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Abstract

This study investigated the nutritional practices and body mass index (BMI) among secondary school students in Kerian District, Perak. The respondents of this study consisted of 363 first, second, and fourth-grade students who were selected through a simple random sampling method in secondary schools in Kerian District, Perak. Questionnaires were distributed to selected schools in this study. The questionnaire in the study was obtained from the Meal Pattern Questionnaire (MPQ), which requires the socio-economic status of parents' monthly income, students' body mass index, and students' eating habits. The study's findings showed that the nutritional practices among secondary school students are in the presence of moderate, whereas the body mass index of students is also at the level of underweight. Meanwhile, students' socio-economic status is of the low-income group. In addition, there were significant differences in terms of nutritional practices among secondary school students based on the family's socio-economic status. The study's findings also showed no significant relationship between dietary practices and body mass index (BMI) of secondary school students. The findings of this study can be used as a reference and provide conclusive assistance in improving the nutritional practices through learning sessions and learning of Physical and Health Education in schools.

Introduction

Physical and Health Education in the Secondary School Standard-Based Curriculum (KSSM) emphasizes healthy eating practices as these components are essential to maintain a healthy lifestyle. Nutritional practices are a component that needs to be studied in the Physical and Health Education syllabus in secondary schools (KPM, 2015; 2016; 2017). In the nutrition practice component, aspects that need to be exposed to students include healthy and safe eating practices, unhealthy eating practices, and the impact of eating habits. The importance of nutritional practices is always emphasized during the teaching and learning sessions of physical and health education because the practice of healthy eating style is an essential topic in Physical and Health Education which is enacted based on the National Education Philosophy in order to produce generations

balanced in terms of physical, emotional, spiritual, intellectual and social. Thus, good nutrition practices among secondary school students in Malaysia need to be given serious attention as the total population of secondary school students in Malaysia is around 2.007 million (MOE, 2019).

Although nutrition practices are focused on teaching and learning sessions in secondary schools, socio-economic developments in the country over the past decade have driven lifestyle changes among Malaysians, especially in terms of nutrition practices that affect nutritional status and body mass index (BMI) across all ages in the Malaysian population for high, medium and low socio-economic groups which include secondary school students. Unhealthy eating habits are among the major contributing factors in the issue of overweight and obesity, and this phenomenon does not only occur among students consisting of children and adolescents but also involves adults (Ismail et al., 2009; IPH, 2008; 2014; 2015).

Obesity in Malaysia has caused various chronic health problems, alarming, either urban or rural. As Malaysia continues to develop rapidly in the economy, the population's health is expected to decline (Ismail et al., 2002). The latest Asian Development Bank Institute report places Malaysia first among the countries in Southeast Asia and ninth in Asia regarding obesity prevalence. It is also revealed that the obesity rate has been increasing dramatically in Malaysia (Helble & Francisco, 2017). In addition, the issue of malnutrition and weight gain also occurs in Malaysia. The issue of obesity and underweight disease is closely intertwined with dietary practices (NCCFN; 2006). Changes in eating habits are associated with changes in health status, and it contributes to an increased risk of chronic diseases like diabetes, cardiovascular disease, hypertension, and cancer. It also negatively impacts the quality of life standards and increases psychosocial problems such as depression, lack of self-confidence, employment discrimination, and other forms of social stigmatization (Harnois & Gabriel, 2002).

Statement of Problem

Healthy eating styles focus on appropriate nutritional practices based on macronutrients and micronutrients as needed to address the issue of obesity and being underweight among secondary school students (KPM, 2015; 2016; 2017). However, nutritional practices among children and adolescents, especially school students in Malaysia, have undergone negative changes. These changes occurred due to the increase in the number of meals consumed at various food premises and an increase in the intake of beverages from milk-based to sweet and sugary drinks apart from the habit of skipping breakfast intake and an increase in snack intake (Ismail et al., 2003). In Malaysia, buying outside food or eating fast food has become a phenomenon among the community (Abdullah, Mokhtar & Bakar, 2015; Tan, 2016). This situation increases obesity among adolescents, especially school students. In addition, unhealthy eating practices have become a national issue due to a lack of awareness about the importance of healthy eating practices in daily life. As a result, it causes an increment in symptoms of obesity among school students in Malaysia because it was found that 90% of school students do not meet the nutritional intake recommended by the Ministry of Health Malaysia (Suhaili, 2007). Meanwhile, the school students also did not practice proper eating habits in their daily diet (Moy, Gan & Siti, 2006), whereas previous studies found out 3 out of 10 students did not practice healthy eating habits (Ismail et al., 2009). Therefore, this

situation has caused Malaysia to face a double burden in coping with nutritional practices such as over-nutrition and malnutrition among the low-income urban population (IPH, 2017).

In addition, Malaysians who do not practice a healthy lifestyle and are not aware of food and nutrition intake are vulnerable to diseases such as hypertension or high blood pressure (IPH, 2014; 2015). Only a slight 11.2 percent of students practice healthy eating style even 73.8 percent of school students know nutritional practices. Thus, unhealthy eating habits coupled with a worsening obesity crisis have been observed in developing countries (Goh, Ali, McCullough & Mitra, 2021). An Asian Development Bank Institute study also concluded that Malaysia has the most obese population in Southeast Asia (Helble & Francisco, 2017). This increase in the percentage of obesity is related to unhealthy eating habits that will lead to chronic diseases, including heart attack and stroke being the significant diseases causing death, commonly occur among adolescents which includes secondary school students and also adults (Abdullah et al., 2015; Tan, 2016). Thus, dietary practices are factors contributing to the obesity problem among Malaysians, especially school students.

Similarly, The National Health and Morbidity Survey (IPH, 2017) also found that school students did not practice healthy eating habits. Body Mass Index (BMI) data from the Assessment of Physical Activity, Sports and Co-curriculum (PAJSK) has shown that Year Six students in the category at risk of being overweight also increased to 75,171 people (17.3 percent), compared to 56,584 people (13.4 percent) in 2017 (Jafar, & Nasbah, 2018). The increase in the BMI data of the students is very upsetting and needs to be given extreme attention by all parties because obesity can be particularly detrimental to be the cause of various health problems now and in the future. BMI data also showed that a total of 32,142 (7.4 percent) school students were found to have lost weight in the BMI test (Jafar & Nasbah, 2018).

Furthermore, socio-economic factors also contribute to the issue of dietary practices in Malaysia (Shahar et al., 2019). Body mass index (BMI) changes according to age and dietary practices for children and adolescents, especially secondary school students. Being underweight is also related to nutritional practices, especially among school students who live in poverty and come from low-income socio-economic status families (Shahar et al., 2019; Alam et al., 2016). In 2016, an estimated 340 million children and adolescents, including school students, were overweight and obese (Abarca-Gómez et al., 2017). This trend has increased drastically from 4% in 1975 to 18% in 2016. In addition, an estimated 192 million school children and adolescents were also underweight in 2016 (Abarca-Gómez et al., 2017). The World Health Organization (WHO) also expressed concern over this situation, and systematic steps need to be taken to address the issue (Helble & Francisco, 2017). Therefore, teenagers in Malaysia, especially secondary school students, are not excluded from this issue. Meanwhile, weight and dietary practices have been shown to have a very significant correlation (Fogelholm & Kukkonene-Harjula, 2000). Therefore, the Malaysian government has launched the National Nutrition Action Plan III from 2016 to 2025 to promote healthier eating habits (MHM, 2016).

Research Questions

This study aims to provide answers to the following research questions:

1. What are the nutritional practices among secondary school students?
2. What is the body mass index (BMI) among secondary school students?
3. Are there significant differences in nutritional practices among secondary school students based on family socio-economic status?
4. Is there a significant relationship between dietary practices and the body mass index (BMI) of secondary school students?

Literature Review

Nutritional Practices and Socio-economic Status

Mukhari and Yasin (2010) have studied nutritional practices among secondary school students living in Johor in a survey. The study's findings reported that a total of 88 respondents, male and female students practiced a regular intake of breakfast, lunch, and dinner every day. Most of the respondents consume foods that contain various nutrients needed by the body according to the correct meal time every day. The study also found that those who are knowledgeable and have higher socio-economic status have a more positive attitude and adopt better eating habits. Similarly, Abdullah & Ali (2011) has also conducted a study to review nutritional practices among university students and their perceptions of proper nutritional practices. This study involved 102 respondents consisting of undergraduate students from Year 1 to Year 3 of various faculties in the main campus of Universiti Kebangsaan Malaysia, Bangi. The survey results concluded that most respondents have sufficient knowledge and awareness of the aspects of proper and healthy nutrition. However, this study did not consider the socio-economic factors of the students' families.

Furthermore, Karim et al. (2014) also conducted a study to determine the association of socio-demographic factors with eating habits among preschool children in Peninsular Malaysia. A total of 1,933 preschool children aged 4–6 years participated in the study. Parents or guardians were interviewed based on their children's socio-demographic characteristics and eating habits. Height and weight of preschool children were measured; BMI for age, weight for age, and height for age were also determined. The study found that the average monthly household income is RM3,610, with 59.6% of the parents having secondary school-level education. Most preschoolers also consumed breakfast, lunch, and dinner daily, with the number of children skipping main meals at only 15.0%. The level of parental education and household income are fundamental about the intake of fruits, vegetables, milk and dairy products, and fast food. However, there was no significant relationship between children's weight status and frequency of eating staple foods, fruits, vegetables, milk, dairy products, and fast foods.

The study of Sharif et al. (2016) differs from previous studies that investigated energy intake, nutrients, and category of food intake involving 749 urban children (1-10 years old) based on household income status. Children's nutritional intake was obtained using "food recall" and recorded for two days. Adequate diet taken in this study is assessed based on recommended energy and nutrient intake and meals by food category. The study found that children from low-income groups have a low level of energy intake, and most of them do not meet the recommended energy and nutrient intake compared to children from middle and high-income groups. Thus,

these findings suggested that low socio-economic status, such as low household income, may limit access to adequate diets, especially for teenagers. However, this study does not consider the factors of dietary practice as a variable.

Nutritional Practices and Body Mass Index (BMI)

A survey study by Chong et al.(2016) was conducted to investigate children's nutrition practices through a questionnaire using South East Asian Nutrition Surveys (SEANUTS) in Malaysia. It has identified that out of 2797 children aged 2 to 12 years, only 56.1% of children consume three main meals every day. About 20% of children consume snacks three times a day, while 9.7% eat fast food weekly. This irregular eating pattern is associated with low micronutrient intake, and it happens more frequently among Malay teenagers and those living in rural areas. However, the study did not consider the factors of weight and body mass index (BMI). Meanwhile, a study by Umairah et al. (2012) involving 204 students from Selangor, aged 7 to 10 years, was conducted to determine the relationship between dietary patterns and body mass index (BMI) among primary school children. The results of this cross-sectional study showed a significant relationship between the type of diet and body mass index.

Moreover, the cross-sectional study was also conducted by Howe, Black, Wong, Parnell, and Skidmore (2013) to examine the relationship between nutritional practices and adolescent body composition. Information on food intake and current nutritional status was collected using a web-based survey involving 681 adolescents attending schools in Otago, New Zealand. The study found a significant relationship between nutritional practices and overall adiposity but no significant relationship with body mass index (BMI). These findings are more significant for male adolescents than female adolescents. A study by Law, Nasir, and Hazizi (2013) was conducted on the factors related to breakfast neglect among adolescents in Sarawak. This cross-sectional study was conducted to determine differences in weight status, socio-demographic, behavioral, and psychological characteristics between daily breakfast takers and breakfast neglecters. Data were collected from 375 forms from four secondary schools students. Weight and height were measured using standard procedures to determine the questionnaire's body mass index (BMI) scores. The study's findings showed a significant relationship between breakfast neglect and the body mass index (BMI) status of secondary school students.

In addition, the Family Diet Study by Yang (2017) involved a total of 236 Malay students in five national primary schools in Malaysia. The study aimed to determine the relationship between food intake and body mass index (BMI) among children aged 8 to 12 years in Malaysia. It was found that there was a moderately positive correlation between food intake and weight. Thus, the body mass index of primary school children showed a significant relationship with the type of food intake but did not significantly correlate with breakfast intake and total food intake in a day. However, this study only focused on the population among primary school students.

Method

This study uses a survey study design to obtain necessary information about nutritional practices and body mass

index among secondary school students through a questionnaire. This survey method is also used to collect information in the form of comparative data (quantifiable information), a set of similar questions given to a large sample of studies in this study. Therefore, this survey method is highly appropriate (Cresswell & Garret, 2008; Roberts, Spink, & Pemberton, 1999). Furthermore, the survey method is very suitable to measure opinions, achievements, and attitudes of respondents towards what is happening, and it is also suitable for collecting information on independent and dependent variables (Kerlinger, 1973; Konting, 2005).

The population in this study consists of secondary school students in rural areas in the district of Kerian, Perak. The sample in this study was secondary school students between 13, 14, and 16 years old. The population of this study involves 6628 students, which consists of 3300 male students and 3328 female students, respectively. The total sample selected is 363 students from 7 secondary schools from Perak State Education Department in the Kerian district. The simple random sampling technique was used in this study by dividing 15 secondary schools in Kerian district, Perak according to the zone and later selecting seven schools from the entire district independently. The total sample was selected using the method Krejcie and Morgan (1970) introduced. From the population of 6628 students, a total of 363 secondary school students were selected by simple random sampling in this study which consisted of 189 (52%) male students and 175 (48%) female students from 13, 14, and 16 years old from families with different socio-economic background such as high, medium and low status. Simple random sampling will give equal opportunity to all respondents to be selected. The study's findings will be able to be generalized to a population (Konting, 2005).

Validity and Reliability

The questionnaire is the measurement instrument chosen in carrying out this study. This instrument contains three sections, A, B, and C. Section A is a demographic instrument containing information about the demographics of the respondents, such as the socio-economic status of the parents' monthly income. Part B is an instrument that contains questions related to the status of body mass index (BMI) and information on the weight and height of students (WHO/IASO/IOTF, 2000). Section C contains questions about students' nutritional practices obtained from the Meal Pattern Questionnaire (MPQ) (Alfonsson et al., 2015). The reliability value of the MPQ instrument was between 0.63-0.89 for individuals (Alfonsson et al., 2015). The questionnaire was referred to five experts specializing in language, content, and field of physical education and health to review the validity of the questionnaire's content and the consistency of translation of the questionnaire. Suggested amendments and improvements from the feedback were made to the instrument from the experts consulted to ensure its validity.

In a pilot study, researchers have identified 30 respondents consisting of secondary school students from the state of Perak. A total of 10 respondents of form 1, 2, and 4 students were randomly selected in the pilot study. Respondents were given two days to answer the research instrument. The instrument's reliability was tested through Cronbach’s Alpha coefficient, and if the value of the reliability coefficient is higher than 0.60m, it is indicated that the instrument is suitable for use in real studies (Konting, 2005). The overall Cronbach’s value reported for the nutritional practice items in the pilot study is 0.668. This result suggests that each item of

nutritional practice among secondary school students can be maintained and is suitable for the actual study.

Results

Question 1: What are the nutritional practices among secondary school students?

As shown in Table 1, the highest mean score for the nutritional practice among secondary school students is lunch practice (M = 3.79, SD = 1.31). The mean score for the practice of taking snacks after breakfast (M = 1.88, SD = 0.99) was the lowest. So, the secondary school students are more focused on lunch intake practices than other dietary practices. The value of the overall mean score for nutritional practices among secondary school students is at a moderate level (M = 28.0, SD = 6.63).

Table 1. Nutritional Practices of Secondary School Students

No	In the last seven days, how many times have you taken ...	Mean Score	SD
1	Breakfast	2.91	1.44
2	Snacks after breakfast	1.88	0.99
3	Lunch	3.79	1.31
4	Snacks after lunch	2.19	1.44
5	Dinner	3.49	1.39
6	Snacks after dinner	2.19	1.20
7	Meals during school breaks	3.24	1.32
8	Snacks	2.26	1.02
9	Fruits	3.14	1.18
10	Vegetables	2.95	1.39
	Nutritional Practices	28.0	6.63

Question 2: What is secondary school students' body mass index (BMI)?

Based on Table 2, the study's findings showed that out of 363 respondents involved, a total of 44.1% were underweight while 33.6% were of normal weight. Furthermore, the findings show that 15.4% are in this category for overweight. In addition, only 6.9% of respondents are in the obesity category. These findings explain that 44.1% of respondents among secondary school students have underweight symptoms.

Table 2. Body Mass Index (BMI) Among Secondary School Students

Mass Index	Frequency	Percentage
Less weight	160	44.1%
Normal (ideal weight)	122	33.6%
Overweight	56	15.4%
Obesity	25	6.9%
Overall	363	100.0%

Question 3: Are there significant differences in nutritional practices among secondary school students based on family socio-economic status?

The Kruskal Wallis test showed that there were significant differences in nutritional practices among secondary school students based on the socio-economic status of the family with values of $\chi 2$ (2) = 11.748 and sig = 0.003 ($p < 0.05$) as shown in Table 3. In terms of mean ranking, students with socio-economic status having an income of RM5000 and above (MR = 224.12) recorded higher nutritional practices than students with socio-economic status having income between RM2501 to RM4999 (MR = 199.41) and students with socio-economic status, having an income of RM2500 and below (MR = 167.14). Since the Kruskal Wallis test showed significant differences, the Mann Whitney U test was conducted to look in detail at the differences for each group of students according to socio-economic status. The results of the Mann Whitney U test are in Table 3.

Table 3. Kruskal Wallis Test of Differences in Nutritional Practices among Secondary School Students based on Family Socio-economic Status

Income	N	Mean Ranking	χ^2	Df	Sig.
RM2500 and below	215	167.14	11.748	2	0.003
RM2501-RM4999	123	199.41			
RM5000 and above	25	224.12			

Based on Table 4, Mann Whitney U test showed that there was a significant difference in the nutritional practices of secondary school students between students with family socio-economic status having a parental income of RM2500 and below and students with family socio-economic status having parental income between RM2501 to RM4999 with U value = 10872.000 and sig = 0.006 ($p < 0.05$). In terms of mean ranking, it is shown that students with family socio-economic status having parental income between RM2501 to RM4999 (MR = 188.61) had higher nutritional practices compared to students with family socio-economic status having a parental income of RM2500 and below (MR = 158.57). Furthermore, there is a significant difference in the nutritional practices of secondary school students between students with family socio-economic status having a parental income of RM2500 and below and students with family socio-economic status having a parental income of RM5000 and above with values of U = 1844.00 and sig = 0.010 ($p < 0.05$).

Table 4. Mann Whitney U Test of Differences in Nutritional Practices among Secondary School Students based on Family Socio-economic Status

Parental Income	N	MR	SR	U	Sig.
RM2500 and below	215	158.57	34092.00	10872.000	0.006
RM2501-RM4999	123	188.61	23199.00		
RM 2500 and below	215	116.58	25064.00	1844.000	0.010
RM5000 and above	25	154.24	3856.00		
RM2501-RM4999	123	72.80	8954.00	1328.000	0.283
RM5000 and above	25	82.88	2072.00		

In terms of mean ranking, students with family socio-economic status having a parental income of RM5000 and above (MR = 154.24) have higher nutritional practices than students with family socio-economic status with a parental income of RM2500 and below (MR = 116.58), as shown in Table 4. While the results of the Mann Whitney U test showed that there was no significant difference in the nutritional practices of secondary school students between students with family socio-economic status having parental income between RM2501 to RM4999 and students with family socio-economic status having a parental income of RM5000 and above with U = 1328.00 and sig = 0.283 ($p > 0.05$). In terms of mean ranking, it is shown that students with family socio-economic status having a parental income of RM5000 and above (MR = 82.88) had dietary practices similar to students with family socio-economic status having parental income between RM2501 to RM4999 (MR = 72.80).

Question 4: Is there a significant relationship between nutritional practices and secondary school students' body mass index (BMI)?

In this study, the Spearman correlation was used to examine the relationship between nutritional practices and secondary school students' body mass index (BMI). Spearman correlation test is used because there is one variable in the study that uses an ordinal scale: body mass index (BMI) (Pallant, 2007). Table 5 shows the correlation coefficient value between the mean score of Nutritional Practices and Body Mass Index (BMI) among secondary school students. The findings showed that there was no significant relationship between Nutritional Practices and Body Mass Index (BMI) with a value of r= 0.042, sig = 0.421 ($p> 0.05$). The relationship between the two variables was insignificant. This result indicates that their nutritional practices do not influence secondary school students' Body Mass Index (BMI).

Table 5. Relationship between Nutritional Practices and Body Mass Index (BMI) Among Secondary School Students

Relationship	Body Mass Index (BMI)		Interpretation
	r	*Sig.*	
Nutritional Practices	0.042	0.421	-

Discussion

Socio-economic status is one of the factors that is often emphasized in influencing a student's eating habits. Students' nutritional practices involving food such as breakfast have become a widespread nationwide issue discussed among various parties and levels of society, including the Ministry of Education Malaysia. This issue has resulted in a proposal to provide complimentary breakfast to all primary school students in the B40 group starting 2020. It is in line with the government's extension plan from the Supplementary Meal Plan program, which has long been implemented by the Ministry of Education Malaysia to help the low-income groups, B40, reduce the cost of living in urban and rural areas.

Students with high socio-economic status are recognized to have better nutritional practices than students with

low and medium socio-economic status. In the context of this study, it is proven that the practice of nutrition as a personal factor is significantly different due to the influence of the environment and the socio-economic status of students' families. This situation suggests that socio-economic status factors can affect a person's eating habits, whether good, moderate, or wrong. Students' eating practices through the rate of food intake, breakfast, fruits, and vegetables were influenced by family socio-economic status (Yannakoulia et al., 2015). Indeed, the findings of this study are in line with statements from Skårdal, Western, Ask, and Overby (2014), studies in Norway, where there are significant differences in nutritional practices among secondary school students based on family socio-economic status. They found that either low or high family socio-economic status can have positive or negative influences on a student's eating habits.

In addition, it was found that students from low socio-economic status families are experiencing food shortages while students from high socio-economic status families obtain more nutritious food with their eating habits and have better-eating habits (Mukhari & Yasin, 2010). Thus, students from the socio-economic status group of high-income families are more likely to suffer from obesity than other socio-economic status groups of families (Soo et al., 2011). This situation is likely to cause an increase in the number of students who are underweight and obese either in urban or rural areas. However, the findings of this study were contrary to research conducted by Karim et al. (2014), which concluded that the socio-economic status of the family does not influence the nutritional practices of the students when their findings indicated that there were no significant differences in dietary practices among students based on socio-economic status factors.

Based on the findings of this study, it was also found that there is no significant relationship between nutritional practices and body mass index (BMI) among secondary school students in the district of Kerian, Perak. It clearly shows that their dietary practices do not influence secondary school students' body mass index (BMI). The results of this study are different from previous studies that found that there is a significant relationship between dietary practices and body mass index (BMI). This study contrasts with Umairah et al. (2012), who found that body mass index (BMI) had a significant association with the types of diet among school students. This finding is further supported by Law et al.' (2013) study, which concluded that students who regularly practice breakfast intake are regular weight students compared to breakfast neglecters because students who were overweight and rarely ate breakfast but consumed other meals in large quantities such as lunch and dinner compared to average, overweight students (Ha et al., 2016). However, low intake of fruits and vegetables is also associated with weight gain and BMI, which is at risk of obesity (Brunt, Rhee, & Zhong, 2008).

However, the results of this study are similar to the findings of the study by Howe et al. (2013), who also found that there was no significant relationship between nutritional practices and body mass index (BMI) because differences in students' eating habits, in which students who did not eat breakfast and were not experiencing weight gain compared to students who regularly ate breakfast (Berkey et al., 2003). Thus, breakfast intake and the amount of food intake per day did not affect the status of body mass index (BMI). This finding is also in line with the study of Yang (2017), who also found that there was no significant relationship between total food intake in a day and breakfast intake with body mass index (BMI) among students. Therefore, neglecting breakfast, consuming fewer fruits, fewer drinks, and frequent snacks intake do not affect a student's body mass

index (BMI) (Al-Muammar, El-Shafie & Feroze, 2014). The insignificant relationship between nutritional practices and body mass index (BMI) among secondary school students in this study is likely to occur due to genetic or hereditary factors. Despite eating a lot, likely, a person will not be obese due to the genetic factor of being thin. In addition, there is also the possibility that the attitude of a person who likes to skip meals causes the risk of becoming obese or obesity to be low due to fewer calories burned. This situation shows that the level of body mass index (BMI) of secondary school students in Kerian district, Perak has no relationship with the dietary practices.

Conclusion

Overall, it can be concluded that the family's socio-economic status - in the context of this study refers to family income- is an essential factor in determining students' nutritional practices in their daily lives. In the context of Physical and Health Education, teaching and learning sessions are needed to increase students' understanding of the importance of healthy eating practices every day, especially the intake of breakfast, eating during school breaks, lunch, dinner, vegetables, fruits, and implications of skipping meals and fast food intake towards students' health status. This study has provided meaningful ideas and contributions, and it can be used as a guide for other individuals, leading to optimal improvements in consumers' nutritional practices. The findings of this study can be used as a reference and provide a meaningful contribution, especially in improving the quality of teaching and learning of Physical and Health Education in rural secondary schools so that students' healthy lifestyle practices can be improved. Therefore, it is recommended that future researchers will explore more profound in this field of study in order to produce more dynamic and conclusive researches that will help to contribute to the teaching and learning process of physical and health education and to review nutritional practices and the body mass index (BMI) as well as its relationship with the socio-economic status of students. This suggestion is essential in strengthening the physical and health education syllabus, which can also be integrated with other subjects such as Science and Sports Science.

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