

Original Article

Qualitative study of eating habits in Bruneian primary school children

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Background and Objectives: Childhood obesity is a serious public health issue globally and poor eating habits are an important contributing factor. This study aimed to explore the perceptions, practices and attitudes towards healthy eating in Bruneian primary school children. **Methods and Study Design:** A qualitative study was conducted among 40 subjects involving 18 children (aged 9-10 years old), 12 parents and 10 teachers, who were recruited from two primary schools using convenience sampling. Five focus group discussion sessions were conducted, and recorded discussions were translated. The transcripts were entered into NVivo10 and thematic analysis was conducted. **Results:** All participants had differing perceptions of the term 'healthy eating'. Children reported 'healthy eating' by identifying foods or food groups they perceived as healthy and unhealthy. Only a few mentioned fruits and vegetables as essential to a healthy diet. Parents mainly perceived 'healthy eating' as consuming 'any quality food' that contains 'vitamins and minerals'. Teachers described a healthy diet as including balanced and varied dietary practices, having breakfast and eating regularly at the right, set times. They also associated eating healthily with traditional, home-grown and home-cooked food. All participants had positive attitudes towards healthy eating, however most children demonstrated unhealthy eating habits and frequently consumed unhealthy foods. **Conclusions:** The Bruneian primary school children reported better knowledge despite having poor healthy eating habits. The factors influencing participants eating behavior included food preferences, familial factors (parental style and parenting knowledge), food accessibility and availability, time constraints, as well as convenience. These factors hindered them from adopting healthy eating practices.

Key Words: eating habits, childhood obesity, qualitative design, school health, Brunei

INTRODUCTION

Childhood obesity is one of the most serious public health issues globally,¹ and is linked with the development of non-communicable diseases (NCDs) (type 2 diabetes and coronary heart diseases) in adulthood.¹ In Brunei Darussalam, it is a serious public health concern as the prevalence of overweight and obese children increased, from 16.5% in 2005 to 26.4% in 2009.^{2,3}

Numerous studies have reported that the increase in overweight and obesity among children is multifactorial in cause, but indicated environmental factors, and particularly unhealthy behaviors that include poor eating habits and a lack of physical activity as central to its causation.^{4,5} Examples of poor eating habits include increased consumption of foods high in fats, calories and added sugar,⁶ increased eating outside the home,⁷ increased consumption of sugar-sweetened beverages,⁸ and large portion sizes.^{8,9}

In Brunei, it was reported that children consumed high amounts of saturated fats and sugary drinks, while their intake of fruits and vegetables were extremely low.^{2,3} It was also reported that these children only took on average two and three servings of fruit per week, for males and females, respectively.² In addition, this poor intake of fruits and vegetables has led them to have an extremely

low dietary fiber intake of 6.2 g (SD±2.1) for males and 6.1 g (SD±2.1) for females,² which is significantly lower than the recommended dietary intakes for fruits, vegetables and fiber.

Despite efforts from the Ministry of Health to improve eating habits in Brunei, the health consequences of unhealthy eating habits remains and contributes to the prevalence of obesity and diabetes. Most recent preliminary results of phase two of the Brunei Darussalam second National Health and Nutritional Status Survey (NHANSS), conducted in 2009-2011, has reported high prevalences of overweight (33.5%) and obesity (18.3%) in Bruneian children aged between 5 years to 19 years old.² In addition, obesity has also been reported to be a major risk factor for cancers, cardiovascular diseases and diabetes, which are the top three leading causes of death in Brunei Darussalam.³

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Studies have been conducted to identify effective strategies to tackle obesity among children; yet much remains to be understood.¹⁰ However, studies have suggested that to understand why current obesity prevention strategies have largely been unsuccessful and to develop more successful future interventions, it is essential that the perceptions, as well as practices and attitudes towards healthy eating and healthy foods from the children's perspectives be explored.^{11,12} Most recent qualitative studies have found that children's food preferences,¹³ the cost of healthy food,¹² familial factors (such as time and convenience),¹² and easy accessibility and availability of unhealthy foods¹³ were known to hinder children from adopting healthy eating behavior.

No studies have been found that have explored the perceptions and attitudes of Bruneian children regarding health eating and its practices. Therefore, this study aimed to elicit the subjective views of Bruneian primary school-aged children in relation to their perceptions, practices and attitudes towards healthy eating. Findings on these areas are vital in informing the relevant authorities, such as health policy makers and health professionals, in order to develop more effective and appropriate health promotion messages and interventions to ultimately promote healthy eating practices in Bruneian children.

As participants were comprised of children that are quite young, the reliability of the findings were believed to be affected.¹⁴ Due to this circumstance, the parents of the child participants, and teachers, were included to gather better information about their child/students' practices and attitudes.

METHODS

Design and participants

A qualitative study was conducted among 40 participants comprising of 18 children (aged 9-10 years old), 12 parents and 10 teachers from two schools (i.e. government and non-government schools), who were recruited using convenience sampling. For parents and teachers, their ages ranged from 27-55 years. 86.4% of them were Bruneian, while the rest were Indonesian and Filipinos. For parents, 75% of them were working in the government sector, while 25% were full-time housewives. All of them had completed secondary education.

Research procedure

The Pengiran Anak Puteri Rashidah Institute of Health Sciences Ethics Committee, at the Universiti Brunei Darussalam approved the study protocol (UBD/IHS/B3/8). Prior to commencement of the study, permission was obtained from the Department of School Ministry of Education (MOE) Brunei Darussalam, and the relevant school principals. Schools that were selected were then approached and the aims and objectives of this research study were explained. All potential participants were given a letter that comprised of a participant information sheet (PIS) and consent form obtaining their permission to participate in the Focus Group Discussion (FGD). The purpose of the study; anticipated duration of the FGD; confidentiality and their right to withdraw at any phase of the study and that participation was on a voluntarily basis were explained in the PIS. In this study, we obtained vol-

untary informed consent from all participants (children, parents and teachers). Participants were then met by one of the researchers to arrange mutually convenient dates, times and places for data collection.

Data collection instrument

In this study, FGD was used as the data collection method, as it was an effective method for obtaining data from the year 4 students who had limited literacy skills in explaining and describing their views on healthy eating.¹⁵ Based on the literature, we developed an interview guide which consisted of a series of pre-tested, semi-structured questions, with a main focus on their general eating habits, understanding of healthy eating, healthy and unhealthy foods, their food preferences, as well as on their practices and attitudes towards healthy eating. Examples of questions asked include "What kind of food do you like to eat?", "What is healthy eating?" and "How do you feel about eating healthy food?"

Data collection procedure

Data collection took place between September and November 2015. In total, five FGD sessions were conducted in bilingual languages (Malay and English), and were held at their respective schools, at different times and dates, during school hours. These venues provided a neutral environment and convenience for the participants.

There were two focus groups (FG) (FG1, 2) with 18 subjects (nine male and nine female school children). One FG (FG3) with 12 parents (five males and seven females) and another two FGs (FG4, 5) with 10 school teachers (one male and nine females). Field notes were also taken for every FGD by a scribe (SN). The discussion started with the introductory questions, followed by further exploration and a conclusion. The researcher discontinued focus groups whenever no information was forthcoming and data saturation had been achieved.¹⁶ Each discussion lasted approximately 50-60 min.

Statistical analysis

All tape-recorded FGDs were transcribed verbatim while constantly referring to the field notes. Translated verbatim were checked for accuracy by two researchers (ST and RS), who went through the recordings while reading the transcripts. Data analysis was assisted by the use of NVivo 10 software for data management. The six phases of thematic analysis were used for identifying, analyzing and reporting themes within the data.¹⁷ The transcribed data were reviewed several times individually and reconfirmed by the two investigators (ST and RS) through a consensus discussion and an expert (MRV) moderated any discrepancies throughout the process.

RESULTS

Theme 1: Understanding and practices of 'healthy eating'

We have identified three themes (as shown in Table 1 'Codes and initial themes relating to final themes') in the current study. The first theme describes participants' differing perceptions of healthy eating and their poor practices. All participants had differing perceptions of the term 'healthy eating' (Table 2). Children also reported

Table 1. Codes and initial themes relating to final themes

Codes	Initial themes	Final themes
Healthy eating involves eating a balanced diet Healthy foods are those that contain lots of vitamins, protein, carbohydrates, minerals Healthy foods are foods that are good for health Healthy eating involves eating varieties of fruits and vegetables (FV) Healthy food is any quality food Associate eating healthily with traditional, home-grown and home-cooked food	Different perceptions of the term 'healthy eating'	Understanding and practices of the 'healthy eating'
Unhealthy eating habits Frequently consumed in unhealthy foods such as 'junk and fast' foods High preference for less healthy foods	Poor practices of 'healthy eating'	
Fast food always tastes nice/yummy! Vegetables have an unpleasant and bitter taste Taste and portion size matters	It tastes yummy! It tastes bitter! Taste and choice matters!	Taste and choice matters!
'Junk' and 'fast' foods are available everywhere and are easily accessible Easy to get 'junk' and 'fast' foods	Accessibility and availability of an abundance of 'junk' and 'fast food' as a barrier to healthy eating.	Being cheap and easy to buy as barriers to healthy eating.
'Junk' and 'fast' foods are cheap Healthy foods are sometimes quite expensive Preparing healthy meals is usually time consuming Fast food is really easy and convenient	It's cheap and easy!	

Table 2. Participants' understanding of the term 'healthy eating'

Subjects	Sub-themes
Children	<ul style="list-style-type: none"> ▪ A balanced diet ▪ Foods that contain lots of vitamins (A & C), protein, carbohydrates, minerals, calcium ▪ Eating nutritious foods ▪ Eating varieties of fruits and vegetables (FV) ▪ Foods that are good for health ▪ Gives energy: makes them strong and active ▪ Avoid them from becoming fat ▪ Food that is <i>halal</i> ▪ Eating unprocessed foods ▪ Don't know
Parents	<ul style="list-style-type: none"> ▪ Any quality food ▪ Food that contains vitamins and nutrients for growing bodies
Teachers	<ul style="list-style-type: none"> ▪ Healthy foods ▪ A balanced diet ▪ Eating a variety of food ▪ Eating fruits and vegetables (FV) ▪ Eating nutritious foods ▪ Food cooked by natural ways of cooking (home-made, not instant)

'healthy eating' by identifying foods or food groups perceived as healthy and unhealthy. Foods and drinks that they perceived as healthy included bread, chicken, fruits, vegetables, rice, milk, plain water and any 'halal' food (food allowed according to Islamic law), while instant noodles were perceived as unhealthy. Only a few children mentioned fruit and vegetables (FV) as healthy food, unless when prompted. Three children were unable to explain what healthy eating means.

While, many parents mainly perceived 'healthy eating' as consuming 'any quality food' that contains 'vitamins and minerals'. They predominantly viewed healthy eating as only important for growth and development of their children, rather than the children's health status. For teachers, a healthy diet refers to balanced dietary practices, having breakfast and eating regularly at the right and set times. They also associated eating healthily with

consuming traditional, home-grown and home-cooked foods.

Parent2: Healthy food is any quality food for the body, that contains vitamins... contains nutrients for growing body. (FG3)

Teacher1: A healthy eating means eating a variety of foods, not only from one kind of food, it must come from different food groups such as from protein ... and these students should eat food that comes from natural and cook it naturally...home-made, not the instant one. (FG5)

Teacher5: To add, we have to eat three times a day, breakfast is more important, no breakfast means no energy. And lunch and dinner. (FG4)

Nevertheless, many children were aware of the general and specific health benefits of healthy eating and the health values of different foods. Some children discussed the health consequences of healthy eating, such as pro-

vides a source of energy, supports active learning, helps healthy organs, for disease and illness prevention, and for positive body image.

Student4: For energy, for us to stay healthy, so we can do our work every morning, every day. (FG2)

Student8: It makes us strong ... it makes our body healthy. Contain energy. It makes us active when studying. (FG1)

Student8: Healthy foods for the body, because no germs and everything that harm our body. (FG2)

Overall, all participants showed positive attitudes towards healthy eating. There were inconsistencies between participant's knowledge on healthy eating and their practices. Most children demonstrated unhealthy eating habits and frequently consumed unhealthy foods such as 'junk and fast' foods, low intake of FV, and tended to skip breakfast. They clearly exhibited a preference for the less healthy foods.

Children ranked foods such as chocolate, fried chicken, instant noodles, pizza, and burgers as highly preferred and frequently consumed. They opted for "unhealthy food" and seemed unable to resist it, despite knowing those foods contain poor nutritional value. Furthermore, they reported having a 'regular' unhealthy dietary pattern, throughout the week, and such practices were re-iterated by their parents and teachers. One parent reported that her child rejects the healthy choice of eating vegetables and admitted difficulty in persuading the child.

Student4: I love to eat 'Maggi' [instant noodles], I usually have it three times a week. (FG1)

Parent3: Vegetables? He rejects it [laughter] it is difficult to persuade them. (FG3)

Theme 2: Taste and choice matters!

The second theme 'Taste and choice matters' describes how taste and choice has greatly influenced children's food preferences. Children reported food preferences in terms of taste, flavor and portion size as the main drivers of their food choices. They perceived healthy food such as vegetables to have unpleasant, bland and bitter tastes, thus making them less favorable for them to consume.

Student2: Because it [pizza] is big and have tomato sauce and some around the chicken, I... one bite I taste so many taste so I eat arhgg ... big. (FG2)

Student3: I like pizza because it tastes nice and delicious! (FG2)

Student4: Vegetable? I don't like it, it tastes bitter... I puked whenever I try. (FG1)

Parents and teachers also reported that taste preferences weighed heavily on children when making food choices. Most parents stated that preparation and consumption of healthy food at home is most often a negotiation process with their children. They understood when a particular food item was 'healthy' and good for their children, however they would not prepare it for the children if the food was not palatable. When they decided to prepare healthy food, their children would refuse to consume it. Parents highlighted that it is a constant struggle to encourage their children to eat healthy food and most often they give in and adapt meals to children's wishes.

Parent3: Vegetables? ... He [his son] rejects it [laughter]. It is difficult to ask them. Even though there's a lot

of it, still they don't want it. Even when we prepare for them. (FG3)

Parent5: ... they didn't manage to finish it [healthy foods] all. Fast foods, that's the only food that they can finished. (FG3)

Parent3: If they didn't like it, they are going to reject it. (FG3)

Moderator: If they request you to buy or prepare some? Are you going to buy and prepare for them?

All parents: Yes we have to ... otherwise they don't want to eat. (FG3)

Theme 3: Cheap and easy to buy as barriers to healthy eating

The third theme 'Cheap and easy to buy as barriers to health eating' explains that participants adopted poor eating habits, as unhealthy food remains cheaper, and easier to buy and prepare. The parents and teachers believed that children attempted to eat foods that were available or offered. The most reported barrier to healthy eating in children was availability and easily accessible 'junk' and 'fast' foods outside the school and in the school canteen.

Teacher5: And if they go to the shop, usually what's on the front are junk foods right? So they just take it. (FG4)

Teacher2: They love to try. (FG5)

Teacher2: But I noticed they buy unhealthy food items in the canteen as well. (FG4)

They believed that healthier foods in fast food restaurants are less expensive than buying and preparing a healthy meal. Most participants also preferred choosing fast and convenient foods such as junk foods over "healthy foods" as they perceived preparing a healthy menu as time consuming.

Parent4: They didn't buy the things (healthy foods) because it was a bit expensive; too much was spent on the healthy food. (FG3)

Teacher1: The price. If you compare to healthy food, I think this kind of food [junk/fast food] is very cheap. (FG4)

Another factor is lack of time, especially for working parents. Therefore, those parents preferred to prepare something that is easy, fast and convenient for their family such as instant noodles and any fried food.

Parent11: Instant noodle is very easy and convenient. (FG3)

Parent2: It [instant noodle] is easy and fast, you can finish cooking it within three to five minutes. It saves our time. (FG3).

In addition, the teachers also reported that even when fresh fruit was available and provided to these children at school, it was often seen as unpalatable to them. However, the teachers believed that if the fresh fruit looked appealing and was ready-to-eat, then children would be more willing to consume it.

DISCUSSION

Our study found that most children have knowledge of the concept of healthy eating and were aware of the importance of eating healthy foods, however there are contradictions to their practices. They have shown a preference for less healthy foods (such as 'junk and fast' foods),

a low intake of FV and tended to skip breakfast. This is similar to other studies that have reported knowledge on a healthy diet and how its health benefits influenced food choices among children, yet it does not necessarily imply healthier food choices or preferences.^{18,19} Another study also reported that children at the age of 9 or 10 were seen to be too young to understand any concrete knowledge about healthy eating habits.^{20,21} In contrast, a study in Italian children found that children with higher nutritional knowledge scores were less likely to consume unhealthy food.²² In addition, parental knowledge was also found to have a positive impact on improvements in dietary quality and nutritional habits of the entire family.²²

The current study also revealed the influencing factors for eating behaviour in Bruneian children, including food preferences, familial factors (such as parental style and parenting knowledge), food accessibility and availability, time and convenience (as barriers to healthy eating). This is in line with other studies,²³⁻²⁵ which showed children's food preferences, such as taste, flavor and portion size were the most predominant barriers to healthy eating. A review also showed that the potential determinants for FV intake in American children were time, costs, lack of taste, satiety value and appropriate settings for eating FV.²⁶ Whereas, another review found that experiences with food flavors among children begin during the maternal diet during pregnancy and the breastfed infant's experiences. These were influencing factors in developing food preferences and diets among children. Other factors were the foods that were available and accessible to the children, parental modeling and familiarity with food flavors.²⁷

Easy accessibility of junk and fast foods in retail outlets was another important factor for poor eating habits among children in our study. Parents reported that restaurants and stores serve many energy-dense foods (and most often the nutrient-poor foods are at relatively lower prices than healthier foods) that encourage them to make less healthy food choices. Our finding was corroborated by an audit done in one Bruneian school stating accessibility of unhealthy food choices was observed at the school canteen and unhealthy snacks sold by food stall vendors located nearby the school. This is despite the Ministry of Education having implemented the 'Traffic Light System' guideline for food and beverages at school canteens to assist school canteen operators in providing nutritious food items for school children.²⁸ Other studies have also reported the presence of fast-food located nearby schools being significantly related with increased consumption of unhealthy foods.^{29,30}

Furthermore, most parents were also found to be permissive to their children's food choices. Some parents seem to have a limited understanding on what encompasses healthy eating, which explains for children's consumption of a less healthy diet. In agreement, a study reported the relationship between parenting styles and children's eating behaviours was inconclusive, however permissive parenting styles may be associated with behaviour conducive to unhealthy eating.^{31,32} Studies showed that parental knowledge on healthy eating is cru-

cial, as it has been associated with a more healthy diet in children.^{33,34}

Finally, our study showed that most working parents perceived preparing food as time consuming (long preparation and cooking time) and requiring effort, therefore they favored choosing ready-to-eat dishes (easy, quick and convenient) over healthy foods for the family. Few studies have shown that time constraints are an important social determinant of children's eating patterns and quality of their diet. For instance, longer working hours among parents resulted with an increased reliance on convenience foods and home meal replacements (such as restaurant and pre-packaged food), whilst decreasing time spent to prepare meals.³⁵ Another study on British preschoolers reported the predicting factors for children's vegetable consumption were eating approximately the same food as their parents, using ready-made sauces and cooking from scratch.³⁶

The present study however was subjected to some limitations. First, the sample size was small and this could limit the generalizability of our findings. Second, we also observed a socially desirable manner of which some of the focus groups were marked by the presence of dominant voices, which over-shadowed quieter participants. This may have introduced bias into the transcripts. Finally, this study analyzed self-reported food preferences and eating practices, and future research should therefore gather observational data of actual behaviors among school children to confirm our findings.

In conclusion, our study has suggested that Bruneian children may have higher knowledge of, yet lesser healthy eating habits. The factors influencing the children's eating behaviours were food preferences, familial factors (parental style and parenting knowledge), food accessibility and availability, and time and convenience. The findings are useful for health policy makers and professionals to generate nutrition programs/guidelines at various public health settings to promote healthy eating practices among the community. For instance, the public health interventions to promote healthy eating habits may focus on family eating habits, school-based nutrition education and healthy food policies. However, our understanding between parental decision-making around food and feeding children still needs to be enriched. This could be an important area of future research. Further research to establish the association between eating habits and the obesity status among children and their parents should also be conducted.

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AUTHOR DISCLOSURES

There are no conflicts of interest (no honorarium or payment was given to the authors).

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