students of SMP N 1 Magelang about healthy eating, namely students became more aware of the diversity of foods, students became more aware of the importance of consuming various types of food that came from different food groups. Students now know that a healthy diet includes carbohydrates, protein, healthy fats, and vegetables and fruits. There is an increase in awareness of nutritional balance, students become better able to explain why it is important to maintain a balance in nutritional intake, choose safe food and choose nutritious food more often and bring healthy provisions to school, in accordance with the principles of B2SA (Fadilah R, 2021).

d. Analysis of Habit Bring Meal Before and After Being Given Educational Actions about B2SA Goes To School

A statistical test using Wilcoxon regarding the influence of education about B2SA Goes To School on habit bring meal was found to have a significance value of $p\text{-value} = 0.000$ which means that there was a significant difference in the habit bring meal before and after providing education about B2SA Goes To School.

Before being educated about B2SA “Goes To School”, many students whose habit of bringing provisions to school did not fully reflect the principles of B2SA. Students' eating habits tend to be influenced by factors such as personal preferences, limited knowledge about healthy eating patterns, and ease of access to fast food or non-nutritious foods.

Some of the habits that may have existed before this education include bringing provisions that are less varied, many students bring food that is limited to one type of food, such as rice with simple side dishes, or only bring light snacks that are less nutritious. Lack of understanding of balanced nutrition so that students may not know or pay attention to the importance of including all food groups in their meals, such as carbohydrates, proteins, healthy fats, vegetables, and fruits, and dependence on ready-to-eat foods because most students prefer to buy meals outside of school or bring unhealthy provisions, such as light snacks, sugary drinks, etc or unbalanced fast food.

After participating in education about B2SA “Goes To School”, there was a significant change in the habit of bringing school lunches. Some of the changes that can be observed after this education include an increase in food diversity, students begin to bring

more diverse provisions, by covering more types of food from various groups, such as carbohydrates (rice, bread, sweet potatoes), proteins (meat, fish, eggs, beans), and vegetables and fruits as complements. Shiva is also more likely to bring more nutritious and balanced food. There was also a reduction in the habit of bringing unhealthy food, where students who were previously more likely to bring unhealthy snacks, such as chips or sugary drinks, began to switch to healthier options. They began to choose to bring foods that were not only filling, but also provided the nutrients the body needed, such as fruit salads, yogurt, or foods processed in a healthy way.

4. CONCLUSION

There are two things that can be concluded about The results of the analysis show that there is a significant difference between the level of pre-intervention and post-intervention knowledge as shown in the Wilcoxon analysis with the significance result of $p\text{-value} = 0.000$ (0.05) meaning that there is a significant influence of education about B2SA *Goes To School* on the improvement of student knowledge and the results of statistical tests using Wilcoxon Regarding the influence of education about B2SA “Goes To School” on habit bring meal, it was found that the significance value of $p\text{-value} = 0.000$ which means that there is a significant difference in habit bring meal before and after providing education about B2SA “Goes To School” at SMP Negeri I Magelang City

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