

ORIGINAL ARTICLE

WEIGHT MANAGEMENT: NEED ASSESSMENT FOR HEALTH EDUCATIONAL MODULE DEVELOPMENT AMONG PRIMARY SCHOOL CHILDREN

Norimah Said^{1,*}, Norazmir Md Nor², Siti Khuzaimah Ahmad Sharoni¹, Siti Sabariah Buhari² and Nurul Fadly Habidin³

¹Centre for Nursing Studies, Faculty Health Sciences, Universiti Teknologi MARA (UiTM), MALAYSIA

²Centre of Nutrition and Dietetics, Faculty Health Sciences, Universiti Teknologi MARA (UiTM), MALAYSIA

³Faculty of Management and Economic, Universiti Pendidikan Sultan Idris MALAYSIA

* Corresponding author: Norimah Said

Email: norimah2809@uitm.edu.my

ABSTRACT

The prevalence of overweight and obesity among school children are increasing in developing countries, including Malaysia. The aim of this study was carried out the need assessment and to determine the nutritional knowledge, attitude, and physical activity among primary school children for the purpose of health education module development on childhood weight management among primary school children. This study was employed cross-sectional design with a probability of 202 school children aged ten years old. The result shows that majority of primary school children choose food that high in carbohydrate, sodium, and saturated fat. Thus, reflect to the lack of nutrition knowledge. Meanwhile, for the lowest choices were sugar intake and low-fat dairy product. The highest mean for nutritional attitude is primary school children chose to drink 100% fruit juice (mean=81 ± 0.97), and the lowest mean was eating wheat bread (mean=2.25 ± 1.16). The highest mean for sedentary activity was watching the television show during weekdays (mean 4.02 ± 1.17). The result shows the children need education on the nutritional fact in their food like carbohydrate, sodium and saturated fat, physical activity, and information to avoid a sedentary lifestyle.

Keywords: module, health education, nutrition knowledge, habits, physical activity, sedentary lifestyle, school children,

INTRODUCTION

This article discusses the obesity problem among school children related to nutrition knowledge, attitude and physical activity for the purpose of development Health Education Module (HEM) for school health nurse (SHN) in childhood management obesity among school children in Malaysia. Besides, through of this study shows that children's knowledge will be presented in their attitude were significantly influences the dietary practices especially in consuming healthy food and drinks including their physical activity.

There has been an increasing trends School child overweight and obese in developed and developing countries. The prevalence of childhood obesity were 15.3% and 10.3% among female and male respectively ¹. Although, in year 2016 survey has been shows that the prevalence of overweight and obesity among school-aged children aged 7, 12 and 15 years has exceeded the set targets². Report from National Morbidity Survey in 2015³ stated that the prevalence obesity among primary school children of 10 to 17 years old increasing to 25% and higher among primary school children in the urban areas which was 12.1% as compared to rural area only 11.2%. Selangor on of the state in Malaysia that has been higher in prevalence obesity with 13.3 %³.

This issue is contributed by many factors like due to nutritional knowledge, attitude on nutrition and physical activity or sedentary lifestyle among primary school children¹. Knowledge about nutrition is important to school children to ensure they know how to choose healthy food and the frequency of food intake that must be taken every day to fulfil their body's need⁴. Moreover, understanding the attitude on nutrition among school children is important in terms of children's health. This is because children with moderate nutritional knowledge and poor dietary practices are associated with negative dietary attitude⁴.

From the problems statements that have been identified, was motivate this study to carried out to obtain the evidence about needs assessment of the nutrition knowledge, nutrition habit and physical activity before the development specific intervention module or program as prevention for obesity problem in Malaysia. Al though, SHN has been identified as suitable agent and person preferred to continue given the health education and intervention for prevention obesity beside a lot of the program will be ended after the prevention program²⁷. This study has been choosing the Generalized Model for Program Planning (GMPP)⁵ wherein the first steps of GMPP the researcher needs to perform the need assessment or assessing the need of the module

among the target group such as content related to childhood weight management for prevention obesity and also to fulfil the steps 2 of GMPP to set the objectives and design the module or the intervention program of childhood weight management. Furthermore, the specific objective is to identify the nutritional knowledge, nutritional habit, sedentary activity, and physical activity among primary school children.

METHODOLOGY

This study employed a cross-sectional design and has been conducted in a public primary school (*Sekolah Kebangsaan*) located at Kajang District, Selangor. It was reported that this area has been chosen due to the higher population of children aged 10 years old. Children aged 11 and 12 years were excluded from this study as they involved with "Ujian Penilaian Sekolah Rendah (UPSR)." The location of study was selected randomly by using a probability one-stage cluster sampling whereby from four primary schools in Kajang District and only one of the schools has been selected as study setting. There was 424 total number of targeted populations only at a school for the aged 10 years old, therefore the sample size calculated was only 202²⁴. Furthermore, selection of respondent was performed by using simple random sampling out of 424 total number of targeted populations to obtains 202 respondents. In this study, the name of standard 4 students were put in the one box. After that the respondent who has selected for this study have been introduced about this study and the Guidance Consent were given to the parents through the respondent. After the collection of consent the questionnaire forms were distributed to the respondents during the school session. All the 202 respondents were given the permission from the parents. The school children were guided to answer each question by researcher. They were given 30 minutes to answer the questions. After 30 minutes, the questionnaire forms were collected.

A questionnaire was used as a study instrument as it can answer the objective and can be conducted in a short period⁶. The questionnaire was permitted to be used from the original author⁷. The Catch Kids Club After-School Student Questionnaire (ASSQ CKC), an evaluation tool for Coordinated Approached to Child's Health programme (CATCH) was translated into Malay version, as Malay is the Malaysian national language⁷. The Cronbach's Alpha for the pilot study was tested, and the result is 0.6. Cronbach

and scores greater than 0.60 to 0.70 were considered as indicative of acceptable reliability⁸.

Ethical Approval

The ethical approval to conduct this study was granted by UiTM Research Ethics Committee and the Ministry of Education Malaysia and "Pejabat Pendidikan Negeri Selangor".

RESULTS

Effect of Demographic to the study

The demographic data for the students in this study included age, gender and race. From the study, the number of female students who responded to this study (53.5%) is significantly different compared to male students (7.6%) with a total of 108 girls and 94 boys. Meanwhile, the Body Mass Index (BMI) for normal was 112 or 55%; overweight was 65 or 32% and obese 46 or 23% of school children

Nutritional knowledge among primary school

In this study, school children must choose one answer to choose food. The choosing of food to eat it will be represented the knowledge that there have about the food either the food is healthy or unhealthy to consume. The question asks the school children to choose either take butter or caramel with popcorn. Table 1 shows that 55.9% or 113 school children chose to eat popcorn with butter or caramel, and 44.1% or 89 students chose to eat popcorn without butter or caramel. The data shows that most of the students still lack knowledge about the healthy food and effect of caramel or butter towards their health due to high saturated fat compared to the school children that understand and know to avoid caramel or butter intake in their popcorn.

Knowledge about the choice of healthy milk (regular milk or low-fat milk). 73.8% or 149 school children choosing the answer as regular milk compared to 26.2 % or 53 students that chose to drink low-fat milk or skim milk. This result proves that there is still a lack of knowledge among students about the content of fat in regular milk compared to low-fat milk. Moreover, knowledge about the healthy way to eat chicken shows that 74.3% or 150 students chose to leave on the skin as the answer and 25.7% or 52 students chose to take off the skin and not eat the skin. From this data, it shows that most of these students like to eat chicken together with skin compared to students who take off the skin before eating the chicken.

Table 1: Nutritional knowledge

Meals	% (n)	Meals	% (n)
Popcorn with butter/caramel	55.9 (113)	French Fries	85.6 (173)
Popcorn without butter/caramel	44.1 (89)	Baked Potato	14.4 (29)
Regular Milk	73.8 (149)	A Regular Hamburger	61.9 (125)
Low Fat or Skim Milk	26.2 (53)	A Grilled Chicken Sandwich	38.1 (77)
Leave on the skin	74.3 (150)	Wheat bread	14.4% (29)
Take off the and not eat the skin	25.7 (52)	White bread	85.6% (173)
Candy Bar	12.9 (26)	Beef	33.2% (67)
Fresh fruit	87.1 (176)	Grilled fish	66.8% (135)
Frozen Yogurt	50.5 (102)	Frozen yoghurt	91.1 (184)
Ice Cream	49.5 (100)	Ice cream	8.9 (18)

Majority of these students still lack knowledge about the amount of fat contained in chicken skin that can lead to obesity and that it is not good for their health. Only 52 students know to remove chicken skin before eating the chicken. 12.9% or 26 students chose to answer the candy bar, and 87.1 % or 176 students chose to eat fresh fruit. Besides, many of the students also have good knowledge that candy bar contains more sugar and is not good for health compared with fruit to be consumed as a snack. Result about knowledge in eating food, either frozen yoghurt or ice cream shows that 50.5% or 102 students chose frozen yoghurt and 49.5 % or 100 students chose to eat ice cream. This indicates that most of the students understand that ice cream is not good for their health because of the sugar content in the ice cream.

Knowledge in choosing healthy food, either French fries or Baked Potato was the result reported that 85.6 % or 173 students answered French fries and 14.4% or 29 students answered baked potato. The data indicates that most students (n=173) still do not have the knowledge that French fries contain fat and sodium because majority of them chose to eat French fries compared to a baked potato.

Knowledge about the choice of healthy food either hamburger or a grilled chicken sandwich shows that 61.9% or 125 students chose hamburger and 38.1% or 77 students chose a grilled chicken sandwich. This result indicates that most of the students in this study do not have enough knowledge about contains hamburger that higher in trans-fat, food conditioning and sodium compared to students that choose a grilled chicken sandwich that is better for their health.

The knowledge in choosing the healthier type of bread was 14.4% or 29 students chose to wheat bread and 85.6% or 173 students chose white bread. This result indicates that a majority of the students (n=173) did not know the difference of wheat bread and white bread and their

content and the benefit of wheat bread to their health as it has a lower glycaemic index compared to white bread that has a higher glycaemic index.

Knowledge in choosing healthy food either beef or grilled fish among primary school children were the result reported that 33.2% or 67 students chose to eat beef and 66.8% or 135 students chose to eat grilled fish. This result indicates that most of the respondents from 202 students understand the benefit of grilled fish to their health as it contains less fat compared to beef that has high fat and is not good for their health.

The knowledge in choosing healthy food, either frozen yoghurt or ice cream shows that 91.1% or 184 students choose to eat frozen yoghurt and 8.9% or 18 students choose to eat ice cream. This data indicates that many of the students choose the healthy choice of food is frozen yoghurt, which has lesser sugar compared to ice cream that contains more sugar and is not good for their health.

Nutritional Attitude among primary school children

All the item in table 2 is good or healthy nutrition attitude to be practised among primary school children. However, the result was shown a good or healthy nutritional attitude that most practising by primary school children. The highest mean for nutritional attitude among primary school children in the attitude of drinking 100% fruit juice ($\mu=3.81$). The lowest mean for nutritional attitude is eating wheat bread ($\mu=2.25$). This indicates, most of the primary school children choose to drink fruit juice as their nutrition attitude as compared with other items. However, all the items such as read the nutrition label, eat cereal with high fibre, taking fruits during lunch and taking vegetables during dinner need to continue encouraging practice as good or healthy nutrition attitude.

Physical Activity in primary school children

From the data analysis in table 3 shows that the highest mean for sedentary activity is watching the television show or video during the weekday

(μ 4.28) and the lowest mean is hours that was spent by the respondents on the weekend to play video games, use the computer or surfing the internet (μ 3.18).

Table 2. Table of Nutritional Attitude

Question		% (n)	Mean \pm Standard Deviation(SD)
Eat Wheat Bread	Never	38.6 (78)	2.25 \pm 1.16
	Almost Never	14.4 (29)	
	Sometimes	32.7 (66)	
	Always	11.9 (24)	
	Almost Always	2.5 (5)	
Drink 100% fruit juice	Never	3.0 (6)	3.81 \pm 0.97
	Almost Never	3.0 (6)	
	Sometimes	32.2 (65)	
	Always	34.2 (69)	
	Almost Always	27.7 (56)	

Table 3. Physical Activity

Item	Frequency	% (n)	Mean \pm Standard Deviation (SD)
How many TV shows or videos do you watch during the weekend?	Never	4.0 (8)	4.02 \pm 1.17
	1	8.4 (17)	
	2	18.3 (37)	
	3	19.8 (40)	
	More than 3	49.5 (100)	
During the weekend, how many hours per day do you usually play video games or use the computer to surf the Internet?	Never	19.8 (40)	3.18 \pm 1.53
	1	18.3 (37)	
	2	16.8 (34)	
	3	14.4 (29)	
	More than 3	30.7 (62)	

DISCUSSION

Knowledge in food with high fat and sodium intake

All these findings demonstrated that these children are more likely to eat food with high fat due to lack of knowledge and low exposure to the nutritional facts in their meal. This finding is similar to previous study that indicated children are more likely to eat food with high sodium content supported by the finding that shows a majority of children exceeded the recommended Australian Upper Level of Intake (UL) for sodium intake⁹. Furthermore, researcher also found that the sodium intake was exceeded dietary recommendations, especially in children with lower social, economic background^{10,26}. The data finding regarding food with high of fat intake among students also supported by another study that found there is high saturated fat food

consumption among the school children in Bahrain that contributes to their risk of obesity¹¹.

Knowledge in food with high sugar intake

It showed a majority of the primary school children like to eat fresh fruit, and the researchers concluded that majority of primary school children know that the candy bar contains more sugar and is not good for their health compared with fruits to be consumed as their snack and a majority of the primary school children understand the good and healthy choice of food is frozen yoghurt as it contains less sugar compared with ice cream that contains more sugar and is not good for health and can cause overweight and obesity.

Both findings were similar to study that state the children show the good knowledge and good

awareness about the sugar intake in their food and sweet beverages¹². They are also aware that a higher intake of sugar can affect their health. However, contradicted were 53.6% out of 71 overweight and obese primary school children obtained the unhealthy score for the sweetened beverages¹³.

Knowledge in food with high carbohydrate intake

Knowledge in choosing the type of bread indicates that majority of the primary school children do not know the difference of wheat bread and white bread, and they do not understand the content and benefit of wheat bread to their health as it has a lower glycaemic index compared to white bread that has a high glycaemic index.

This outcome is similar to the result from another study that presents the children have poor nutrient's knowledge about the sources of food and nutrient's content in the food. They fail to identify the role of nutrition in their food and eat the food they want to eat only¹⁴. However, another study found the improvement of whole-grain intake among young adult in the United Kingdom due to acceptance and awareness of health benefit¹⁵.

Knowledge in food with high protein intake

The majority of the primary school children understand the benefit of grilled fish to their health such as it contains less fat compared with beef that is high in fat and is not good for their health and can contribute to overweight and obesity problem if consume too much. This were support that adolescent boys in the lowest central adiposity quartile consumed less meat¹⁶.

Knowledge in calcium and dairy product

The majority of the primary school children consuming regular milk compared with low-fat milk. The majority of children like to drink whole milk compared with skim milk. The result shows children who drank skim milk had higher Body Mass Index scores compare to those who drink the whole milk¹⁷. The study also supports that the children who consumed low-fat dairy products tend to become overweight¹⁶. According to the *Recommended Nutrient Intakes for Malaysia, 2017*, the RNI of calcium for population aged 9-18 years is 1300 mg/day¹⁸. However, a study shows that children ages 7-10 years in Malaysia consume the milk below the recommendation by the Ministry of Health, Malaysia¹⁹.

Nutritional attitude among primary school children in an urban area.

Consuming 100% fruit juice is good for children compared with drinks added with fruit flavour and high sugar content that can cause overweight and obesity. The suggestion for

children and adolescent stated that fruit is one of the focuses in the dietary guidelines². Fruit juice contains the source of a variety of nutrients that the Guidelines report found to be generally under-consumed, including vitamins A and C, magnesium, and potassium. Children can consume fruits that include 100% fruit juice and whole fruit. This guideline also states that although whole fruit is encouraged to drink, most of the servings can be provided and consumed in the form of 100% fruit juice (not fruit drinks). Similar to the recommend by Americans, the intake of 100% fruit juice for children age 7 and older a daily serving of 8 to 12 ounces per day¹⁰. From the guidelines, this proves that the attitude in consumption of 100% fruit juice in children's drink contributes to the benefit to the children²⁰.

Sedentary activity and physical activity among primary school children in an urban area.

This data shows low physical activity that was performed by the primary school children. Most probably, these outcomes were caused by easy access to the internet and television at home and lack of parental guidance. Besides that, lack of parent's time to take the children to the park or playground and limited space for the children to perform the indoor or outdoor activity can lead to this sedentary activity²⁷. The children aged 6 to 11-year-olds tend to spend more time to screen time because of the availability of television in the bedroom²¹. The children can access the television without supervision because of the easy access in the bedroom. More than that, the children that watching more television at the weekend and have more than one television at home be likely to have a high BMI²². The study also found the children who get supervise by their parent in watching television have a lower rate of obesity²¹.

The limitation and implication of this study

The limitation of this study is only focused to identify and determine the current knowledge and attitude on nutrition and physical activity by using descriptive analysis among level 2 primary school children aged 10 to 12 years old as compared to examine the association analysis for the purpose content module development. Moreover, it is to fulfil the required knowledge that needs by primary school children related to healthy food and physical activity. This study suggested future research on developing of the module or intervention programme for childhood weight management of primary school children especially for the obese school children whereby to improve their knowledge and awareness about nutrition fact, physical activity and sedentary lifestyle. Furthermore, also provides the information to set the objectives and design for module health education and program intervention where the three-component or sub-module has been identified such as children choose healthy nutrition, children choose healthy

activity and children choose the exercise in creating awareness about sedentary lifestyle and the importance to practice a healthy lifestyle. Although, this study supported that primary school children need to educate on eating a variety of food, eat a healthy snack and fruit, information on sweet beverages, milk, information on the food pyramid and Healthy plate Malaysia as guidance for a well-balanced diet, healthy eating and helps the family in the preparing and cooking healthy food. Meanwhile, for the physical activity, primary school children need the guidance and information on healthy lifestyle, healthy behaviour practice to reduce sedentary lifestyle beside the guidance on the physical and exercise suitable for the primary school children.

CONCLUSION

For the conclusion, the study's objectives were achieved. Overall, finding from this study proves that the school children still lack knowledge on nutrition fact like carbohydrate, sodium and saturated fat, physical activity, and information to avoid a sedentary lifestyle. Meanwhile, the nutritional attitude was practicing good especially drinking fruit juices. The finding can be used as a need assessment for the development of the module or intervention program in improving children's knowledge, awareness and attitude in nutrition then reduce the prevalence of obesity.

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