Family barriers and facilitators for healthy eating habits among adolescents: abridged secondary publication

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KEY MESSAGES

1. Adolescents lack adequate knowledge of recommended quantities for specific food types, perceive low susceptibility to the harm from unhealthy eating, make unhealthy snacking and food choices in restaurants, and consume insufficient fruits and vegetables.
2. Positive parental attitudes towards healthy eating, provision of healthy foods at home, and parental supervision facilitate healthy eating in adolescents.
3. Family barriers to healthy eating habits include insufficient parental knowledge, time and cost concerns, and limited discussions about food within the family.
4. Strategies to improve healthy eating habits include incorporating healthy ingredients into adolescents' favourite recipes, providing a variety of fruits and vegetables at home, and involving adolescents in meal preparation.

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Introduction

Over 80% of adolescents in Hong Kong have unhealthy diets, which increase their risk of obesity and non-communicable diseases. Most adolescents in Hong Kong consume insufficient fruits and vegetables (FV) but excessive salt and sugar. It is important to understand adolescents' knowledge, attitudes, and practices (KAP) related to healthy eating. Family influences the home food environment of adolescents, which may in turn shape their KAP regarding healthy eating. Parental characteristics (illness experience, knowledge, attitudes, and socioeconomic factors) and food parenting practices (eg, food provision and parental supervision) can affect adolescents' eating habits.[1] This study aimed to explore dietary KAP among adolescents and the associated family facilitators, barriers, and strategies within Chinese families.

Methods

Families with adolescents aged 10 to 19 years who could speak Cantonese were recruited from participants of Trekkers Family Enhancement Scheme that evaluated the effectiveness of a health and social empowerment programme for low-income families.[2] Stratified purposive sampling was applied based on adolescents' daily consumption of FV, age, and sex, as well as household income and attendance at previous nutrition workshops.

Parent-adolescent dyads were interviewed on Zoom by an interviewer trained in qualitative research, with a trained research assistant as an observer. A semi-structured interview guide developed from the KAP framework was used. Questions were directed to the adolescents, and parents provided supplementary responses. Each interview lasted 30 to 60 minutes; data saturation was reached by the 25th interview.

Thematic analysis was conducted in accordance with a six-phase guide.[3] Interview recordings were transcribed verbatim in Chinese and analysed using the NVivo software. Two trained researchers independently coded the transcripts, and inconsistencies were resolved by the team. Adolescents' KAP were categorised into KAP in common and KAP gaps. Family factors were categorised into parental characteristics and food parenting practices.

Results

Of 138 families contacted, 25 agreed to participate (Table 1). Among the adolescents, eight (32%) reported consuming ≥5 servings of FV intake per day (ie, healthy intake). Twenty-one (84%) families had a monthly household income below the population median.

Twelve themes emerged from the interviews and were categorised under the constructs of

TABLE 1. Characteristics of participants (n=25)

Characteristic	Value*
Adolescents	
Sex	
Female	13 (52.0)
Male	12 (48.0)
Age, y	14.84±2.08
12-13	8 (32.0)
14-16	10 (40.0)
17-19	7 (28.0)
Fruit and vegetable intake per day	3.6±1.53
≥5 servings (healthy)	8 (32.0)
3-4 servings (average)	11 (44.0)
1-2 servings (unhealthy)	6 (24.0)
Parents	
Female sex	25 (100)
Age, y	49.24±4.65
40-49	14 (56.0)
50-59	11 (44.0)
Participation in nutrition workshop	10 (40.0)
Household monthly income, HK$	
>27 000	4 (16.0)
20 000-26 999	5 (20.0)
13 500-19 999	8 (32.0)
13 500	8 (32.0)

* Data are presented as mean ± standard deviation or No. (%) of participants.

knowledge (n=4), attitude (n=3), and practice (n=5) [Table 2].

Regarding knowledge, adolescents understood the relative portions but not the recommended quantities for specific food categories. They focused on observable short-term health consequences of unhealthy eating, rather than long-term outcomes. Although they could distinguish between healthy and unhealthy foods based on nutritional content, they could not identify healthy snack options. They were aware of unhealthy cooking methods commonly used in restaurants but were unsure whether healthy menu options were available.

Regarding attitudes, the perceived necessity of healthy eating was primarily influenced by previous experiences with unhealthy eating. Some adolescents perceived a low susceptibility to the health consequences of unhealthy eating due to their young age and 'good' metabolism. Health was not always their top priority when competing with taste and convenience in food choices. Taste was the top priority, especially when eating out or snacking. Some adolescents described their self-efficacy in healthy eating by assessing changes in body shape and balancing diet with exercise; others lacked the necessary food preparation skills for FV.

Regarding practices, adolescents usually ate more balanced meals prepared by their parents at home but preferred less healthy, easy-to-cook options when cooking for themselves. Eating out or getting takeaway food was more common for lunch on school days. Food choices were often based on taste preferences for strong flavours and meat. They occasionally purchased snacks but seldom read nutrition labels, prioritising taste and convenience. Many adolescents consumed insufficient FV because dinner was often the only meal with FV included. Fruit consumption tended to be a family practice, prepared by parents after dinner; only a few adolescents served themselves fruit. Vegetable consumption when eating out was infrequent due to perceived low value for money, limited availability, and unhealthy cooking methods. Snacking was uncommon among adolescents from low-income families, but most snacks available at home were predominantly unhealthy.

Additionally, 14 themes were identified for family factors affecting healthy eating, categorised under parental characteristics (n=8) and food parenting practices (n=6) [Table 3].

Regarding parental characteristics, positive outcomes from healthy eating or chronic illnesses experienced by parents and other family members helped adolescents to develop positive attitudes towards healthy eating, as did parental knowledge of recommended food proportions in a meal and healthy cooking methods. Barriers included a lack of knowledge about the recommended servings and classification of FV, methods for preparing tasty and healthy meals, and alternatives to salty seasonings. Many parents recognised the importance of healthy eating for health but did not practise it for eating out or snacking due to a lack of knowledge about healthy options available. Parents often stocked unhealthy, easy-to-cook foods at home for adolescents to cook for themselves. Lack of time was also a barrier; parents needed to balance between household chores and work, and adolescents often eat out or select takeaway food. Concerns about cost limited eating out and snacking in many families; they often avoided stocking fresh FV, preferring frozen or ready-to-cook meat over more expensive fresh meat.

Regarding food parenting practices, some parents provided nutrition education to their adolescents, which facilitated the latter's dietary knowledge. However, discussions of food-related matters among family members were uncommon. Parents felt it was unnecessary because they believed their eating habits were already healthy. Parental role modelling of healthy eating was perceived as

TABLE 2. Summary of themes for adolescents' knowledge, attitudes, and practices (KAP) related to healthy eating

KAP in common	KAP gaps	
	Insufficiency	Inaccuracy/unhealthy
Knowledge		
1. Dietary recommendations		
• Relative portions of food categories (eg, food pyramid, low sugar, oil, salt)	• Recommended daily servings or allowances (eg, 3-2-1 lunchbox portion, salt content in noodle soup)	• Underestimating recommended servings (eg, one apple daily)
2. Health outcomes of healthy eating		
• Observable short-term outcomes (eg, constipation, body weight, skincare, sore throat)	• Specific benefits of eating fruits and vegetables (eg, reduced body pain, improved skincare, detoxification) • Long-term outcomes (eg, cardiovascular disease, cancer)	
3. Nutrition content in food		
• Food sources of fat, salt, and sugar (eg, seasonings, salty snacks) • Food sources of nutrients (eg, protein, calcium) • Interpretation of nutrition labels or claims	• Healthy snack options (eg, yogurt, fruit, nuts)	
4. Access to healthy meals		
• Unhealthy cooking methods used in restaurant and takeaway food	• Ways to identify healthier menu choices in restaurants	
Attitudes		
5. Outcome expectations for healthy eating		
• Experience of negative outcomes from unhealthy eating habits	• Experience of positive outcomes from healthy eating habits	• Belief that healthy eating is only necessary for older adults and not for young people
6. Food preferences		
• Taste preference for unhealthy food	• Prioritising taste and convenience more than health	• Perceived inferior taste of healthy food
7. Self-efficacy for healthy eating		
• Assessing health by body shape and balancing diet and exercise	• Strategies for healthy eating with friends or on their own • Food preparation skills	
Practices		
8. Grocery shopping for healthy food		
• No habit of reading nutrition labels or health claims	• Reading nutrition labels to identify healthy alternatives • Accompanying parents when grocery shopping	
9. Eating home-prepared meals		
• Meals prepared by parents • Consuming ready-to-eat or easy-to-cook food for breakfast • Eating grains, vegetables, and meat for lunch and/or dinner		• Use of unhealthy ingredients when preparing food for themselves
10. Eating out in restaurants or takeaway food		
• Eating out or buying takeaway for lunch after school	• Infrequent eating out with family or friends	• Availability of unhealthy eating-out options • Occasional purchase of unhealthy takeaway food for family meals

the family norm by adolescents, which facilitated their acceptance and preference for these practices. However, the parental practice of not eating fruit daily was a barrier to healthy eating habits in adolescents. Controlling food provision at home including home-prepared meals, various FV, and snacks was practised by many parents to facilitate their adolescents' acceptance of healthy food and reduce their desire for unhealthy snacks. Involving adolescents in food-related tasks was an effective strategy to empower them to make healthy food choices and prepare healthy meals. This may not be feasible in some families where working parents lack time to supervise cooking by adolescents or children

TABLE 3. Influence of parental characteristics and food parenting practices on adolescents' knowledge, attitudes and practices related to healthy eating

Themes	Family factors		Influence on adolescents*		
	Facilitators	Barriers	Knowledge	Attitudes	Practices
Family health					
1. Illness experience in the family	Witnessing positive health outcomes of healthy eating		+	+	
	Perceived risk of health problems			+	+
Parental knowledge					
2. Dietary recommendations	Ensuring vegetable intake in daily meals	Uncertain about recommended servings and definitions of fruits and vegetables	-	-	+/-
3. Preparation of healthy food	Healthy cooking methods and varied presentations of vegetables	Lack of knowledge about making tasty food that is low in oil and seasonings	+	+/-	+/-
	Balancing health with taste of adolescents in cooking	Lack of knowledge about healthy alternatives to salty seasonings		+	+/-
	Homemade drinks to replace prepackaged beverages				+
4. Healthy food choices		Lack of knowledge about healthy options when eating out			-
		Unhealthy instant food for adolescents to cook for themselves			-
Parental attitudes					
5. Importance of healthy eating	Belief in the impact of eating habits on own and adolescents' health		+	+	+
6. Priority of family health	Consideration of health in food choices	Prioritising taste over health when eating out or snacking		+	+/-
Socioeconomic factors					
7. Time concerns		Lack of time for home cooking			-
		Convenience of eating out or purchasing takeaway food			-
		Prioritising adolescent school schedules over healthy eating habits			-
8. Cost concerns	Saving money by limiting eating out and snacking	Choosing frozen or ready-to-cook meat for lower cost			+/-
		Concern about food waste limits the stocking of fresh fruit at home			-
Food parenting practices					
9. Nutrition education	Education on health outcomes of eating habits	Limited discussion of food-related issues within the family	+/-		
	Education on healthy eating-out options		+		
10. Role modelling	Parental practices of healthy eating	Parents lacking a habit of daily fruit consumption		+/-	+/-
11. Food provision	Regular home-prepared meals			+	+
	Various fruits and vegetables at home	Unhealthy snacks at home		+/-	+/-
	Ready-to-eat fruits				+
12. Child involvement	Joint decision-making about healthy food choices during grocery shopping	Parents with little time to supervise meal preparation by adolescents	+/-		
	Involving adolescents in food preparation	Adolescents with no responsibility for food preparation	+/-		+
	Ready-to-cook food available for adolescents				+
13. Parental supervision	Monitoring and prompting food consumption	Lack of control over or supervision of adolescents' eating habits	+/-	+	+/-
	Setting food rules and explaining expectations		+		+
14. Cultivation of food preference	Highlighting positive attributes of fruits and vegetables (eg, taste and fun)			+	+
	Considering adolescents' preferences when preparing home meals, fruits, and vegetables			+	+

* '+' denotes effect of facilitator, and '-' denotes effect of barrier

were exempted from food-related responsibilities. Monitoring, reminders, and rules facilitated healthy eating habits among adolescents. Nonetheless, the belief that their adolescents were old enough to make their own food decisions, especially regarding snacking, was an unintentional barrier. Parents reported strategies such as highlighting the positive attributes of healthy food and considering their adolescents' food preferences during meal preparation could cultivate healthy food practices.

Discussion

Adolescents had general knowledge of healthy eating and perceived its importance for short-term health outcomes. Most reported a lower frequency of eating out and snacking compared with Asian adolescents in a previous study.[4] The lower household incomes (and thus smaller food budgets) of our participants may partly explain this difference.

A lack of knowledge about the recommended quantities of specific food types could lead to non-adherence to dietary recommendations. The uncommon inclusion of healthy snacks such as nuts, corn, and raw vegetables in the traditional Chinese diet, along with a lack of awareness of healthier options available in restaurants, form barriers to adopting healthy snacking and eating-out practices.

Many adolescents perceived a low susceptibility to the potential harms of unhealthy eating and were unaware of the cumulative metabolic risks associated with it. They were unwilling to prioritise health over taste, convenience, and cost. Emphases on the immediate and visible health benefits of healthy eating may be more effective efforts to engage adolescents.

Adolescents in Chinese families often have limited responsibility in home meal preparing and thus lack skills to cook healthy meals for themselves. Insufficient FV intake is partly related to the Chinese practice of eating cooked vegetables and serving fruit at the end of a meal, and partly due to the inconvenience of preparation. Serving FV on more occasions and making ready-to-eat FV more available may facilitate sufficient intake.

Key family facilitators included positive parental attitudes towards healthy eating, provision of healthy food, and parental supervision. Main barriers were deficiencies in parental dietary knowledge, time and cost concerns, and limited family discussions of food-related matters. A knowledge deficit in dietary recommendations appears common among adults across Eastern and Western regions. Time and cost concerns were the main family barriers to healthy eating practices among adolescents, consistent with findings from a previous study.[5] Some parents tended to prioritise cost and convenience over health in food decisions, which unintentionally led to similar attitudes in their adolescents. Regular family discussions of food-related matters could increase adolescents' awareness of healthy eating.

Families reported strategies to improve healthy eating habits among adolescents such as incorporating healthy ingredients into adolescents' favourite recipes, providing a variety of FV at home, and involving adolescents in meal preparation. These strategies demonstrated an authoritative parenting style that combines regulation with consideration of adolescents' food preferences in meal preparing, home food environment, and cooking skills education. Such approaches may also increase adolescents' self-efficacy to healthy eating.

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2. Liu KSN, Chen JY, Sun KS, Tsang JPY, Ip P, Lam CLK. Adolescent knowledge, attitudes and practices of healthy eating: findings of qualitative interviews among Hong Kong families. Nutrients 2022;14:2857.

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