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**ADOLESCENTS' PERCEPTIONS OF HEALTHY EATING AND
COMMUNICATION ABOUT HEALTHY EATING**

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ADOLESCENTS' PERCEPTIONS OF HEALTHY EATING AND COMMUNICATION ABOUT HEALTHY EATING

Abstract

Structured abstract

Research paper

Purpose

This study explores Chinese adolescents' perceptions of healthy eating, their perceptions of various socialising agents shaping their eating habits, and their opinions about various regulatory measures which might be imposed to encourage healthy eating.

Design/methodology/approach

Four focus group interview sessions were conducted with 22 eighth and ninth grade adolescents (aged 13 to 15) in Hong Kong.

Findings

The participants perceived a balanced diet and regular meal times as the most important attributes of healthy eating. Participants most likely ate unhealthy food at parties, during festivals, and when socialising. They reported that mothers and teachers often advise them to eat healthy foods. They felt that banning the sale of soft drinks in schools and at sports centers and/or increasing the price of soft drinks might discourage their consumption, but felt that banning soft drink advertisements and/or making free drinking water more available would be ineffective.

Research limitations

The interviewees were mostly from low to middle income class. They may not be representative of all adolescents in Hong Kong or elsewhere, thus limiting the generalisability of the findings.

Practical implications

The study serves as a guideline for social services marketing professionals targeting adolescents. Social services marketers can consider influencing the adolescents eating habits through the parents and school teachers. Restricting selling of soft drinks at schools and sports centers and increasing the price of soft drinks should be considered, as these were considered relatively more effective than other measures. Seven testable hypotheses are proposed to guide further research.

INTRODUCTION

The problems associated with obesity are considerable, and countries around the world are confronted with obesity-related social and economic costs. The direct economic costs of obesity have been assessed in several developed countries as being 2 to 7 percent of total health care costs (Department of Health, 2005). Beyond their obvious physical problems, obese people often face social bias, prejudice and discrimination. In some cases, obese people have considerable trouble overcoming body dissatisfaction and, in extreme cases, eating disorder symptomology.

As with many behaviors, healthy eating habits are more likely to take a foothold in adults if they are established at an early age. Yet, at the turn of the 21st century there were over 155 million overweight children and youth in the world (Lobstein, Baur and Uauy, 2004). The problem is evident in Hong Kong, where the Department of Health has reported that obesity among primary school students increased from 16 percent in 1997/98 to 19 percent in 2004/05, thereby reaching epidemic proportions. This situation is also reflected in the results of survey research. For instance, a survey of 2115 secondary school students aged 11 to 18 in Hong Kong found that 42 percent of them had health problems involving excessive body weight, high blood pressure, high blood sugar or abnormal blood fat levels (Information Services Department, 2006).

Because obesity has become an increasingly serious problem globally, there has been a recent increase in research studying how to communicate healthy eating habits, and the role of various socialising agents such as parents, government publicity, teachers, and peer groups. For instance, Livingstone (2005) identified food advertising (especially for unhealthy foods) as affecting food preferences and the children's behavior directly and indirectly, although any direct causal link between food advertising and eating behavior remains disputed (Young, 2003). Social service marketers try to promote good eating habits directly to children and indirectly through their parents. Mueller (2007) commented that consumers should also take

increasing responsibilities by learning more about diet and nutrition as well as making healthier food choices.

Effectively communicating healthy eating messages to young people requires a solid understanding of their perceptions of healthy and unhealthy eating habits, their perceptions of various socialising agents, the other sources communicating with them about eating, and their perceptions of different communication appeals (Chan, et al., 2008 in press). While these issues have been researched in the context of younger children, the perceptions of adolescents have not been adequately explored. What are adolescents' perceptions of healthy eating? Which socialising agents do adolescents perceive as being effective in communicating healthy eating messages? Which regulatory measures will be most effective to encourage healthy eating among adolescents? In order to fill these research gaps, this study used qualitative research methods to inductively explore these important issues. The findings suggest meaningful and testable hypotheses.

HEALTHY EATING AND COMMUNICATION

In the context of this study, healthy eating was defined as eating behavior that can enable a person to achieve, “a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity” (World Health Organization, 2007). Healthy eating habits are developed through socialisation, in which families, schools, the community, government and international health organisations may all play an active role (Kelly, Turner and McKenna, 2006; McGinnis, Gootman and Kraak, 2006; Raiha, Tossavainen and Turunen, 2006). Parents serve as role models and influence adolescents' purchasing behavior directly (McNeal and Ji, 1999). Empirical data confirms that parental support for healthy meals and nutrition skills is positively associated with adolescents' healthy food choices and healthy eating habits (Raiha, Tossavainen and Turunen, 2006; Young and Fors, 2001). Schools disseminate nutrition and health information through the formal curriculum as well as

extracurricular activities. They can support healthy eating by monitoring the nutritional value of the food supplied in lunches and snack shops on their premises (Nutbeam, 2000). Recently there are initiatives to introduce school-based intervention programs to encourage the consumption of fruits and vegetables among school aged children (Reinaerts, De Nooijer and De Vries, 2008). Interestingly, however, peers have been shown to have a negative influence on healthy eating (Kelly, Turner and McKenna, 2006). Conflict between parental influence and peer influence may prompt young consumers to refuse to bring healthy food to school when their friends prefer food and beverages that are high in calories and low in nutrients (loosely termed junk foods). Peers' views on body weight and body image can also trigger unhealthy dieting practices such as inducing vomiting or using laxatives for weight control (McGinnis, Gootman and Kraak, 2006). Governments and international health organisations may play a role in health promotion by advocating balanced diets and running health-related publicity campaigns. Ambler (2006) proposed that the governments should launch pro-health promotional campaigns targeted at the socio-economic and demographic groups most in need of support.

In addition to parents, teachers, peers and governments, food advertisements often target children, and may encourage them to pressure their parents to purchase foods with poor nutritional value (Kelly, Turner and McKenna, 2006). In 2004, an estimated US\$15 billion was spent in the United States on advertising and marketing directed at children and youth, of which a major share was food and beverage marketing (Schor, 2004). Through the use of cartoon figures, jingles and animations, food advertisements aimed at young consumers associate the consumption of foods with fun, enjoyment and peer acceptance (Center for Science in the Public Interest, 2003).

Parents, schools, governments, friends and food advertisers are thus competing to influence adolescents' health perceptions and food choices. A focus group study of 119 children aged 7 to 11 in Australia found that their awareness of food healthiness was high,

but contradictions in the messages they received were found to cause confusion and to constitute a barrier to healthy eating (Hesketh et. al., 2005). Another focus group study of 300 children aged 7 to 11 in the U.K. found that children were aware of the relationship between their diet and health. They understood that a healthy diet should not contain too much fat (Dixey et al., 2001). A focus group study of 73 adolescents identified four key factors influencing healthy eating: physical and psychological reinforcement of eating behavior; perceptions of food and eating behavior; perceptions of contradictory food-related social pressures; and perceptions of the concept of healthy eating itself. The adolescents said they experienced competing pressures which in some cases led them to eat in ways which they recognised as unhealthy and to try to lose weight (Stevenson et al., 2007).

Such previous studies have tended to focus on a particular socialising agent in isolation rather than taking them together and assessing their relative effectiveness. In addition, the all-important adolescent group has been relatively under-researched. Adolescents' perceptions of eating communication need study, since teenagers are gradually becoming more independent in both their thinking and behavior (Eysenck, 1998). Their perceptions of healthy eating, and the social influences on these perceptions, are unclear. With the aim of generating meaningful and testable research hypotheses, the following research questions are posed:

- RQ1. What are adolescents' perceptions of healthy and unhealthy eating?
- RQ2. What are adolescents' perceptions of parents', teachers', friends' and government publicity's influence on their eating habits?
- RQ3. How do adolescents respond to measures which discourage unhealthy eating or encourage healthy eating?

METHODOLOGY

This study employed an interpretivist approach (Neuman, 2003) using a qualitative methodology. In other words, in contrast to a more positivist ontology, the authors adopted a personal (“hands on”) process in order to understand reality. Specifically the authors were directly involved in the data collection and interpretation. Why a qualitative approach? First, perceptions of healthy eating are very much context and age-group specific (as opposed to a positivist view that there is a single external reality and researchers can be detached from the object of research) and therefore qualitative techniques concentrating on understanding and interpretation were used rather than quantitative techniques concentrating on description and explanation. Second, a qualitative approach was used because little is known about how adolescents perceive healthy eating, so it was not possible to predefine dependent and independent variables. As such it was necessary to loosely frame the research in terms of how adolescents interpret their thoughts, feelings, and actions with regard to healthy food and socialising agents. This enjoined a qualitative methodology which would give priority to the participants’ own perceptions. A positivist approach using pre-structured questionnaires may not capture the perceptions very well, as the researchers’ preconceptions will tend to be imposed on the subjects from the outset. Finally, it is likely that the variables influencing adolescents’ eating behavior are complex and interwoven. Therefore coding standardised data and controlling for extraneous factors (as a positivist might do), may limit the possibility of obtaining new insight into the adolescents’ own understanding of what constitutes healthy and unhealthy eating, and might even invalidate the conclusions.

Focus group sessions were adopted as the preferred method of enquiry (Silverman, 2005), since interaction among focus group members can generate insights that might not be generated in one-to-one interviews. A group format can better accommodate different actors’ perspectives and thus generate a more accurate understanding of the extent to which meanings, perceptions and emotions associated with healthy eating are negotiated, shared or

divided.

Hong Kong was a particularly suitable location for the study because Hong Kong's education system is very examination-oriented (Children's Council Working Committee, 2005). Hong Kong children enjoy very little leisure time, get relatively little exercise, and are considered to be extremely inactive (Hui, 2001). Most elementary schools offer only two physical education classes a week. The lack of physical exercise has been proposed as a factor contributing to the prevalence of obese children in the society (Hui, 2001). A second reason for choosing Hong Kong as the study location is that the government has placed renewed emphasis on promoting healthy eating since 2005. Three television commercials about healthy eating and balanced diet were produced and broadcast repeatedly in 2005. The main message of the three commercials was that a balanced diet should contain two portions of fruit and three portions of vegetables every day. The Department of Health joined hands with elementary schools, food traders, teachers and school parents' associations in 2006 in launching an "EatSmart@school.hk" campaign. The target audience was families with elementary school children, and the objective was to promote the consumption of healthy lunch boxes and snacks at elementary schools. Two television commercials were launched to promote the preparation of healthy lunch boxes at home and the consumption of healthy snacks at schools. Posters and guidebooks were distributed to elementary school children. Training and workshops about healthy eating were organised for elementary school principals and teachers, parents, as well as food suppliers. Yet an analysis of all these measures reveals that they were targeted at younger children, with no publicity targeted at adolescents in secondary schools or young people in higher education.

Using purposive sampling, 22 Chinese adolescents were divided into four focus groups. Subjects were subjectively chosen by the researchers on the basis that the purpose of the research was to investigate adolescents' perceptions of healthy eating. With this purpose in mind, a group of 13-15 year olds, mixed by gender, and, to a lesser extent, local versus

international school students, was selected. Participants of the same sex were grouped together to encourage free expression of perceptions related with health issues. Thirteen of the participants were males and nine were females. All of them were studying in grades 8 and 9. Two participants studied at international schools; the others studied at local schools. Judging from the residential areas they lived in and the locations of their schools, most of them were from low to middle income families. One of the authors played an active role in the focus groups by acting as moderator. Written permission was obtained from the parents before the sessions. The focus group sessions took from twenty-five to thirty-five minutes for each group. The study was conducted in Cantonese (the Chinese dialect spoken in Hong Kong).

Bearing in mind that the accepted guideline for focus groups is that there should be fewer than 12 topics (Stewart and Shamdasani, 1990), a protocol of seven carefully worded open-ended questions was used in the sessions (Appendix 1). The order of topics was not rigidly adhered to, and the sequence was adjusted according to the flow of the discussion. The protocol was pre-tested by conducting two personal interviews with a Chinese female aged 13 and a Chinese male aged 14. The session started by showing a board with 14 pictures of different foods and drinks (Appendix 2). As an opening, participants were asked to select from the pictures the one or two most healthy and most unhealthy foods and elaborate on their choices. For descriptive purposes, participants were also asked to fill in a short questionnaire asking about their dietary habits.

The moderator made an audio recording of each session and later transcribed it in Chinese. Selected quotes were translated into English by the same author. Marshall and Rossman's (1999) comparison analysis method was used throughout the analysis to link data by constantly comparing and contrasting statements (Strauss, 1987). The full transcripts were read through once without imposing any themes. The transcripts were read through again and notes were made of possible emerging themes. Data were then compared to the themes. Data

was removed once it was coded under a certain theme and this process of reading and coding the data and refining the themes was continued until no further data remained to be coded and the list of themes had stabilised.

RESULTS

At the opening of each of the four sessions, descriptive information was collected from the participants about to their eating habits. This data showed that most of the participants did not bring lunch boxes to school. Sixty percent bought food during every school day. Candy, potato chips and soft drinks were popular. Over ninety percent of the participants reported eating out with friends at least once a week. Shopping for food for the family was rare.

The following themes emerged from the analysis of the qualitative data:

Theme 1: A balanced approach to eating

Having a balanced diet and consuming food at regular times were the most often suggested attributes of healthy eating. The American food pyramid, with its specific proportions of foods from different food groups (such as “three portions of vegetables and two portions of fruit” and “three portions of grain, two portions of vegetables, and one portion of meat”) were frequently mentioned by both male and female participants. Two participants pointed out that they had learned about a healthy diet from government public service advertisements. Eating a narrow range of foods, foods with preservatives or additives, deep fried foods, and fast foods were most often reported as unhealthy. Consuming late night snacks, eating too much, and eating at irregular times were perceived as unhealthy. Certain foods and drinks such as milk, water, meat, fish, and vegetables were perceived as healthy because they contained protein and other nutrients. Three female participants mentioned the need to include milk in a healthy diet in order to absorb calcium for the bones. No male participants reported this need. One female commented that people need unhealthy foods

once in a while in order to let the body make necessary adjustments. She perceived that eating only healthy foods is not healthy. Participants less often associated quantity of food intake with healthy or unhealthy eating. The following quotes illustrate the findings:

We should follow the food pyramid. That means we should have more vegetables and grains, as well as less meat, oil and salt. Eating according to the right ratio is good. (F, grade 9)

Having a balanced diet is healthy because we can take in every kind of nutrition. (M, grade 9)

We should not be picky on foods because different foods give you different good stuff. (M, grade 8)

Microwave foods and instant foods are unhealthy. They are not nutritious and they contain too much fat. (F, grade 8)

Eating too fast is not healthy. If you eat too fast, you won't notice that you are full. It is likely that you will overeat. (M, grade 9)

We should not eat before we go to bed. This is because our metabolic rate will slow down by then and the extra calories taken will be stored up in the body. (F, grade 9)

Theme 2: The home environment's influence on healthy eating

Participants reported that they most often consume healthy foods at home. They felt that this is because foods prepared at home have less sugar, oil and salt, and are MSG free. They were

also more likely to consume healthy foods at home because their parents were concerned about a healthy diet. Some participants reported that their mothers place restrictions on the quantity of unhealthy foods consumed at home. Two female respondents reported that they consumed healthy food at high end western restaurants when their parents took them out for dinner because the dishes there were prepared from fresh ingredients. One female participant reported that she most often consumes healthy foods when she is sick (presumably the food is supplied by the parent). The following quotes reflect this:

I usually have healthy foods at home. This is because the foods prepared at home have no MSG. The dishes my mom prepares are the healthiest. (F, grade 8)

I usually have healthy foods at home because when my mom is around, she will ask me to eat more vegetables and avoid the junk snacks. (M, grade 9).

Theme 3: The non-home environment's influence on unhealthy eating

Participants reported that they most often consume unhealthy foods at parties, social gatherings and during festivals. Unhealthy foods such as soft drinks, potato chips, and chocolates were often served at birthday parties and gatherings with friends. Participants said they experience peer pressure to prepare or to consume unhealthy foods and snacks in social contexts. A female respondent pointed out that unhealthy snacks were handy, while healthy snacks for parties would take a long time to prepare. She also did not know how to prepare healthy foods for social gatherings. Festivals were frequently reported as moments for consuming unhealthy foods. This was because most Chinese festive foods and candies for Halloween were perceived as being unhealthy. Also, participants commented that when they were celebrating, they tended to overeat a lot. Participants reported that they consume unhealthy foods when they eat out or when they are in a rush. They felt that most of the

(presumably very inexpensive) restaurants where they dine tend to provide unhealthy foods. One female respondent expressed regret that she did not have enough allowance to dine at places that provide more healthy choices. One female participant admitted that she often drank cola while preparing for examinations in order to keep alert. One male participant reported that he often consumes too much meat at barbeque parties, a common leisure activity of Hong Kong teenagers. The following quotes reflect these findings:

At birthday parties, people usually serve chips, chocolates, and soft drinks. If you don't take those foods, someone will always come by and ask you what's wrong with you. Then you think you have an obligation to take those foods. (M, grade 9)

When we are out with friends, we have meals at McDonald's, Kentucky Fried Chicken, and Café de Coral. These are the places that are affordable to us. (F, grade 9)

I usually consume unhealthy foods when I eat outside or when I am in a rush. I need something quick. Fast foods are usually not healthy. The oil for deep frying in fast food restaurants is used over and over again. Sometimes I am in such a rush that I grab a pack of instant noodles at a convenience store and eat it right away. (M, grade 8)

Theme 4: The role of mothers in encouraging healthy eating

Nearly all participants reported that their mothers and other family members encouraged them toward healthy eating. One female participant reported that her mother prepared a variety of healthy dishes so she would not get bored. Two male participants reported that their mothers force them to eat healthy foods. Fathers were not mentioned as someone who encourages the participants to consume healthy foods. Consider the following quotes:

My mother said if I do not take enough nutrition, I will regret it when I get old. When you are over a certain age, it's not easy to absorb calcium and calcium will get lost very fast. Lack of calcium will make you fragile. You'll fall down and break your bone. (F, grade 8)

My mom asked me not to eat too much deep fried stuff. (M, grade 8)

Theme 5: The role of non-family members in encouraging healthy eating

Besides mothers, school teachers and medical professionals were frequently mentioned as socialising agents for healthy eating. A female participant recalled that her primary school teacher helped her to differentiate between healthy and unhealthy foods. Participants reported that secondary school science and biology teachers often include health issues such as calorie intake, balanced diets, as well as healthy food choices in class sessions. Medical professionals (doctors and nurses) during routine check-ups also reminded participants about the importance of healthy eating. No participants reported that friends encouraged them to eat healthily. One female participant expressed concern that a classmate often replaced regular meals with cans of soft drinks. She advised her not to do so, but the advice landed on deaf ears. The following quotes illustrate the findings:

My biology teacher teaches us to count the calories for our food intake and warns us to pay more attention to what we eat. I think it works. (F, grade 9)

Doctors who conduct the routine check-up for us ask us not to eat too much snacks between meals. (M, grade 9)

A fear appeal was usually adopted by socialising agents in communicating about healthy eating. Participants reported that they were often being warned by parents and family members about the undesirable consequences of unhealthy eating, such as heart problems and kidney malfunction. Participants did not recall a variety of message appeals. For example, none of the respondents mentioned the socialising agents' using any social acceptance appeal. Overall, however, the positive impact of healthy eating did not seem to have top-of-mind status with these participants.

Theme 6: Banning of soft drinks as a way to discourage their consumption

Focusing on soft drinks as an unhealthy food, the moderator proposed four measures to discourage their consumption: banning the sale of soft drinks in schools and sports centers, imposing a ban on the advertising of soft drinks, making the purchase of soft drinks more expensive, and providing free drinking water everywhere. A majority of the participants considered imposing a ban on the sale of soft drinks in schools and sports centers as potentially effective. Participants remarked that young people are lazy, especially after a serious workout. They would not bother to bring their own soft drinks to school and sports centers, so a ban would force them to drink water or other healthy alternatives. This proposal generated the most heated debate in the focus groups. A female participant perceived that it would be unpopular, while a male participant considered it unreasonable. One female participant worried that if someone were prohibited from buying soft drinks at schools and sports centers, they would drink even more elsewhere.

Imposing a ban on advertising soft drinks was considered ineffective by a majority of participants. They expressed the view that people receive product messages from a variety of sources including point-of-purchase displays, supermarket stocks, other consumers, and consumption of the product by media celebrities in television programs and movies (i.e. product placements). As advertising was only one of the many ways of promoting the product,

imposing a ban on one source would not make much difference.

Participants expressed diverse opinions about the effectiveness of making soft drinks more expensive and providing free drinking water everywhere. Increasing the price of soft drinks was considered effective mostly by male participants, as they consider price an important factor in purchase decisions. A male participant said that if a can of soft drink cost HK\$15 (about one pound), he would give up drinking them. Another male participant thought that it would certainly work with poor people. Female participants had more reservations about the effectiveness of the measure. One female participant said that people had already made up their minds about soft drinks. Those who really love soft drinks would save money from other sources to buy them anyway.

Some participants, mostly males, considered making drinking water more widely available potentially effective because it would be convenient and money saving. There were female and male disagreements with this proposal. One male participant said he was not fond of water because it did not taste good. He would rather choose something sweet. One male participant expressed concerned about hygiene. He worried that drinking fountains in the street would be contaminated. People might spit in them or use them to wash their hands. He would not dare drink from them. One female participant commented that people would queue up for the free water. Someone queuing at the back would go away.

DISCUSSION

The observed strong emphasis of a balanced diet indicates that the students' perceptions of healthy and unhealthy eating have been shaped by formal health educational sources including the schools and the government. The top-of-mind recall of food pyramids and the government's campaign themes indicated that these messages were well received among the participants. It demonstrates the international influences of Western medical science on Asian adolescents as the food pyramid is common to all OECD nations. This result was consistent

with that of a survey of 152 adolescents in Hong Kong which found that government publicity was an important socialising agent for healthy eating (Chan, et al., 2008 in press). The emphasis on a balanced diet and regular meal times was in line with the Chinese emphasis on the “golden mean” (Shih, 1996). It supports the findings of a previous study which found that health perceptions among Chinese people are rooted in complex Chinese traditional philosophies, including the theory of yin and yang and the five phases, as well as the concepts of personhood in Confucianism, Taoism and Buddhism (Shih, 1996).

The data suggest that perceptions of healthy eating are to some extent gender dependent. Hong Kong boys and girls feel that they have different nutrition needs. Female participants mentioned the importance of calcium intake, as advised sometimes by their mothers, but none of the male participants reported calcium as important. The females’ awareness of calcium intake in a healthy diet may also have been generated from heavy commercial advertising campaigns in Hong Kong featuring calcium loss among seniors, especially female seniors. Iron deficiency, a scientifically more relevant concern for this age group, was never mentioned in any group session, by boys or girls.

The situations in which healthy and unhealthy eating behaviors are practiced illustrate the tension between the domestic setting and social settings, as well as the competition between parents and the peers as socialising agents. Adolescents are more likely to practice healthy eating at home, under the watchful eyes of their mother, while are more likely to succumb to interpersonal influence to consume unhealthy foods in social contexts. Negative peer influence on healthy eating is consistent with what has been observed in previous research (e.g. Kelly, Turner and McKenna, 2006). Conforming to peer pressure and a lack of financial resources were identified as major reasons for consuming unhealthy foods. As friends were identified as socialising agents that cultivate unhealthy eating, there is a need to educate adolescents about how to cope with peer pressure in this regard. Public service advertisements might emphasise healthy eating in social contexts.

Mothers were identified as the most important socialising agents encouraging healthy eating, while fathers' influence was minimal. This result is consistent with the results of a survey of 3,151 university freshmen in Hong Kong showing that fathers were not perceived as influential in encouraging physical activities. The researchers attributed that finding to traditional Chinese parenting roles, where mothers are expected to ensure that children are well fed, clothed, and prepared for school (Au, 2006).

School teachers were also identified as important socialising agents in cultivating healthy eating. A female participant even recalled a kindergarten teacher advocating a healthy diet. This result is consistent with previous findings that schools play an important role in health education (Lee et al., 2003). School teachers at all levels (kindergartens, elementary and secondary schools) have an important role to play. The results suggest, though, that school teachers are exerting informative influence rather than normative influence.

The data suggest a lack of a variety in the appeals used by different socialising agents. Fear (the threat of being ill if you eat unhealthy foods) was frequently mentioned, but no other appeal was reported by the participants. Previous research has found that many adolescents do not perceive a need or urgency to adopt healthy eating because the long term benefits of good health seem too far away. As a result, the perceived benefits fail to outweigh the short-term advantages of convenience and immediate gratification (Neumark-Sztainer et al., 1999). The results of this study therefore point to the need to use more diverse appeals such as social acceptance or love to encourage healthy eating. The results also suggest that science teachers are more ready than others to share with students about healthy eating. An implication is that public healthy educators should enhance health education and health communication skills among school teachers at all levels and in all subjects in order to widen the impact on adolescents.

Regarding measures to discourage unhealthy eating, the results show that imposing a ban on the sale of unhealthy foods in schools and sports centers was predicted to be most

effective. This indicates that convenience and immediate gratification were considered determining factors in the purchase decisions of these adolescents. Participants generally did not see imposing a ban on advertising unhealthy foods as likely to be effective. This indicates that they perceive themselves as independent decision makers who are resistant to the manipulative power of advertising. It also suggests that measures aimed directly at their behavior might be more effective than measures aimed at influencing their behavior indirectly through cognition and affection, at least in the short term. The other two proposals to discourage unhealthy eating (making soft drinks more expensive and providing free water everywhere) evoked divided opinions. There is an indication that opinions are associated with gender. Male adolescents responded as if they were more sensitive to price change than the females. Female adolescents may not consider price an important factor in snack purchase decisions. The lack of confidence of water from drinking fountains may arise from the Hong Kong tradition of people using filtered or boiled tap water for drinking.

FUTURE RESEARCH DIRECTIONS

The results of this exploratory research suggest a number of theoretically-grounded hypotheses. The impact of situational influences on consumer behavior is well known (Belk, 1975). Situational influences appear to affect the propensity to consume healthy or unhealthy food, with adolescents more likely to consume unhealthy foods when away from home and in the presence of peers. Outside the home, adolescents mimic the behavior of their peers in order, presumably, to win their approval.

H1: Adolescents are more likely to engage in unhealthy food consumption when outside the home than when at home.

H2: There is a positive relationship between an adolescent's susceptibility to peer influence

and the consumption of unhealthy food.

Source credibility theory could be used to explain the apparent impact of family sources in communicating healthy eating to adolescents. Source credibility theory has its origins in persuasion research. A source with high credibility is generally more persuasive than a low-credibility one (Horai, Naccari and Fatoullah, 1974; Hovland and Weiss, 1951; Johnson and Izzett, 1969; Kelman and Hovland, 1953; Lirtzman and Shuv-Ami, 1986; Maddux and Rogers, 1980; Powell, 1965; Ross, 1973). Persuasiveness is normally measured in terms of how often credible sources persuade audiences to change their beliefs, attitudes or behavior. Credibility has been operationalised as expertise and trustworthiness (Hovland, Janis and Kelley, 1953). *Expertise* refers to the extent to which a source is perceived to be capable of making correct assertions, and *trustworthiness* refers to the degree to which an audience perceives the assertions made by a source to be ones that the source considers valid (Hovland, Janis and Kelley, 1953). The higher the perceived trust and expertise of the source of a communication, the more likely that a recipient will accept it and be persuaded it (Hovland and Weiss, 1951; Hovland, Janis and Kelley, 1953; Sternthal, Phillips and Dholakia, 1978). Possible hypotheses grounded in source credibility theory are:

H3: Mothers are perceived as being a more credible source of healthy eating messages than other family members, government, teachers, friends, or private companies.

H4: Mothers are perceived as being a more persuasive source of healthy eating messages than other family members, government, teachers, friends, or private companies.

Product involvement may also provide a useful theoretical framework for explaining how adolescents perceive healthy eating and healthy eating communication, and might also

explain the apparent gender differences in perceptions of healthy eating and healthy eating communication. Petty and Cacioppo (1979) found that when the issue is a highly involving one, persuasion is inhibited. Consistent with this, research has shown that when issue involvement was low, a highly credible source was more persuasive than a low-credibility one (Johnson and Scileppi, 1969; Johnston and Coolen, 1995; Petty and Cacioppo, 1981b; Petty, Cacioppo and Goldman, 1981; Rhine and Severance, 1970). This would appear to be in line with the elaboration likelihood model (ELM), in that high involvement should motivate diligent assessment of the message. When issue involvement is low, recipients seem to be unwilling to devote much effort to judging the message, and instead rely on a peripheral cue. Source credibility in this case acts as a peripheral cue. In contrast to these results, Chebat, Filiatrault and Perrien (1990) found that source credibility had an effect on message acceptance in both low- and high-involvement situations. This contradicts the prediction of the ELM (Petty and Cacioppo, 1981a), and suggests that the moderating role of involvement warrants further research.

H5. The effect of perceived credibility on the persuasiveness of a source will be more pronounced for those with low healthy eating involvement than for those with high healthy eating involvement.

Looking more specifically at how adolescents respond to messages and actions encouraging healthy eating, the hierarchy of effects process model (Lavidge and Steiner, 1961), which uses a traditional cognitive-affective-behavioral framework, might usefully be applied. Based on the focus group findings, tentative hypotheses structured in terms of the hierarchy of effects could be:

H6: In the short term, actions aimed directly at adolescents' eating behavior are more

effective in influencing that behavior than actions aimed at influencing the adolescents' knowledge of or attitude towards healthy eating habits.

H7: In the longer term, healthy eating messages aimed at influencing adolescents' knowledge of or attitude towards healthy eating habits are more effective in influencing their eating behavior than actions aimed directly at the behavior.

CONCLUSION

To recap, effective health communication needs to be based on a sound knowledge of young people's perceptions about healthy eating habits, their perceptions of which practices are healthy and unhealthy, their perceptions of the various socialising agents and other sources communicating with them about healthy eating habits, and their perceptions of different communication appeals regarding healthy eating.

This study was designed to address the dearth of research in this area by using an interpretive approach to explore adolescents' perceptions of healthy eating and communication about healthy eating. The findings show that adolescents' perceptions of healthy and unhealthy eating tend to focus on the composition of the diet, the nature of the foods being consumed, and the timing and quantity of food intake. In terms of socialising agents, participants reported that it is parents and teachers who most often advise them to eat healthy foods. The participants predicted that imposing a ban on the sale of soft drinks in schools and sports centers and/or increasing the price of soft drinks would be effective in discouraging their consumption.

As befits inductive research of this nature, the findings from the focus group sessions were used to generate theoretically-grounded hypotheses for future researchers to examine. The examination of these hypotheses is important. Having a rigorous understanding of the antecedents and consequences of communication aimed at encouraging healthy eating may

alleviate considerable personal and social cost.

REFERENCES

Ambler, T. (2006), "Does the UK promotion of food and drink to children contribute to their obesity?", *International Journal of Advertising*, Vol. 25 No. 2, pp. 137-156.

Au, C. K. F. (2006), "The perceived influence of socializing agents on Hong Kong youth's entry into sports participation", in Johns, D. P. and Lindner, K.J. (Eds), *Physical Activity and Health of Hong Kong Youth*, pp. 151-166, Chinese University Press, Hong Kong.

Belk, R. W. (1975), "Situational variables and consumer behavior", *Journal of Consumer Research*, Vol. 2 December, pp. 157-164.

Center for Science in the Public Interest (2003) Pestering parents: How food companies market obesity to children. Download from <http://www.cspinet.org/new/200311101.html>.

Chan, K., Prendergast, G., Gronhoj, A. and Bech-Larsen, T. (2008, in press), "Communicating healthy eating to adolescents", *Journal of Consumer Marketing*.

Chebat, J. C., Filiatrault, P. and Perrien, J. (1990), "Limits of credibility: The case of political persuasion", *Journal of Social Psychology*, Vol. 130, pp. 157-167.

Children's Council Working Committee (2005). *Report on the Rights of Children in Hong Kong*. Download from http://www.crin.org/docs/resources/treaties/crc.40/Hong%20Kong_children_report.pdf.

Department of Health (2005), Healthy lifestyle to tackle obesity. Download from <http://www.info.gov.hk/dh/new/index.htm>.

Dixey, R., Sahota, P., Atwal, S. and Turner, A. (2001), "Children talking about healthy eating: Data from focus groups with 300 9-11 year-olds", *Nutrition Bulletin*, Vol. 26 No. 1, pp. 71-79.

Eysenck, M. (1998), *Psychology: An Integrated Approach*, Addison Wesley Longman, England, UK.

Hesketh, K., Waters, E., Green, J., Salmon, L. and Williams, J. (2005), "Healthy eating, activity and obesity prevention: A qualitative study of parent and child perceptions in Australia", *Health Promotion International*, Vol. 20 No. 1, pp. 19-26.

Hovland, C. I., Janis, I. L. and Kelley, H. H. (1953), *Communications and Persuasion: Psychological Studies in Opinion Change*, Yale University Press, New Haven.

Horai, J., Naccari, N. and Fatoullah, E. (1974), "The effects of expertise and physical attractiveness upon opinion agreement and liking", *Sociometry*, Vol. 37 No. 4, pp. 601-606.

Hovland, C. I. and Weiss, W. (1951), "The influence of source credibility on communication effectiveness", *Public Opinion Quarterly*, Vol. 15 No.4, pp. 635-650.

Hui, S. (2001), Health and physical activities in Hong Kong: A review. Hong Kong Sport Development Board Research Report No. 4, March. Download from <http://www.hksi.org.hk/hksdb/html/pdf/research/r2.pdf>.

Information Services Department (2006), 42% of HK teens unhealthy: Survey. Download from <http://www.news.gov.hk/en/category/healthandcommunity/061025/html/061025en05004.htm>

Johnson, H. H. and Izzett, R. R. (1969), "Relationship between authoritarianism and attitude change as a function of source credibility and type of communication", *Journal of Personality and Social Psychology*, Vol. 13 No.4, pp. 317-321.

Johnson, H. H. and Scileppi, J. A. (1969), "Effects of ego-involvement conditions on attitude change to high and low credibility communicators", *Journal of Personality and Social Psychology*, Vol. 13 No. 1, pp. 31-36.

Johnston, L. and Coolen, P. (1995), "A dual processing approach to stereotype change", *Personality and Social Psychology Bulletin*, Vol. 21 No. 7, pp. 660-673.

Kelly, J., Turner, J. J. and McKenna, K. (2006), "What parents think: Children and healthy eating", *British Food Journal*, Vol. 108 No. 5, pp. 413-432.

Kelman, H. and Hovland, C. (1953) "Reinstatement" of the communicator in delayed measurement of opinion", *Journal of Abnormal and Social Psychology*, Vol. 48 No. 3, pp. 327-335.

Lavidge, R. J. and Steiner. G. A. (1961), "A model for predictive measurements of advertising effectiveness", *Journal of Marketing*, Vol. 25 No. 6, pp. 59-62.

Lee, A., Tsang, C., Lee, S. H. and To, C.Y. (2003), “A comprehensive ‘healthy schools programme’ to promote school health: The Hong Kong experience in joining the efforts of the health and education sectors”, *Journal of Epidemiology and Community Health*, Vol. 57 No. 3, pp. 174-177.

Lirtzman, S. I. and Shuv-Ami, A. (1986), “Credibility of source of communication on products’ safety hazards”, *Psychological Reports*, Vol. 58 No. 3, pp. 707-718.

Livingstone, S. (2005), “Assessing the research base for the policy debate over the effects of food advertising to children”, *International Journal of Advertising*, Vol. 24 No. 3, pp. 273-296.

Lobstein, T., Baur, L. and Uauy, R. (2004), “Obesity in children and young people: A crisis in public health”, *Obesity Reviews*, Vol. 5 No. 1, pp. 4-85.

Maddux, J. E. and Rogers, R. W. (1980), “Effects of source expertness, physical attractiveness, and supporting arguments on persuasion: A case of brains over beauty”, *Journal of Personality and Social Psychology*, Vol. 39, pp. 235-244.

Marshall, C. and Rossman, G. (1999), *Designing Qualitative Research* (3rd Edition), CA Sage, Thousand Oaks.

McGinnis, J. M., Gootman, J. and Kraak, V. I. (2006), *Food Marketing to Children and Youth: Threat or Opportunity*, The National Academies Press, Washington, DC.

McNeal, J. U. & Ji, M. F. (1999), “Chinese children as consumers: An analysis of their new product information sources”, *Journal of Consumer Marketing*, Vol. 16 No. 4, pp. 345-364.

Mueller, B. (2007), “Just where does corporate responsibility end and consumer responsibility begin? The case of marketing food to kids around the globe”, *International Journal of Advertising*, Vol. 26 No. 4, pp. 561-564.

Neuman, L. (2003), *Social Research Methods: Qualitative and Quantitative Approaches*, Allyn & Bacon, Massachusetts.

Neumark-Sztainer, D., Story, M., Perry, C. and Casey, M.A. (1999), “Factors influencing food choices of adolescents: Findings from focus-group discussion with adolescents”, *Journal of the American Dietetic Association*, Vol. 99 No. 8, pp. 929-937.

Nutbeam, D. (2000), "Health literacy as a public goal: A challenge for contemporary health education and communication strategies into the 21st century", *Health Promotion International*, Vol. 15 No. 3, pp. 259-267.

Petty, R. E. and Cacioppo, J. T. (1979), "Effects of forewarning of persuasive intent and involvement on cognitive response and persuasion", *Personality and Social Psychology Bulletin*, Vol. 5 No. 2, pp. 173-176.

Petty, R. E. and Cacioppo, J. T. (1981a), *Attitude and Persuasion: Classic and Contemporary Approaches*, IA Brown, Dubuque.

Petty, R. E. and Cacioppo, J. T. (1981b), "Issue involvement as a moderator of the effects on attitude of advertising content and context", in Monroe, K. (Ed.), *Advances in Consumer Research* Vol. 8, pp. 20-24, Association for Consumer Research, Ann Arbor, MI.

Petty, R. E., Cacioppo, J. T. and Goldman, R. (1981), "Personal involvement as a determinant of argument-based persuasion", *Journal of Personality and Social Psychology*, Vol. 41 No. 5, pp. 847-855.

Powell, F. (1965), "Source credibility and behavioral compliance as determinants of attitude change", *Journal of Personality and Social Psychology*, Vol. 2, pp. 669-676.

Raiha, T., Tossavainen, K. and Turunen, H. (2006), "Adolescents' nutrition health issues: Opinions of Finnish seventh-graders", *Health Education*, Vol. 106 No. 2, pp. 114-132.

Reinaerts, E., De Nooijer, J. and De Vries, N.K. (2008), "Using intervention mapping for systematic development of two school-based interventions aimed at increasing children's fruit and vegetable intake", *Health Education*, Vol. 108 No. 4, pp. 301-320.

Rhine, R. and Severance, L. (1970), "Ego-involvement, discrepancy, source credibility, and attitude change" *Journal of Personality and Social Psychology*, Vol. 16 No. 2, pp. 175-190.

Ross, J. A. (1973), "Influence of experts and peers upon Negro mothers of low socioeconomic status", *Journal of Social Psychology*, Vol. 89 No. 1, pp. 79-84.

Schor, J.B. (2004), *Born to Buy: The Commercialized Child and the New Consumer Culture*, Scribner, New York.

Shih, F. (1996), "Concepts related to Chinese patients' perceptions of health, illness and person: Issues of conceptual clarity", *Accident and Emergency Nursing*, Vol. 4 No. 4, pp. 208-214.

Silverman, D. (2005), *Doing Qualitative Research* (2nd Edition), Sage, London.

Sternthal, B., Phillips, L.W. and Dholakia, R. (1978), "The persuasive effect of source credibility: A situational analysis", *Public Opinion Quarterly*, Vol. 42 No. 3, pp. 285-314.

Stevenson, C., Doherty, G., Barnett, J., Muldoon, O.T. and Trew, K. (2007), "Adolescents' views of food and eating: Identifying barriers to healthy eating", *Journal of Adolescence*, Vol. 30 No. 3, pp. 417-434.

Stewart, D.W. and Shamdasani, P. N. (1990), *Focus Groups: Theory and Practice*, Sage, Newbury Park, CA.

Strauss, A.L. (1987), *Qualitative Analysis for Social Scientists*, Cambridge University Press, Cambridge, MA.

World Health Organization (2007), What is the definition of health? Download from www.who.int/suggestions/faq/en

Young, B. (2003), "Does food advertising influence children's food choices? A critical review of some of the recent literature", *International Journal of Advertising*, Vol. 22 No. 4, pp. 441-459.

Young, E.M. and Fors, S.W. (2001), "Factors related to the eating habits of students in grades 9-12", *Journal of School Health*, Vol. 71 No. 10, pp. 483-488.

Appendix 1 English translation of the questions discussed in the focus group sessions

1. Among the 14 pictures of food and drink, which one or two do you think are the most healthy? Which one or two do you think are the least healthy?
2. Some people argue that we should eat in a more healthy way, but there can be different opinions about what this means. To you, what is healthy eating?
3. What is unhealthy eating?
4. In which circumstances do you eat healthy foods?
5. In which circumstances do you eat unhealthy foods?
6. Does anybody try to encourage you to eat more healthy foods? Who encourages you? And how?
7. To discourage people like you from consuming soft drinks, do you think it would be a good idea to:
 - a) impose a ban on the sale of soft drinks in schools and sports centers?
 - b) impose a ban on advertisements for soft drinks?
 - c) make the purchase of soft drinks more expensive?
 - d) make cold water more freely available everywhere?

Appendix 2 A board to open up the discussion



Note: English translation of the labels

(Top row from left to right) noodle with chicken and vegetables, spaghetti Bolognese, fish, diet coke, hot dog

(Middle row from left to right) fruit, deep fried chicken, coke, hamburger, ham sandwich in wheat bread

(Bottom row from left to right) instant noodle, low fat milk, pizza, vegetable salad